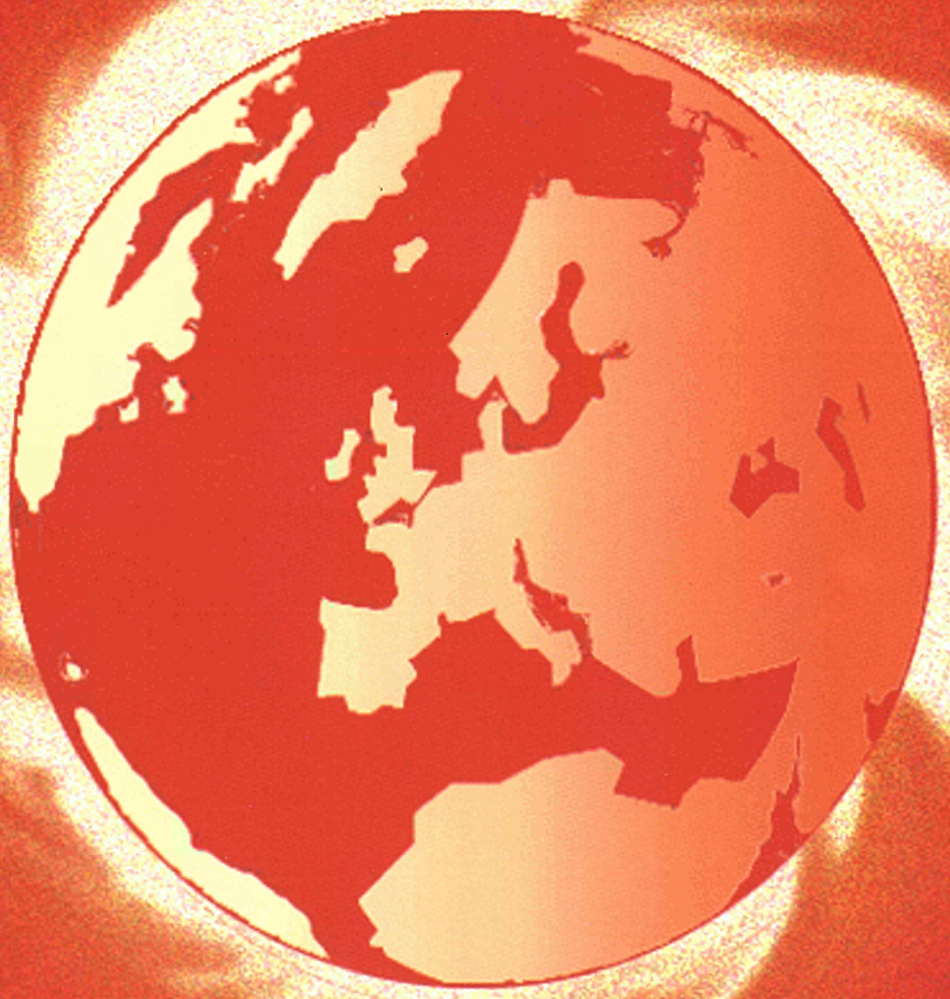
EUROPEAN COMMISSION

ENERGY IN EUROPE

1998 – ANNUAL ENERGY REVIEW

SPECIAL ISSUE – DECEMBER 1998



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Includes a CD-Rom with global energy balances and indicators for 127 countries in the world

EUROPEAN COMMISSION

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ABBREVIATIONS, DEFINITIONS AND UNITS

CIS	Community of Independent States
DG II	Directorate-General for Economic Affairs of the European Commission
DG XVII	Directorate-General for Energy of the European Commission
EFTA	European Free Trade Association
Energy Intensity	Ratio of Energy Consumption to GDP
EU	European Union
GCC	Gulf Co-operation Council
GDP	Gross Domestic Product
GIC	Gross Inland Consumption
GW	GigaWatt, or 10^9 Watt
IEA	International Energy Agency
IMF	International Monetary Fund
Kgoe	Kilogram oil equivalent
kl	Thousand litre
kWh	Thousand Watt.hour
l	Litre
MECU	Million ECU
Mt	Million metric tonne
Mtoe	Million toe
NAFTA	North American Free Trade Agreement
OECD	Organisation for Economic Co-operation and Development (excluding Hungary, Czech Republic and Poland)
OLADE	Organizacion Latinoamericana de Energia
S	Sulphur
SOEC	Statistical Office of the European Communities
STEO	Short-Term Energy Outlook for the European Union
t	Metric tonne, or 1.000 kilograms
toe	Tonne of oil equivalent, or 10^7 kilocalories, or 41.86 GJ
TWh	Tera Watt.hour, or 10^{12} Watt.hour
UN	United Nations
WB	World Bank

FOREWORD BY MR. CHRISTOS PAPOUTSIS,
Member of the Commission responsible for energy and Euratom Supply Agency

The Council of Ministers adopted in November the Community Framework Programme providing the basis for increasing cooperation in addressing the three pillars of energy policy increasing competitiveness, integration of environmental concerns and ensuring security of supply.

The adoption of the Gas Directive in May confirmed the continuing development of the energy internal market begun earlier with the entry into force of the Electricity Directive. This modernising of the gas and electricity market structures supports the Unions' policy of increasing employment by improving competitiveness and at the same time contributes to the enhancement of its security of supply.

The importance of the second pillar of energy policy was confirmed when the May Council provided, on the basis of a contribution from the Commission, the initial energy strategy response to the Kyoto Protocol which had been negotiated at the end of 1997. Upon ratification of the Protocol, the European Union will commit itself to reducing a basket of six greenhouse gases by 8 % in the commitment period 2008 to 2012 over 1990 levels. This challenge requires new policy responses – business-as-usual will not be sufficient.

Reflecting these developments, the Energy Council at its meeting on 13th November adopted the Community Framework Programme providing for closer energy cooperation between Member States. This framework recognises the

need for higher quality information and in-depth analysis in formulating policies, in monitoring their impact on market trends and on their links with other relevant policies. Shared analysis, the continuous dialogue with stakeholders contributes to closer integration and cooperation between energy, environment and other policies which determine market realities in both the EU and at world level.

This present review reports some particularly important trends. The links between energy and other economic activities (i.e. energy intensity) seems to be changing. Improvements in industrial energy intensity have begun to show signs of slowing down following a period of continuous improvement over two decades. At the same time, transport energy intensity seems for the first time to be stabilising and in some Member States may indeed be reporting improvement in intensity. Given the importance of how efficiently we use energy, these trends will be closely monitored. In the meantime, our overall policy response is to give priority in developing our efficiency programmes.

At the Earth Conference in 1992, the EU unilaterally undertook to stabilise carbon dioxide emissions at 1990 levels by 2000. The short-term forecast published here suggests that this objective may indeed be within reach. While the outline for energy and the subsequent CO_2 emissions associated with such demand depend in the short-term largely on weather conditions; there is optimism that the Rio de Janeiro 1992 commitment will be met.

The Energy Council in its report to the European Council in Vienna confirms the need for continual monitoring and analysis of developing trends on a permanent basis. The Annual Energy Review will develop the range of information and indicators in response to new need identified by Member States, economic and other stakeholders.

ENERGY HIGHLIGHTS...

... IN THE EUROPEAN UNION:

- energy consumption declined 1 % in 1997 after having grown 3.7 % in 1996;
- gas use increased strongly (11 %) while solid fuel consumption decreased (0.3 %) in 1996. In 1997 both gas (-0.3 %) and solid fuel (-2.0 %) declined;
- final energy demand was driven by rapid growth in the tertiary-domestic sector (7.7 % in 1996);
- indigenous production peaked at 770 Mtoe in 1996 – nuclear energy was the major source with a 28 % share;
- energy intensity increased 2.0 % in 1996 due to cold weather, but the prevailing trend over the 90's is still declining (-0.2 % p.a.);
- carbon dioxide emissions returned to the 1990 level and according to the forecast the stabilisation target of year 2000 is within reach.

... AND IN THE WORLD:

- energy demand grew rapidly in some areas (Asia, Middle East, Latin America) while it declined in others (FSU, CEEC), resulting in a modest overall growth during the 90's (1.3 % p.a.);
- energy use in transport and in the tertiary-domestic sector was buoyant;
- while oil remains the most popular fuel natural gas is growing fastest;
- oil prices weakened sharply in late 1997 and early 1998 to a level previously observed in early 70's;
- OECD gained market share in world energy production (38.8 %);
- since 1994, energy intensity has been stagnant;
- carbon dioxide emissions were 7 % higher in 1996 than in 1990.

EXECUTIVE SUMMARY

WORLD

PRIMARY ENERGY CONSUMPTION IS GROWING

• Between 1990 and 1996 world primary energy consumption grew by 1.3% per year, following different regional trends:
• Energy needs continued to increase in the OECD area by 1.7% per year on average;
• In the non-OECD world, growth in demand was limited to 1% annually due to the significant decreases in Central and Eastern Europe (-2% per year on average) and the former USSR (-5.9%);
• Demand grew rapidly in the Middle East (+4.6%), in Asia (+4.7%) and in Latin America (+3.1%).

MARKED DEVELOPMENT IN 1995 AND 1996

• Since 1995, energy consumption has rebounded sharply in Central and Eastern Countries. Consequently, world energy consumption has shown a growth of about 2.7% per year in 1995 and 1996, contrasting with a limited increase of only 0.7% between 1990 and 1994;

INCREASING DEMAND IN TRANSPORT AND TERTIARY-DOMESTIC

• The final energy consumption per sector showed very contrasted evolutions since 1980.
• Energy consumption for transport was increasing regularly since 1980 by about 2% per annum in both OECD and non-OECD regions as a whole. The near future will be marked by two major elements: the increasing contribution of transport in final energy demand (from 23.2% in 1980 to 26% in 1995) and the very sustained growth in emerging regions (7.5% per year since 1990 in Asia and 5.1% in Latin America).
• Energy consumption in the tertiary and domestic sector is dependent on weather conditions. It increased on average by 1.8% since 1980, with a contrasting evolution between OECD region (+0.9% per year) and non-OECD region (+2.6% per year) due to increasing living standards in these regions. Consequently, the share of the OECD region declined from 48% in 1980 to 42% in 1995.
• Energy consumption by industry in 1995 was almost equal to the 1980 level and 5% below the peak reached in 1988. Even if this is the consequence of the sharp decline in CEEC and CIS, the long-term evolution integrates all the efforts made by industry to reduce specific energy consumption. Although consumption declined in the OECD region by 1% on average per year since 1980, it grew by 0.8% in non-OECD regions. Their share rose from 52% in 1980 to 59% in 1995.

THE FUEL MIX IS CHANGING IN FAVOUR OF GAS

• Since 1990, natural gas consumption is growing faster than overall energy consumption despite diminishing gas demand in countries in transition. Demand accelerated sharply in 1995 and 1996 around the world with the exception of the NAFTA region;
• Oil remains the predominant energy source, keeping its share of 37% since 1990. Oil consumption is driven by developing regions, -Asia, Latin America and the Middle East - that increased their share in world oil consumption from 22.5% in 1990 to 29% in 1996;
• Solid fuels have been steadily losing market shares since 1990, principally in the European Union. The consumption, increasingly concentrated in the power sector, was progressively displaced from OECD region to the non-OECD region. Asia, in particular, absorbed 40% of the world consumption in 1996 against 32.7% in 1990;
• The carbon-free energy sources (nuclear and renewables) showed the most spectacular growth since 1990, with an average increase of 2.1% per year. Renewable energy sources accounted for 11.5% of total needs in 1996, the same level as in 1990. About 50% of world biomass production remained located in Asia.

THE ROLE OF ELECTRICITY STRENGTHENED

• Electricity is the most rapidly growing component of final energy demand throughout the world. In the OECD region, electricity demand grew four times faster than total final energy demand since 1980 and more than twice in the non-OECD region. Since 1990, electricity generation increased by 2.3% world-wide, mainly due to sustained growth in non-OECD regions:
• Nuclear production increased fastest even though capacity increased by only 6% 1990;
• Hydro production continued to increase, with major developments in Asia and Latin America, sustained by improved hydraulic conditions in 1995;
• The contribution of thermal generation increased slowly, below 2% per year on average. Solid fuels largely dominated fuel consumption, with a major predominance in producing countries (United States, China, CIS). Gas utilisation has been doubling since 1980, and this trend will be accentuated with the increasing contribution of Independent Private Producers (IPPs) based on gas combined cycle units.

OECD REGION HAS BEEN INCREASING ITS CONTRIBUTION TO WORLD ENERGY PRODUCTION

• Since 1990, OECD production has grown by 1.8% per year, twice as fast as non-OECD production. Major gains occurred in the EFTA

region (+9% per year since 1990), in Latin America (+4.9%) and in Asia (+3.6%);

• The 90's were marked by substantial cutbacks of production in CEEC and CIS countries. Although production rebounded in CEEC in 1995, it still declined by 0.3% in CIS in 1996;

• The OECD production gains were mainly in oil (+13% since 1990) gas (+21%) and nuclear (+22%), while non-OECD countries primarily increased their solid fuel production (+7%) and renewables (+7%);

• European oil and gas production continued to expand. Led by increased production in Norway, overall oil production in the North Sea rose by more than 7% in 1996 and Norway rose to the second rank amongst oil-exporting countries in the world.

OECD ENERGY IMPORTS REMAINED STABLE IN THE 90'S

• In 1996, OECD absorbed about 80% of world inter-regional net exchanges (87% in 1990), but all these exchanges represented only 13% of total world energy consumption;

• The European Union remains by far the world's largest importer with a steady annual growth of 0.9% since 1990. In 1996, the European Union absorbed about 47% of world inter-regional net exchanges. OECD Pacific, the next largest importer, grew by 1.2% per year since 1990 and NAFTA imports, the third largest, grew more than three times;

• Asia continuously increased its imports (+20% per year between 1990 and 1995) even if they seem to have stabilised in 1996;

• Net exporters remained, traditionally, the Middle East (797 Mtoe in 1996), Africa (330 Mtoe), CIS (261 Mtoe) and EFTA (167 Mtoe);all four mainly exporters of hydrocarbons;

• OPEC continued to dominate the oil market and Russia accounted for 38% of natural gas trade in 1996.

WORLD ENERGY INTENSITY STABILISED SINCE 1994

• World energy intensity improved by about 1% per year between 1990 and 1994 but has since remained stable;

• OECD regions that presented the lowest energy intensity improved their performance marginally since 1990;

• The rest of the world was characterised by a substantial reduction of its energy intensity (-1.6% per year on average since 1990) despite the marked increase in CIS (+3.5% per year) and in the CEEC (+1.8% per year). Asia demonstrated the major improvement since 1990, at about 2.7% per year on average.

WORLDWIDE CO_2 EMISSIONS INCREASED BY 7% BETWEEN 1990 AND 1996

• Worldwide emissions of CO_2 increased steadily by only 0.5% between 1990 and 1994, benefiting from the rapid decline in CIS (-8.1% per year on average). Driven by economic growth and cold weather conditions in the Western Hemisphere, worldwide CO_2 emissions increased by 2.4% both in 1995 and 1996;

• Since 1990, CO_2 emissions have been increasing in almost all regions in the world, in some cases by more than 5% per year (Asia and Middle East). The European Union (+0.3% per year) benefited from energy efficiency and carbon intensity improvements.;

• Excluding former Centrally Planned Economies (CEEC and CIS), world emissions grew by 2.7% per year on average since 1990;

• As a consequence of rapid electrification in developing countries, power generation remained by far the largest contributor (33% of total emissions in 1995), followed respectively by transport sector (20%), industry (18%) and tertiary-domestic sector (17%);

EUROPEAN UNION

MINOR CHANGES IN ENERGY CONSUMPTION

• Due to colder weather alone, energy demand increased strongly in 1995 (+2.3%) and 1996 (+3.7%) after an apparent stabilisation between 1990 and 1994. In 1997, with equivalent weather conditions to 1990, gross inland consumption declined by 1%;

• Gross inland consumption was 6.4% higher in 1997 than in 1990 (excluding the effects of EU expansion), while GDP showed 14.6% growth, indicating a 4.5% energy intensity improvement since 1990;

• Gross inland consumption (+1.3% per year between 1990 and 1996) grew slower than final energy demand (+1.5%) as a result of efficiency improvements in thermal power stations (39% in 1996 against 36.9% in 1990);

• The tertiary-domestic was the fastest growing (+7.7%) of the final use sectors in 1996 as degree-days representative of heating requirements increased by about 13%. Year-to-year changes of energy demand in this sector continue to be strongly tied to weather;

• Industrial consumption of energy in 1996 was still 1% below the 1990 level, but has shown growth since 1994 (+2.4% per year on average). It grew 3.5% in 1996 compared with a 0.1% increase in industrial production, implying a 3.4% increase in industrial energy intensity;

• Transport energy demand has increased 1.8% p.a. since 1990 compared to 4.7% in the second half of the 80's. Observations both at the European and Member State level seem to indicate that the transport energy intensity might have reached its peak at the beginning of the 90's.

EXECUTIVE SUMMARY

FUEL SWITCHING IN FAVOUR OF GAS

• Natural gas demand increased by 3.3% in the period 1991-1994, despite the economic recession. 8% in 1995 and even 11% in 1996 due to weather conditions and increasing consumption in power generation. In 1997, consumption stabilised as a result of warmer temperature. Resource availability, government energy and environmental policy and infrastructure development all favour increased use of natural gas;

• Due to the weather effect, oil consumption increased by 2.2% in 1997 but slowed down by 2.3% in 1997. Since 1990, all the increases in oil product consumption, about 44 Mtoe, concentrated on medium distillates: kerosene due to the liberalisation of air transport, heating oil as a temperature effect and diesel due to growing freight transportation and increasing diesel car fleets;

• Solid fuels steadily lost shares on all markets even though consumption for power generation has stabilised since 1994. Total solid fuel consumption is now 24% lower than in 1990;

• Electricity consumption continued to grow more rapidly than final demand, except in 1996. Progressively, electricity share in final consumption stabilised at a little under 20%, the development of new applications being compensated by the introduction of more energy-efficient equipment when renewing obsolete appliances;

• Short-term evolution demonstrated that nuclear and thermal production contributed equally to incremental electricity production but in the near future, as the prospects for new nuclear capacities are very limited, the bulk of incremental production will be covered by thermal units;

• The increasing liberalisation of gas and electricity markets will favour the use of gas in power generation, especially in combined cycle units and combined heat and power units.

INDIGENOUS PRODUCTION PEAKED AT 770 MTOE IN 1996

• After a steady decrease between 1986 and 1992, indigenous energy production rebounded sharply showing an accelerating growth rate: 2.1% in 1994, 2.5% in 1995 and 3.7% in 1996;

• Oil production showed an average annual increase of 5.2% since 1990, driven by the application of more efficient and economical offshore exploration. The oil import dependency declined from 84.6% in 1990 to 79.3% in 1996;

• The recent increase in natural gas production was really impressive, with a progression of 4.4% in 1995 and 13.2% in 1996. Consequently, gas import dependency remained almost stable at 40% despite the rapid increase of consumption, +37% since 1990;

• Solid fuels, after declining by about 35% between 1990 and 1994, stabilised progressively in 1995 and 1996. Solid fuel import dependency increased from 29% in 1990 to 40% in 1996;

• Thanks to an improving utilisation rate of its capacity - one of the best performances in the world - nuclear production grew faster than gross inland consumption, adding to energy self-sufficiency since 1990;

• In 1996, the contribution of renewable energy sources represented 9.8% of total primary energy production and 5.3% of gross inland energy consumption;

• Total energy import dependency remained unchanged at around 47% since 1990. The net import of energy represented 680 Mtoe globally in 1996, and increased by 0.9% per year on average since 1990.

CONTRASTED EVOLUTION OF ENERGY CONSUMER PRICES IN 1996

• Exceptionally cold weather conditions boosted oil prices on international markets in 1996 (+21% for crude oil), and prices stabilised at the 1996 level in 1997;

• Oil product prices on the EU market increased only moderately (2.3% for gasoline, 5.7% for diesel, 8.5% for heating oil and 6.1% for heavy fuel oil) due to the effect of excises and taxes in price mechanisms;

• At the same time, natural gas and solid fuel prices continued to decline on all markets, increasing their competitiveness. Electricity prices also benefited from these evolutions;

• Compared to the prices of the main competitors inside OECD, European energy prices for industry cannot compete with those of the United States, with price differences of between 30 to 45%. This price comparison was and remains even more unfavourable compared to non-OECD regions.

MIXED MESSAGES ON ENERGY INTENSITIES

• Overall energy intensity declined on average by 0.2% between 1990 and 1996, but increased by 2% in 1996 as a result of increasing heating demand generated by colder weather. When climatic corrections are taken into account, total energy intensity improved by 0.6% on average since 1990;

• The power sector, despite a continuous increase in thermal production, managed to stabilise its energy intensity since 1990, thanks to spectacular efficiency gains;

• The domestic and tertiary sector energy intensity improved markedly by about 0.8% per year on average, when climatic corrected energy consumption was considered;

• The transport sector continued to increase its energy intensity, but the growth diminished spectacularly from 1.6% per year on average between 1985 and 1990 to only 0.4% between 1990 and 1996. Apparently the first sign of stabilisation appeared in 1993, but this will have to be confirmed in the near future.

CO_2 EMISSIONS INCREASED BY 5% IN 1995 AND 1996

• Driven by climatic conditions, CO_2 emissions diverged in 1995 and 1996 from the observed trend in the first half of the 90's. Emissions increased 1.8% in 1995 and 3.6% in 1996 to be about 2% over the 1990 level. Considering the expected reduction of about 2% in 1997, this corresponded to an overall stability in the period 1990-1997;

• Carbon intensity declined by 0.9% per year on average between 1990 and 1996. At the same time, per capita CO_2 emissions declined by 0.1% per year and the CO_2 emissions per unit of GDP decreased by 1.1% per year on average.

SHORT-TERM ENERGY OUTLOOK FOR THE EUROPEAN UNION

• By combining the forecast growth of the European economy (excluding impact of Asian crisis) and the return to long-term average temperatures, the result is a total primary energy demand growth of 1.2% on average between 1998 and 2000;

• Gross inland energy consumption will increase by about 50 Mtoe until 2000. Although oil contribution will remain stable, solid consumption will show a 22 MTOE reduction and natural gas consumption will increase by 61 Mtoe, nuclear and renewable energies covering the difference;

• Improvement of energy efficiencies, mainly in the power sector, associated with an increasing consumption of natural gas, diminishing the carbon intensity, will stabilise the CO_2 emissions in the year 2000 at around the 1990 level.

The World is divided into the following regions:

EUROPEAN UNION

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom;

EFTA

Iceland, Norway and Switzerland;

NAFTA

Canada, Mexico and the United States of America;

OECD PACIFIC

Australia, Japan and New Zealand;

OTHER OECD COUNTRIES

Include EFTA, NAFTA, OECD Pacific regions and Turkey;

Rem : The new members (Czech Republic, Hungary, Poland and South Korea) are still considered in their original region to respect the coherence of the analysis;

CENTRAL AND EASTERN EUROPE

Albania, Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia and former Yugoslavia;

BALTIC STATES

Estonia, Latvia and Lithuania;

CIS

Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan;

AFRICA

North Africa (Algeria, Egypt, Libya, Morocco and Tunisia) and Sub-Saharian Africa including all other African countries;

MIDDLE EAST

Bahrain, Israel, Iran, Iraq, Lebanon, Kuwait, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates and Yemen;

ASIA

China, Newly Industrialising Economies (Hong Kong, Singapore, South Korea and Taiwan) and all other Asian countries not included elsewhere and the Pacific islands;

LATIN AMERICA

Brazil, Venezuela and all other Central and South American countries.

Data cover the period from 1980 to 1996 for the OECD Countries and up to 1995 for all non-OECD Countries.
Data for 1996 in non-OECD Countries are shown wherever provisional figures were available.
The STEO covers the period from the first Quarter 1998 to the fourth Quarter of 2000.

THE LIST OF DATA SOURCE IS:

• All European Union and its Member States energy data were taken from the Statistical Office of the European Communities (SOEC). Data on electricity generating capacities were provided by ESAP (Belgium);

We call the reader's attention to the fact that data for the STEO are based on monthly statistics while all other data are based on annual balance sheets; The difference between monthly and annual series may sometimes be significant;

• Energy data for all other OECD Countries came from the International Energy Agency (IEA) energy balances; The respective macroeconomic and population data were taken from OECD, UN, World Bank and IMF statistics; Data on electricity generating capacities were provided by ESAP (Belgium);

• All energy data for non-OECD Countries, except Central and Eastern Europe and the former USSR, and Latin America came from the IEA energy balances; the respective macroeconomic and population data were taken from both UN, World Bank and IMF statistics; Wherever available, data on electricity generating capacities were provided by ESAP (Belgium); provisional data for 1996 in the non-OECD Countries are derived from "BP Statistical Review of World Energy 1996" and from " International Energy Annual" provided by the Energy Information Administration, US Department of energy;

• All energy data for the Central and Eastern European Countries and the former USSR came from the IEA energy balances; The respective macroeconomic and population data were taken from the UN, World Bank, IMF and PlanEcon statistics; Wherever available, data on electricity generating capacities were provided by ESAP (Belgium); provisional data for 1996 in the non-OECD Countries are derived from "BP Statistical Review of World Energy 1996" and from " International Energy Annual" provided by the Energy Information Administration, US Department of energy;

• All data for Latin American Countries came from IEA and were checked against the respective energy balances provided by the OLADE; the respective macroeconomic and population and electricity generating capacities data were taken from the UN, OECD, World Bank and IMF statistics, completed with the OLADE statistics; Wherever available, data on electricity generating capacities were provided by ESAP (Belgium); provisional data for 1996 in the non-OECD Countries are derived from "BP Statistical Review of World Energy 1996" and from " International Energy Annual" provided by the Energy Information Administration, US Department of energy;

• Prices of oil products came from DGXVII statistics; Average prices for other fuels (solids, natural gas and electricity) were taken from the IEA "Energy Price Statistics".

Difficulties in collecting data for non-OECD Countries lead us to advise a degree of caution regarding the data quality in these cases. Thus, comparisons between series of absolute values should be regarded as purely indicative.

A FEW WORDS ON METHODOLOGY AND DEFINITIONS ARE NECESSARY.

GENERAL

• **Primary hydro-electricity** production is considered in terms of net calorific value (1 GWh = 86 toe) and **primary nuclear** production is calculated as fuel equivalent to produce the same amount of electricity in a power station with a thermal efficiency of 33%.

• **Biomass** data for OECD Countries (excluding European Union Member States) correspond to what the IEA shows in its energy balances under "Other Solid Fuels". Data for all non-OECD Countries correspond to IEA and UN data under the designation of "Vegetal Fuels". These data have been deeply revised for the present edition. In the case of the European Union see below.

• **Primary heat** (geothermal energy) is considered as being exclusively used for power generation. **Heat** shown in the final demand section is exclusively derived from other fuels (power generation and district heating). In the case of the European Union see below.

• In the **World Summary Energy Balance, gross energy consumption** corresponds to the total primary energy consumed including quantities delivered to marine bunkers. **Total final energy consumption** (TFEC) does not include any quantities used for non-energy purposes.

• **Energy intensity** is defined as the ratio of energy consumption to an economic activity indicator. In the case of total energy intensity, the ratio is between the Gross Inland Consumption and GDP.

• **CO_2 emissions** are given only on an indicative basis and were calculated using common emission factors across all countries. At world level, CO_2 emissions resulting from bunker fuels were included in the tables similarly to those resulting from fuels sold to airline transport.

EUROPEAN UNION

• The SOEC energy balance now available includes additional information on **renewable energy sources** (biomass, solar, wind and geothermal). The data related to renewable energy sources are available since 1985. This limits the analysis for Member States to the period 1985-1995 to ensure consistency in the times series.

• Data for **Germany** include both the former West Germany and the former German Democratic Republic.

More detailed definitions are shown in SOEC and IEA publications.

PART I WORLD

WORLD: Major trends (1980-1996)

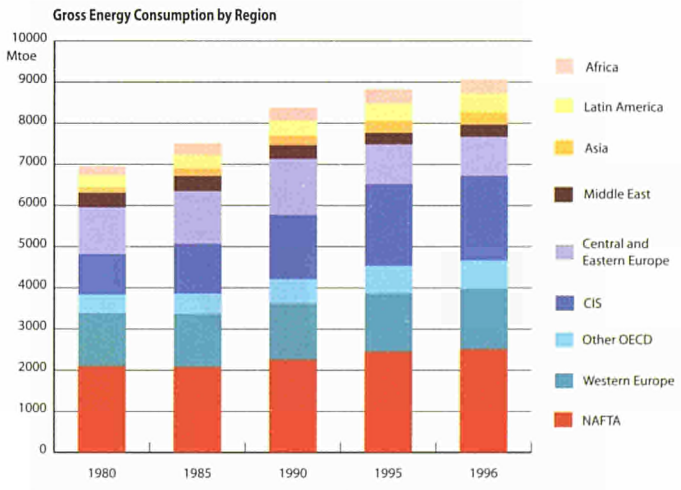
- World energy consumption increased by only 1.3% per year since 1990, with a marked acceleration in 1995 and 1996…
- Final energy consumption, driven by transport and domestic sectors, increased by 1.1% annually since 1980
- World energy production still dominated by oil, with 37%, and by NAFTA region contributing to 25%
- Energy production marked by a 27% reduction in CIS since 1990
- OPEC still covers 40% of world oil production
- Exceptionally cold weather boosted oil prices in 1996
- World gas production, marked in the early 90's by a cut in CIS production, increased by 5.2% in 1996
- Solid production accounted for 24% of world energy production, a stable contribution since 1980
- Prospects for increasing nuclear contribution are diminishing
- Asia accounted for 50% of world biomass production
- Electricity share in final energy consumption increased by one third since 1980
- Inputs for electricity generation increasingly dominated by solid fuels
- Refinery capacities increased only in non-OECD region since 1985
- World GDP growth accelerated since 1994 under the pressure of developing regions
- World energy consumption per capita stable but Asia grew by 60% since 1980
- World energy intensity stabilised since 1994
- Excluding former Centrally Planned Economies, world CO_2 emissions grew by 2.7% on average since 1990
- The contribution of CO_2 emissions from power generation increased from 28% in 1980 to 34% in 1996
- OECD absorbed about 80% of world interregional exchanges of energy

ENERGY OUTLOOK

Total gross energy consumption increased by only 1.3% per year since 1990, with a marked acceleration in 1995 and 1996…

Total **gross energy consumption** in the world as a whole increased from 1980 to 1996 by about 1.7% per year, but by only 1.3% since 1990. The developments in the period are characterised by a faster growth in the non-OECD area during the 80's (2.9% per year against 0.9% per year in the OECD). However, while the OECD area continued to increase its energy needs by 1.7% per year on average since 1990, the non-OECD world had a slight growth in demand limited to 1.0% 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 (-5.9% per year on average) that was just about compensated by the buoyant demand in the Middle East (+4.6% per year on average), in Asia (+4.7%) and in Latin America (+3.1%). 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.

The future evolution of gross energy consumption will be deeply influenced by the restructuring of eastern economies. This will lead to the restart of industrial activities and of the economy as a whole with, as a consequence, increasing consumption of energy. On the other hand, the economic crisis in East Asia that began in the summer of 1997 and continued to deepen into the winter of 1998, will certainly, in the short term, affect GDP and energy consumption growth in Asia, the most buoyant region these last fifteen years. These recent economic events highlighted the uncertainties attached to economic growth in both short- and long-term.



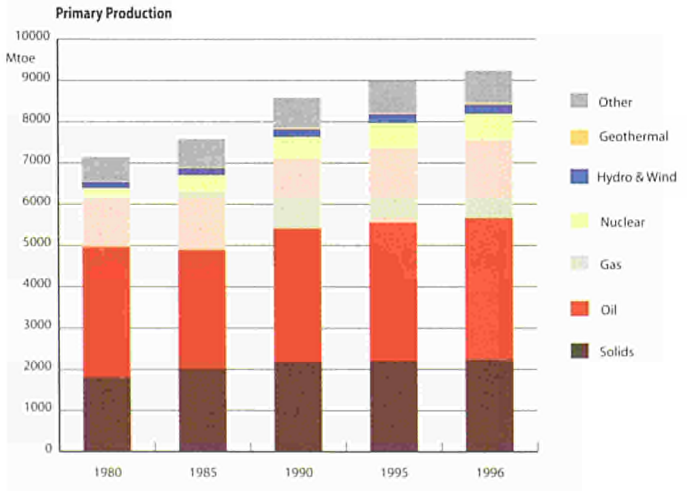
TOTAL GROSS ENERGY CONSUMPTION : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
World	7073.6	7616.0	8357.4	8508.7	8744.1	8967.6	9212.2	1.5%	2.2%	0.7%	2.6%	2.7%
Bunkers	109.0	94.8	104.2	118.3	125.6	129.4	130.0	-2.8%	4.5%	1.5%	3.0%	0.5%
Western Europe	1282.0	1285.6	1339.1	1363.8	1386.2	1417.1	1468.4	0.1%	1.2%	0.4%	2.2%	3.6%
European Union	1240.8	1240.5	1292.8	1315.3	1335.1	1366.2	1417.3	0.0%	1.2%	0.4%	2.3%	3.7%
EFTA	41.1	45.1	46.3	48.6	51.1	50.9	51.0	1.9%	1.5%	1.3%	-0.4%	0.4%
Rest of OECD	2561.0	2577.6	2800.2	2852.5	3071.6	3123.8	3205.3	0.1%	2.0%	1.9%	1.7%	2.6%
NAFTA	2103.6	2086.3	2259.7	2259.9	2424.2	2454.6	2512.5	-0.2%	1.6%	1.8%	1.3%	2.4%
OECD Pacific	426.1	452.4	493.8	540.1	590.7	607.0	627.3	1.2%	3.6%	2.3%	2.8%	3.3%
Central and Eastern Europe	354.0	370.1	381.4	335.7	269.8	281.0	297.0	0.9%	-1.9%	-5.3%	4.1%	5.7%
CIS (1)	1133.0	1276.5	1394.5	1354.8	990.6	958.9	943.2	2.4%	1.2%	-7.5%	-3.2%	-1.6%
Africa	220.6	285.2	317.0	321.5	348.1	357.3	367.1	5.3%	2.4%	2.0%	2.6%	2.7%
Middle East	133.3	191.4	229.1	237.1	286.3	295.7	311.3	7.5%	4.4%	4.8%	3.3%	5.3%
Asia	980.2	1211.2	1432.2	1563.3	1867.1	1988.3	2055.2	4.3%	5.2%	4.5%	6.5%	3.4%
Latin America	300.6	323.6	359.8	361.8	398.7	416.1	434.7	1.5%	2.3%	2.5%	4.4%	4.5%
of which (%)												
European Union	17.5	16.3	15.5	15.5	15.3	15.2	15.4	-1.5%	-1.0%	-0.3%	-0.2%	1.0%
OECD	54.3	50.7	49.5	49.6	51.0	50.6	50.7	-1.4%	-0.5%	0.7%	-0.7%	0.2%

(1) Including Baltic countries for statistical reasons

Final energy consumption, driven by transport and domestic sectors, increased by 1.1% annually since 1980…

The **final energy consumption** per sector showed very contrasting evolutions. Energy consumption for transport, still the minor contributor, was increasing regularly since 1980 by about 2% per annum in both OECD and non-OECD regions as a whole, the share of OECD being stable around 69%. The near future will be marked by two majors elements: the increasing contribution of transport in final energy demand (from 23.2% in 1980 to 26% in 1995) and the very sustained growth in emerging regions (7.5% per year since 1990 in Asia and 5.1% in Latin America). Energy consumption by tertiary and domestic sector depends heavily on climatic conditions. It increased on average by 1.8% since 1980 with a contrasted evolution between OECD region (+0.9% per year) and non-OECD region (+2.6% per year) due to increasing living standards in these regions. Consequently the OECD share declined from 48% in 1980 to 42% in 1995. Energy consumption by industry was almost equal in 1995 to the 1980 level and 5% below the peak reached in 1988. Even if this is the consequence of the sharp decline in Eastern countries, the long term evolution integrates all the efforts made by industrials to reduce specific consumption per unit produced. Although consumption declined in the OECD region by 1% on average per year since 1980, it grew by 0.8% in non-OECD regions, increasing their share from 52% in 1980 to 59% in 1995. As a result of these regional evolutions, it is clear that the evolution in non-OECD regions will be the leading force for the future.



Total energy production marked by a 27% reduction in CIS since 1990…

Total world **energy production** (equivalent to gross energy consumption aside from some stock variations and statistical errors) increased from 1980 to 1995 by about 1.6% per year, with a contrasted evolution in the 90's. Growth was limited to 0.5% per annum the first four years but jumped by 2.6% in both 1995 and 1996. This recent trend is marked by the impressive reduction of energy production in CIS (-441 Mtoe or a reduction by 27% between 1990 and 1996) and CEEC (-21 Mtoe or a reduction by 9%) compensated by increases in all other regions in the world, mainly in Asia (+360 Mtoe or +24%), in the Middle East (+171 Mtoe or +18%), in NAFTA countries (+141 Mtoe or +7%), in Latin America

TOTAL ENERGY CONSUMPTION BY INDUSTRY : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
World	1893.4	1888.8	2013.8	1961.4	1869.7	1904.5	na	0.0%	0.8%	2.3%	1.9%	na
Western Europe	321.4	281.1	285.8	279.6	262.7	267.7	276.6	-2.6%	-0.1%	0.5%	1.9%	3.3%
European Union	310.7	269.8	275.7	269.7	252.6	257.4	266.4	-2.8%	0.0%	0.4%	1.9%	3.5%
EFTA	10.7	11.3	10.2	9.8	10.1	10.3	10.2	1.0%	-2.8%	3.1%	2.1%	-0.5%
Rest of OECD	581.9	541.4	566.5	509.7	509.5	519.7	533.9	-1.4%	-1.2%	1.9%	2.0%	2.7%
NAFTA	465.6	423.3	443.1	378.6	376.1	383.3	395.1	-1.9%	-2.2%	2.0%	1.9%	3.1%
OECD Pacific	109.7	110.4	113.9	120.2	122.6	124.3	125.9	0.1%	1.7%	1.8%	1.3%	1.3%
Central and Eastern Europe	123.7	119.7	111.0	98.3	65.1	69.2	na	-0.7%	-3.8%	-0.4%	6.3%	na
CIS (1)	399.7	386.1	413.5	413.5	264.7	245.6	na	-0.7%	1.4%	-1.2%	-7.2%	na
Africa	42.0	46.2	49.1	49.7	43.3	45.3	na	1.9%	1.5%	-1.6%	4.6%	na
Middle East	36.4	40.4	37.3	32.6	41.4	47.2	na	2.1%	-4.2%	7.0%	14.0%	na
Asia	304.4	385.4	454.4	483.5	579.1	601.6	na	4.8%	4.6%	5.4%	3.9%	na
Latin America	83.8	88.7	96.1	94.5	103.9	108.2	na	1.1%	1.3%	3.2%	4.1%	na
of which (%)												
European Union	16.4	14.3	13.7	13.8	13.5	13.5	na	-2.7%	-0.8%	-1.8%	0.0%	na
OECD	47.7	43.5	42.3	40.2	41.3	41.3	na	-1.8%	-1.6%	-0.9%	0.1%	na

TOTAL ENERGY CONSUMPTION BY TRANSPORT : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
World	1138.9	1221.3	1366.0	1424.4	1484.7	1533.2	na	1.4%	3.1%	0.7%	3.3%	na
Western Europe	197.1	210.7	243.7	264.4	283.3	286.8	294.7	1.3%	4.6%	1.3%	1.3%	2.7%
European Union	189.2	201.8	233.6	253.6	272.2	275.7	283.3	1.3%	4.7%	1.4%	1.3%	2.8%
EFTA	7.8	8.9	10.1	10.8	11.1	11.1	11.4	2.5%	4.0%	0.5%	0.6%	2.7%
Rest of OECD	583.5	602.2	669.3	687.7	740.5	757.8	778.2	0.6%	2.7%	2.7%	2.3%	2.7%
NAFTA	502.2	515.5	570.2	577.7	617.3	629.3	644.8	0.5%	2.3%	2.6%	1.9%	2.5%
OECD Pacific	75.7	80.1	90.4	100.5	112.3	116.3	120.5	1.1%	4.6%	3.0%	3.6%	3.6%
Central and Eastern Europe	25.4	23.9	26.9	28.0	22.6	23.2	na	-1.2%	3.2%	-0.1%	2.3%	na
CIS (1)	123.8	134.1	144.6	139.9	65.5	66.1	na	1.6%	0.9%	-26.9%	1.0%	na
Africa	30.8	35.5	37.1	37.4	39.1	40.5	na	2.9%	1.1%	2.3%	3.7%	na
Middle East	33.2	46.9	44.8	48.2	56.8	56.5	na	7.2%	0.5%	3.9%	-0.6%	na
Asia	78.2	99.7	123.0	141.1	184.0	202.7	na	5.0%	7.2%	7.6%	10.2%	na
Latin America	67.0	68.2	76.5	77.7	93.0	99.6	na	0.4%	2.6%	6.4%	7.1%	na
of which (%)												
European Union	16.6	16.5	17.1	17.8	18.3	18.0	na	-0.1%	1.5%	0.6%	-1.9%	na
OECD	68.5	66.6	66.8	66.8	69.0	68.1	na	-0.6%	0.1%	1.6%	-1.2%	na

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

Mtoe	1980	1985	1988	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
World	1875.3	2079.5	2250.2	2246.5	2390.1	2459.2	na	2.1%	1.6%	0.3%	2.9%	na
Western Europe	359.3	368.8	364.6	357.7	372.6	382.6	411.7	0.5%	-0.6%	0.5%	2.7%	7.6%
European Union	344.9	353.3	348.6	341.5	356.0	365.5	393.8	0.5%	-0.7%	0.5%	2.7%	7.7%
EFTA	14.4	15.5	16.0	16.2	16.7	17.1	18.0	1.5%	0.9%	-0.2%	2.7%	4.9%
Rest of OECD	548.3	564.7	607.4	593.9	636.8	653.0	679.7	0.6%	1.0%	1.8%	2.6%	4.1%
NAFTA	464.7	467.0	496.0	476.7	506.1	516.6	540.4	0.1%	0.4%	1.6%	2.1%	4.6%
OECD Pacific	70.1	82.6	94.2	100.2	112.8	117.0	119.4	3.3%	4.0%	2.6%	3.7%	2.1%
Central and Eastern Europe	98.7	101.2	105.6	89.0	76.7	77.2	na	0.5%	-2.6%	-3.6%	0.6%	na
CIS (1)	267.3	322.9	345.1	345.6	373.9	373.0	na	3.9%	1.4%	-8.0%	-0.2%	na
Africa	104.7	128.4	140.7	146.9	163.2	169.3	na	4.2%	2.7%	2.7%	3.7%	na
Middle East	17.9	30.4	59.1	62.9	83.7	84.4	na	11.2%	15.6%	5.4%	0.8%	na
Asia	413.1	488.1	546.0	565.9	592.2	625.9	na	3.4%	3.0%	3.7%	5.7%	na
Latin America	66.0	74.9	81.7	84.7	90.9	93.7	na	2.6%	2.5%	2.0%	3.1%	na
of which (%)												
European Union	18.4	17.0	15.5	15.2	14.9	14.9	na	-1.6%	-2.2%	0.3%	-0.2%	na
OECD	48.4	44.9	43.2	42.4	42.2	42.1	na	-1.5%	-1.2%	1.0%	-0.3%	na

(1) Including Baltic countries for statistical reasons

TOTAL PRIMARY ENERGY PRODUCTION : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
World	7148.9	7587.4	8338.5	8589.0	8770.2	8997.9	9234.4	1.2%	2.5%	1.5%	2.6%	2.6%
Western Europe	671.5	819.1	847.1	835.6	907.6	936.6	989.7	4.1%	0.4%	2.9%	3.2%	5.7%
European Union	607.9	735.7	741.7	704.4	724.5	741.9	769.6	3.9%	-0.9%	1.9%	2.4%	3.7%
EFTA	63.6	83.4	105.4	131.2	183.1	194.7	220.0	5.6%	9.5%	7.2%	6.4%	13.0%
Rest of OECD	2062.1	2229.2	2325.1	2388.1	2509.2	2539.8	2590.0	1.6%	1.4%	1.5%	1.2%	2.0%
NAFTA	1910.0	2005.5	2081.5	2117.5	2206.6	2215.4	2258.1	1.0%	1.1%	1.2%	0.4%	1.9%
OECD Pacific	134.8	201.9	219.1	244.9	276.6	298.2	305.1	8.4%	3.9%	4.2%	7.8%	2.3%
Central and Eastern Europe	268.3	287.2	289.1	238.0	209.5	212.7	216.9	1.4%	-3.7%	-0.8%	1.5%	2.0%
CIS (1)	1358.9	1517.0	1682.4	1631.6	1228.3	1194.7	1190.9	2.2%	1.5%	-6.0%	-2.7%	-0.3%
Africa	492.6	530.1	567.4	618.3	652.2	672.9	700.6	1.5%	3.1%	1.6%	3.2%	4.1%
Middle East	999.5	599.2	835.6	949.6	1082.5	1102.0	1121.1	-9.7%	9.6%	3.1%	1.8%	1.7%
Asia	969.0	1235.9	1389.1	1507.5	1700.8	1816.9	1866.6	5.0%	4.1%	5.1%	6.8%	2.7%
Latin America	327.0	369.7	402.8	420.4	480.3	522.3	558.7	2.5%	2.6%	5.3%	8.8%	7.0%
of which (%)												
European Union	8.5	9.7	8.9	8.2	8.3	8.2	8.3	2.7%	-3.3%	0.4%	-0.2%	1.1%
OECD	38.2	40.2	38.0	37.5	39.0	38.6	38.8	1.0%	-1.4%	0.4%	-0.8%	0.3%

(1) Including Baltic countries for statistical reasons

(+139 Mtoe or +33%), in EFTA countries (+89 Mtoe or +68%) and in Africa (+82 Mtoe or +13%).

World energy production still dominated by oil, with 37% of total energy production…

In 1996, oil was still the most important fuel with 37% of the total (44% in 1980). Its production and consumption, however, have grown three times slower than total energy even though they jumped by 1.8% and 2.8% these last two years. The second most important fuel remained solid fuels which kept a constant share of about one-quarter. Natural gas ranks third in meeting world needs with 21% in 1996 (18% in 1980) and it presented an accelerating growth since 1980, if we exclude a relative slowdown between 1990 and 1995 only due to the particular economic situation in the CIS. Renewable energy sources (hydro, geothermal, biomass and wind) come fourth in satisfying world energy consumption with almost 11% in 1996 (10% in 1980) and have had an annual average growth rate of about 2%. Finally, nuclear energy grew the fastest in the period, mainly up to 1986 (16% per year). Its rate of growth slowed down between 1986 and 1990 to 6% per year and only 3.1% per year between 1990 and 1996.

Between 1980 and 1996, OECD and non-OECD areas had approximately the same growth in total energy production (about 1.6% per year), but evolution was slightly different in time and by regions. Although between 1986 and 1990 the non-OECD world increased its production about three times faster than the OECD, in the 90's the energy production increased twice as fast in the OECD region. Apart from developments in the former USSR and in Central and Eastern Europe, production continued to increase mainly in Asia, in the Middle East and in Latin America.

… and NAFTA region contributed to 24% of world energy production.

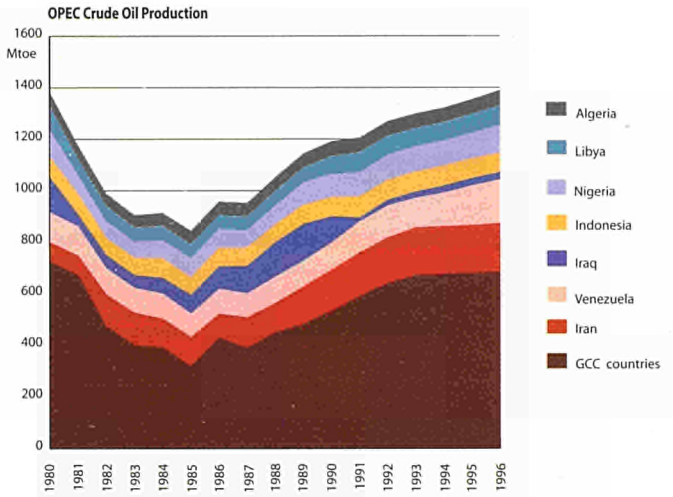
In 1996, to cover energy requirements, energy production increased by 2.6%. In CEEC and CIS the stabilised energy production seems to be close to a lower limit of 15% of world production against 23% in 1980. On the other hand, sustained growth was observed in EFTA countries, in Latin America and in Africa. In 1996 the European Union confirmed its upward trend (+3.7%). The main contributor to energy production remained the NAFTA region with about 24% of world production (27% in 1980), followed by Asia with 20% (13% in 1980), CIS with 13% (19% in 1980) and the Middle East contributing with 12% (14% in 1980).

OPEC still covers 40% of world oil production…

Oil remains the dominant fuel in world production and consumption, although as stated above it has lost its share in total energy production. 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 40% in 1996, 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 1996) in line with increasing North Sea production. Since 1990 production losses in CIS and Eastern countries have been compensated mainly by the Middle East (136 Mtoe), Western Europe (118 Mtoe) and Latin America (104 Mtoe), although the NAFTA region, the second world producer, remained stable.

Some key supply developments for 1996 include:

- European oil production continued to expand. Led by increased production in Norway, overall production in North Sea areas rose by more than 7% in 1996 and Norway achieved the second rank amongst oil exporting countries in the world;
- 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 for Argentina, Venezuela, Colombia and Brazil through agreements with foreign investors to revive production from existing oil fields;
- In North America major progress continued in the deep offshore Gulf of Mexico and offshore Eastern Canada

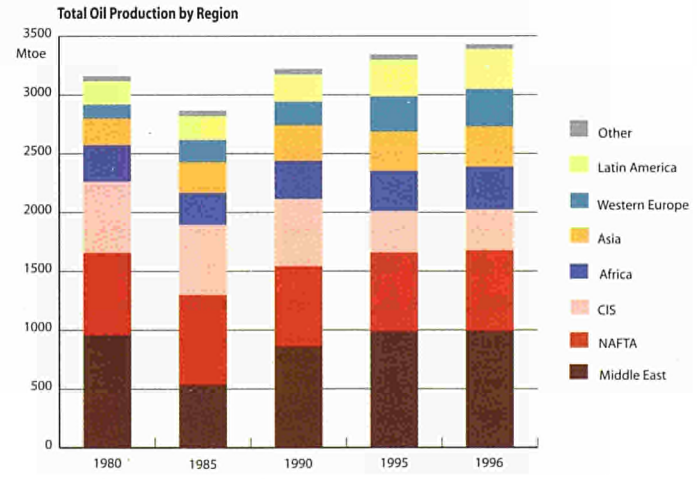


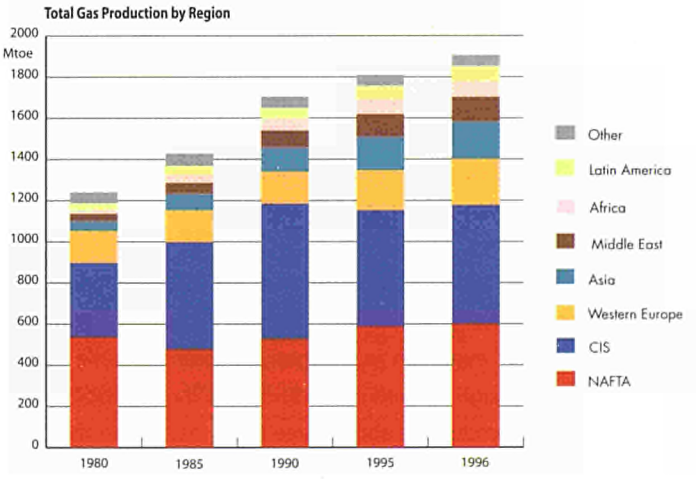
Exceptionally cold weather boosted oil prices in 1996...

Perhaps the most surprising development in world oil markets in 1996 was the strength of oil prices. Early in 1996 most analysts were expecting 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 by more than 500,000 barrels per day in aggregate OPEC supply largely due to the exceptionally cold weather in Europe and the North America. As a consequence, oil prices at the end of 1996 were nearly 40% higher than a year earlier.

Gas production, marked in the early 90's by a cut in CIS production, increased by 5.2% in 1996…

Amongst the fossil fuels, **natural gas** production showed the major increase between 1980 and 1990 with a total gain of 38% but since 1990 the production has increased by only 12% as a consequence of the 14% 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 577 Mtoe in 1996, with a peak of 656 Mtoe in 1990) and the NAFTA region (542 Mtoe in 1980, compared to 602 Mtoe in 1996). Their share in total gas production slowed down from 72% in 1980 to 62% in 1996. Production is increasing fastest in Asia with an annual growth of almost 9% per year on average since 1980. All the other regions are also increasing their production but at more moderate rates. Since 1990, the bulk of consumption increase was issued from power generation.





TOTAL SOLID PRODUCTION : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
World	1806.3	2024.3	2166.0	2190.2	2145.4	2213.9	2234.4	2.3%	1.6%	1.3%	3.2%	0.9%
Western Europe	257.8	240.3	231.1	210.5	137.7	138.2	133.4	-1.4%	-2.6%	-7.8%	0.4%	-3.5%
European Union	257.6	239.9	230.9	210.3	137.4	138.0	133.3	-1.4%	-2.6%	-7.8%	0.4%	-3.5%
EFTA	0.2	0.4	0.2	0.2	0.2	0.2	0.2	12.0%	-10.5%	-6.7%	-3.0%	-21.2%
Rest of OECD	541.0	605.2	647.7	704.8	715.5	722.1	741.4	2.3%	3.1%	1.5%	0.9%	2.7%
NAFTA	470.2	502.5	537.1	580.2	579.2	576.7	593.5	1.3%	2.9%	1.2%	-0.4%	2.9%
OECD Pacific	64.6	92.1	99.2	112.3	124.2	133.4	135.6	7.3%	4.0%	2.7%	7.4%	1.7%
Central and Eastern Europe	189.6	200.4	202.1	164.8	144.1	146.3	150.1	1.1%	-3.8%	-1.3%	1.5%	2.6%
CIS (1)	338.7	312.5	331.8	300.5	210.5	192.2	177.2	-1.6%	-0.8%	-10.4%	-8.7%	-7.8%
Africa	69.8	103.8	109.3	105.7	110.4	115.8	116.0	8.3%	0.4%	3.0%	4.9%	0.2%
Middle East	0.6	0.8	0.8	0.8	0.6	0.7	0.7	6.8%	1.5%	-11.6%	11.8%	0.0%
Asia	402.6	550.8	627.5	684.7	804.9	874.8	889.7	6.5%	4.5%	6.8%	8.7%	1.7%
Latin America	6.2	10.6	15.6	18.3	21.9	23.8	25.9	11.3%	11.5%	7.2%	8.9%	8.6%
of which (%)												
European Union	14.3	11.9	10.7	9.6	6.4	6.2	6.0	-3.6%	-4.1%	-8.9%	-2.7%	-4.3%
OECD	43.9	41.2	40.0	41.2	39.2	38.3	38.6	-1.2%	0.0%	-1.5%	-2.3%	0.7%

TOTAL OIL PRODUCTION : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
World	3162.2	2869.5	3140.6	3223.3	3283.9	3344.3	3431.0	-1.9%	2.4%	1.1%	1.8%	2.6%
Western Europe	119.4	190.5	202.6	201.8	288.6	301.5	320.2	9.8%	1.2%	9.2%	4.5%	6.2%
European Union	94.4	151.0	144.7	117.5	156.6	159.2	159.1	9.8%	-4.9%	9.4%	1.7%	-0.1%
EFTA	25.0	39.5	57.9	84.4	132.0	142.3	161.1	9.6%	16.4%	9.0%	7.8%	13.2%
Rest of OECD	721.8	789.0	758.1	715.0	705.8	704.1	714.1	1.8%	-1.9%	-0.7%	-0.3%	1.4%
NAFTA	697.2	757.1	724.9	680.1	673.0	669.8	679.8	1.7%	-2.1%	-0.7%	-0.5%	1.5%
OECD Pacific	22.2	29.7	30.6	31.2	29.1	30.6	30.7	6.0%	1.0%	-0.4%	5.4%	0.3%
Central and Eastern Europe	20.7	18.9	16.8	14.6	12.9	13.2	13.0	-1.9%	-5.0%	-0.1%	2.5%	-2.1%
CIS (1)	606.2	598.2	627.4	573.5	362.8	353.9	349.2	-0.3%	-0.8%	-8.1%	-2.4%	-1.3%
Africa	310.8	270.5	282.7	323.9	337.3	342.7	361.9	-2.7%	3.7%	0.8%	1.6%	5.6%
Middle East	961.4	542.4	752.8	862.5	978.7	989.1	998.5	-10.8%	9.7%	2.6%	1.1%	1.0%
Asia	226.8	261.4	283.1	304.4	325.0	333.7	342.7	2.9%	3.1%	2.1%	2.7%	2.7%
Latin America	195.1	198.5	217.1	227.5	272.9	305.9	331.5	0.3%	2.8%	6.8%	12.1%	8.3%
of which (%)												
European Union	3.0	5.3	4.6	3.6	4.8	4.8	4.6	12.0%	-7.1%	8.2%	-0.2%	-2.6%
OECD	26.5	34.1	30.5	28.3	30.2	30.0	30.0	5.1%	-3.6%	0.8%	-0.7%	0.3%

TOTAL GAS PRODUCTION : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
World	1240.9	1429.2	1610.1	1705.2	1775.3	1811.4	1906.4	2.9%	3.6%	1.7%	2.0%	5.2%
Western Europe	156.1	155.1	150.3	156.8	187.2	194.8	225.4	-0.1%	0.2%	4.1%	4.1%	15.7%
European Union	133.3	131.7	124.5	132.7	159.6	166.6	188.6	-0.2%	0.1%	4.3%	4.4%	13.2%
EFTA	22.8	23.4	25.9	24.1	27.6	28.3	36.8	0.6%	0.6%	3.1%	2.5%	30.2%
Rest of OECD	549.9	496.2	522.5	553.1	618.5	620.9	634.2	-2.0%	2.2%	2.9%	0.4%	2.1%
NAFTA	539.7	480.0	503.6	530.1	589.8	590.0	602.3	-2.3%	2.0%	2.7%	0.0%	2.1%
OECD Pacific	10.2	16.2	18.8	22.8	28.5	30.8	31.7	9.7%	7.1%	6.1%	7.8%	3.2%
Central and Eastern Europe	43.6	44.2	41.8	32.0	24.3	24.3	22.7	0.3%	-6.2%	-3.0%	-0.3%	-6.5%
CIS (1)	359.6	520.1	622.7	656.3	572.0	564.5	577.2	7.7%	4.8%	-2.9%	-1.3%	2.2%
Africa	20.4	42.5	52.1	61.5	68.3	74.7	80.3	15.8%	7.7%	2.3%	9.3%	7.6%
Middle East	35.8	53.9	79.4	83.7	100.6	109.6	119.3	8.5%	9.2%	8.3%	9.0%	8.8%
Asia	44.8	76.9	97.1	113.7	147.7	161.0	178.3	11.4%	8.1%	6.6%	9.0%	10.8%
Latin America	30.7	40.3	44.2	48.1	56.7	61.6	69.0	5.6%	3.6%	7.7%	8.7%	12.0%
of which (%)												
European Union	10.7	9.2	7.7	7.8	9.0	9.2	9.9	-3.0%	-3.3%	2.6%	2.3%	7.6%
OECD	56.9	45.6	41.8	41.6	45.4	45.0	45.1	-4.3%	-1.8%	1.5%	-0.8%	0.1%

(1) Including Baltic countries for statistical reasons

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

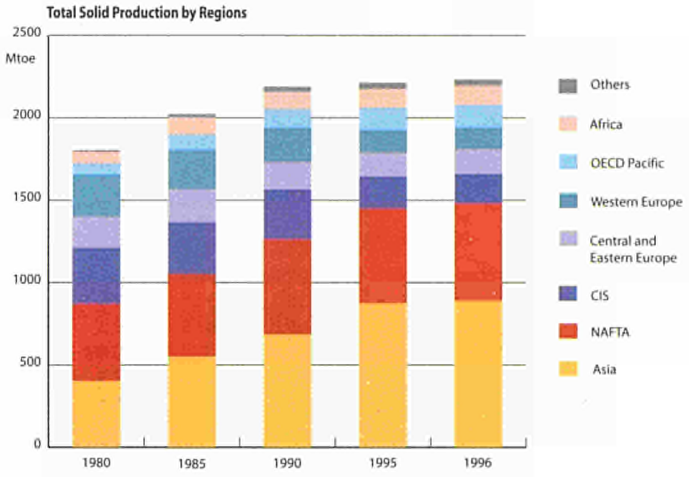
Throughout the world, major efforts to reduce gathering, transmission and distribution constraints are proceeding. In 1996, more than 20,000 km of new natural gas pipeline were completed and an additional 24,000 km were under construction for completion in 1997 and beyond. Regionally, more than 50% of ongoing pipeline construction activity is located in South America and Asia, areas that currently account for less than 15% of the world's gas consumption

Some key developments supporting the world's natural gas markets in 1996 include:

- Multiple advances were made to strengthen supply and delivery capabilities in European markets. The Maghreb-Europe gas pipeline was completed and commercial sales began at the end of 1996. Deliveries from Norway's Troll reservoir also began. In addition, improved interconnections with Southern and Eastern Europe were commissioned;
- Production from China's largest offshore natural gas project, Yacheng project, began;
- Planning for the development of a trans-Asian gas pipeline system proceeded to connect Indonesia with Malaysia, Myanmar, Thailand, Singapore and the Philippines. This pipeline is foreseen to become operational as early as 2002;
- Several major projects to expand liquefied natural gas trade went to contract. New LNG facilities will be under construction in Oman, Qatar, Nigeria and Trinidad. Japan, South Korea, Taiwan and Thailand are the largest customers committing to purchase output from the new facilities.

Solid production accounted for 24% of world energy production, a stable contribution since 1980…

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 1996, coal accounted for 24% of the world's primary energy production, a quite stable level since 1980. The largest producer in 1996 remained Asia (40% of the total compared to 22% in 1980), followed by NAFTA (26% in 1996, the same contribution as in 1980). Increased production in these two regions compensated slowdown in CIS and Eastern countries due to economic and political reforms and shutdown in the European Union as a consequence of the restructuring of the coal sector. In 1996, the two



biggest producers were China (686 Mtoe) and the Unites States (547 Mtoe), followed by India (140 Mtoe), Australia (130 Mtoe) and Russia (107 Mtoe).

Prospects for increasing nuclear contribution are diminishing...

Even as the performance of nuclear reactors improves worldwide, the prospects for increased reliance on nuclear power for electricity generation are diminishing. Public concern about the safety of nuclear reactor operations or 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 public opposition to the construction of nuclear facilities. 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 fuel highly efficient low-cost gas turbine power generators. In addition, the trend toward utility deregulation and privatisation has been a collateral force undermining the competitive potential of nuclear power. At the opposite end, in developing countries - especially in Asia - reliance on nuclear power was increasing. China, India, South Korea and Taiwan all have sizeable construction projects planned and underway.

Asia accounted for 50% of world biomass production…

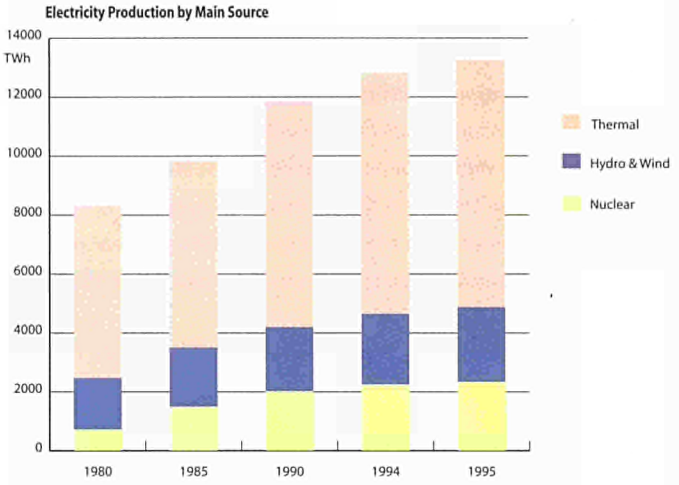
The contribution of other renewable energy sources (hydro, biomass, geothermal, wind,…) must be analysed following two axes : commercial and non-commercial energy sources. The bulk of biomass production and consumption concerned non-commercial uses mainly located in Asia (49 % of total biomass production) in Africa (17%) and in Latin America (11%). Since 1980, the contribution of biomass to world energy production remained stable at about 8%.

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 historically 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 the United States, India, China, Germany and Spain. The share of hydro in world energy production remained stable at around 2.3% with major development in non-OECD countries where the potential for extension is mainly located for geographic reasons.

Electricity share in final energy consumption increased by one third since 1980…

Electricity is the most rapidly growing component of final energy demand throughout the world. In the OECD region, electricity showed strong growth between 1980 and 1995, at 2.8% per year on average, in contrast to 0.7% annual growth in total final energy demand. In the industrialised world, where electrification has been fully achieved throughout all economic sectors, increased demand was fueled by economic growth and growing electrical applications for computers, communications, and other electronics for home and business uses. This demand growth is tempered by increases in energy efficiency brought on by regulation and technological innovation. Electricity consumption in the rest of the world grew by 3.8% per year on average since 1980 although total final energy demand increased by only 1.8% on 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 larger population is a priority of most of the political leaders of the developing world.

Thermal production continues to largely dominate total electricity generation, although its share decreased from 70% in 1980 to 63% in 1995. Nuclear contribution passed from 9% in 1980 to 18% in 1995. This growth occurred principally during the 80's. After 1990, the increase of nuclear contribution has slowed down considerably due to lack of investments mainly in Western Europe and North America. Hydro power, depending on hydraulic conditions, grew regularly on average by 2.5% per year since 1980. The installed capacity reached 3056 GWe in 1995, compared with 1987 GWe in 1980, or an average increase of about 2.9% per year

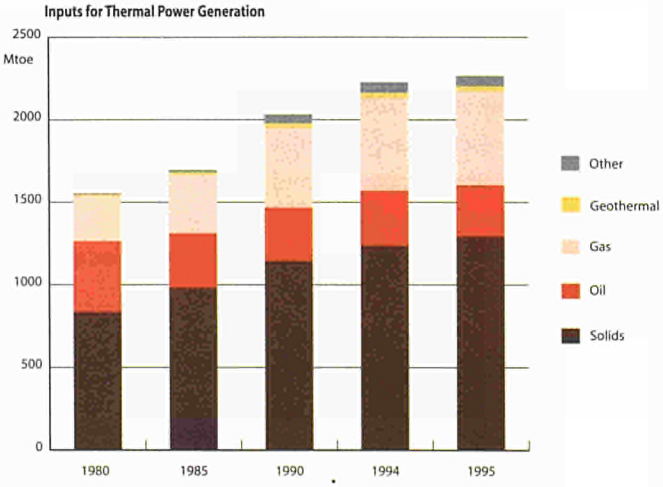


since 1980. Thermal units, which represent 57% of additional capacity since 1980, grew by about 2.5% per year over the considered period. The expansion of nuclear capacity slowed down since 1990 although hydro capacity continued to expand at almost the same rate as thermal capacity.

In many parts of the world, financial capital may be the greater resource constraint. The International Energy Agency estimated that over the period 1993 to 2010 investment to sustain the power generation infrastructure will require from 0.1 to 0.2% of GDP in the industrialised countries, 0.6 to 1.1% of GDP in China and as much as 1.0 to 1.6% of GDP in the countries of South Asia.

Inputs for electricity generation increasingly dominated by solid fuels…

Solid fuels increasingly dominated inputs for electricity generation. While these represented 54% of total inputs in 1980, they reached 57% in 1995. The consumption was mainly located in NAFTA region (increasing by 50% since 1980), Asia (growing more



than fourfold), and in the European Union (stable since 1980). It means that the OECD region still represents 54% of solid fuels consumption for power generation. Oil use has been stable since 1985. The utilisation of gas has more than doubled since 1980. The main gas consumers are respectively: CIS (219 Mtoe or 38% of world gas consumption for power generation), NAFTA (137 Mtoe) and the European Union (55 Mtoe). Increases in gas consumption are particularly marked in the OECD Region (5% per year on average since 1990) and in Asia (10% annual increase since 1990).

Refinery capacities increased only in non-OECD region since 1985…

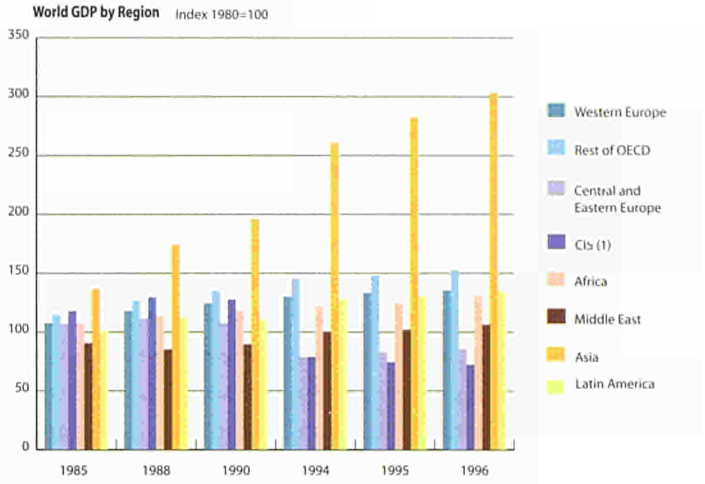
The refinery capacities increased slowly by 0.6% per year on average since 1985. In the OECD region, in-depth restructuring led to a stabilisation of installed capacity since 1985 but the utilisation rate of the capacity increased regularly from 72% in 1985 to 92% in 1996. This has increased profitability of the refinery sector which has permit to face increasing costly investment in conversion units to adapt the production to the demand and to provide cleaner fuels on the market. In the non-OECD region capacity grew by 17% since 1985, the main investment being located in the Middle East (+45%) to increase the valorisation of crude production, and in China (+95%) sustained by buoyant demand. In the same time, the utilisation rate in the non-OECD region fell from 80% in 1985 to only 74% in 1996 with very contrasted evolution by region. Although capacities were fairly saturated in the middle East, on the other hand an urgent restructuring was needed in the CIS where utilisation rate fell below 45%.

COMPETITIVENESS

World GDP growth accelerated since 1994 under the pressure of developing regions…

Economic growth is the main factor driving growth in energy demand. While the world population grew regularly by 1.6% per annum since 1980, world GDP increased by 2.4% per year on average. Economic activity was more sustained during the second part of the 80'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 by 2.8% per year under the pressure of all developing countries. Asia is indisputably the driver of the growth with an average growth rate of 7.2% per year these last sixteen years. As a consequence, Asia doubled its share in world GDP to pass beyond 10% in 1996.

The two main energy indicators are energy consumption per capita and energy intensity. The stage of economic development and the standards of living of individuals 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 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 relative 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 more closely with rising income levels. 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.

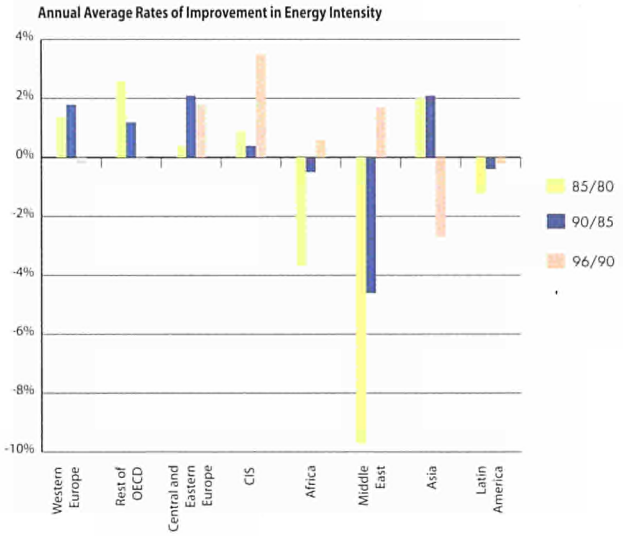
World energy consumption per capita stable but Asia grew by 60% since 1980…

Comparing energy consumption per capita in 1996 across regions, it is clear that NAFTA shows by far the highest ratio, although the inclusion of Mexico lowers this indicator to some extent. At the other extreme, Africa and Asia have the lowest levels, significantly under the world average (two thirds below). At world level energy consumption per capita remained stable, the

growth in both developing regions (mainly located in Asia and the Middle East) and OECD region (mainly the OECD Pacific region) being compensated since 1988 by the slowdown in CIS (-34%) and CEEC (-22%). To appreciate future evolution it must be stressed that Asia, which represented more than 50% of the world population in 1996, saw its consumption per capita grow by about 60% since 1980.

World energy intensity stabilised since 1994...

Total world **energy intensity** showed a slight but continuous downward trend by 0.7% since 1980 but demonstrated perfect stability since 1994. In fact, OECD regions that presented the lowest energy intensity improved only marginally their performance since the beginning of the 90's. On the other hand, the rest of the world was characterised by a sustained reduction of its energy intensity (-1.6% par annum on average) despite the mar-



GROSS DOMESTIC PRODUCT PER CAPITA : TOTAL BY REGION

Thousand 1990 MECU / inhabitant	1980	1985	1988	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
World	2.93	3.01	3.17	3.23	3.23	3.27	3.32	0.5%	1.4%	0.0%	1.2%	1.6%
Western Europe	12.28	13.04	14.21	14.87	15.25	15.58	15.79	1.2%	2.7%	0.6%	2.1%	1.4%
European Union	12.02	12.76	13.94	14.58	14.95	15.28	15.49	1.2%	2.7%	0.6%	2.2%	1.4%
EFTA	20.73	22.39	23.25	24.36	24.69	24.99	25.36	1.6%	1.7%	0.3%	1.2%	1.5%
Rest of OECD	11.43	12.33	13.21	13.71	14.10	14.22	14.52	1.5%	2.1%	0.7%	0.9%	2.1%
NAFTA	12.06	12.81	13.53	13.78	14.16	14.27	14.50	1.2%	1.5%	0.7%	0.8%	1.6%
OECD Pacific	13.18	14.97	16.64	18.05	18.89	19.11	19.76	2.6%	3.8%	1.1%	1.1%	3.4%
Central and Eastern Europe	1.83	1.90	1.96	1.88	1.40	1.47	1.50	0.7%	-0.2%	-7.2%	5.5%	1.6%
CIS (1)	2.13	2.40	2.58	2.50	1.53	1.44	1.40	2.4%	0.8%	-11.6%	-5.5%	-2.8%
Africa	0.63	0.59	0.57	0.57	0.52	0.52	0.54	-1.4%	-0.8%	-1.9%	-0.3%	2.4%
Middle East	4.12	3.11	2.63	2.57	2.51	2.51	2.55	-5.4%	-3.7%	-0.6%	-0.2%	1.8%
Asia	0.28	0.35	0.42	0.46	0.57	0.61	0.64	4.5%	5.5%	5.7%	6.9%	5.9%
Latin America	2.15	1.96	2.06	1.96	2.12	2.12	2.15	-1.8%	0.0%	2.0%	0.2%	1.4%

(1) Including Baltic countries for statistical reasons

GROSS INLAND ENERGY CONSUMPTION PER CAPITA : TOTAL BY REGION

toe/in habitant	1980	1985	1988	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
World	1.58	1.56	1.63	1.60	1.55	1.57	1.59	-0.2%	0.5%	-0.8%	1.1%	1.3%
Western Europe	3.51	3.48	3.59	3.63	3.62	3.69	3.82	-0.2%	0.9%	0.0%	1.9%	3.3%
European Union	3.50	3.46	3.58	3.61	3.60	3.67	3.80	-0.2%	0.9%	-0.1%	2.0%	3.5%
EFTA	3.85	4.13	4.16	4.30	4.39	4.34	4.34	1.4%	0.8%	0.5%	-1.0%	-0.1%
Rest of OECD	5.11	4.84	5.08	5.06	5.21	5.24	5.32	-1.1%	0.9%	0.7%	0.6%	1.6%
NAFTA	6.53	6.09	6.37	6.21	6.33	6.33	6.41	-1.4%	0.4%	0.5%	0.1%	1.2%
OECD Pacific	3.16	3.24	3.47	3.75	4.04	4.12	4.24	0.4%	3.0%	1.8%	2.2%	2.9%
Central and Eastern Europe	3.02	3.07	3.12	2.73	2.23	2.32	2.42	0.3%	-2.3%	-5.0%	4.0%	4.5%
CIS (1)	4.26	4.60	4.89	4.68	3.38	3.27	3.22	1.5%	0.4%	-7.8%	-3.2%	-1.5%
Africa	0.47	0.53	0.54	0.52	0.51	0.51	0.51	2.3%	-0.4%	-0.5%	0.0%	0.2%
Middle East	1.45	1.74	1.87	1.80	1.91	1.92	1.98	3.7%	0.7%	1.5%	0.5%	2.9%
Asia	0.42	0.48	0.53	0.56	0.63	0.66	0.67	2.4%	3.3%	2.9%	5.0%	1.9%
Latin America	1.04	1.01	1.06	1.03	1.06	1.09	1.12	-0.6%	0.4%	0.7%	2.6%	2.9%

(1) Including Baltic countries for statistical reasons

ked increase in the CIS (+3.5% per year) and in the CEEC (+1.8% per year). It must be stressed that Asia demonstrated the best improvement since 1980, at about 2.3% per year and increasing regularly. In the case of the Middle East, gross domestic product also depended directly on oil market revenues. Fluctuation in export volumes and oil prices induced a GDP equivalent to the 1980 one in 1995. In that way, observed increasing energy intensity is in fact the result of this evolution and doesn't reflect less efficient use of energy by final consumers.

Looking at energy intensity by sector at the world level, it must be stressed that improvements occurred in all final sectors. If the major improvement was observed in industry with a reduction of one third since 1980, tertiary-domestic and transport are also gaining. It is particularly interesting for the transport sector, demonstrating that the development of improved vehicles is able to counterbalance rapid motorization in developing regions.

ENERGY INTENSITY : TOTAL BY REGION

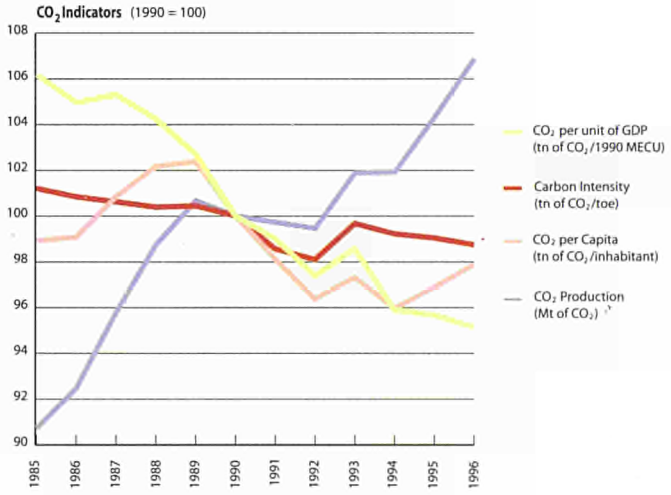
toe/1990 MECU	1980	1985	1988	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
World	538	520	515	496	479	479	478	-0.7%	-1.0%	-0.9%	0.0%	-0.2%
Western Europe	286	267	253	244	238	237	242	-1.4%	-1.8%	-0.7%	-0.2%	1.9%
European Union	291	271	257	248	241	240	245	-1.4%	-1.8%	-0.7%	-0.2%	2.0%
EFTA	186	184	179	177	178	174	171	-0.1%	-0.9%	0.2%	-2.2%	-1.5%
Rest of OECD	447	393	385	369	369	368	366	-2.6%	-1.2%	0.0%	-0.3%	-0.6%
NAFTA	542	476	471	451	447	444	442	-2.6%	-1.1%	-0.2%	-0.7%	-0.4%
OECD Pacific	240	216	208	208	214	216	215	-2.1%	-0.8%	0.7%	1.0%	-0.5%
Mediterranean	440	430	433	444	439	449	442	-0.4%	0.6%	-0.2%	2.2%	-1.6%
Central and Eastern Europe	1647	1614	1588	1450	1594	1572	1616	-0.4%	-2.1%	2.4%	-1.4%	2.8%
CIS (1)	1997	1911	1896	1871	2213	2268	2298	-0.9%	-0.4%	4.3%	2.4%	1.3%
Africa	747	895	941	915	967	969	949	3.7%	0.5%	1.4%	0.2%	-2.1%
Middle East	353	559	712	699	762	767	775	9.7%	4.6%	2.2%	0.7%	1.0%
Asia	1513	1367	1269	1228	1104	1086	1045	-2.0%	-2.1%	-2.6%	-1.7%	-3.8%
Latin America	483	514	514	524	499	511	518	1.2%	0.4%	-1.2%	2.4%	1.5%

(1) Including Baltic countries for statistical reasons

ENVIRONMENT

Excluding former Centrally Planned Economies, world emissions grew by 2.7% on average since 1990…

CO_2 emissions indicators are of primordial importance in the post-Kyoto debate as the Kyoto Protocol 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 signatory participants. Substantial shifts in the composition of energy supply away from high-carbon fuels, substantial reductions in energy use intensity, or some combination will have to be achieved in developed countries.

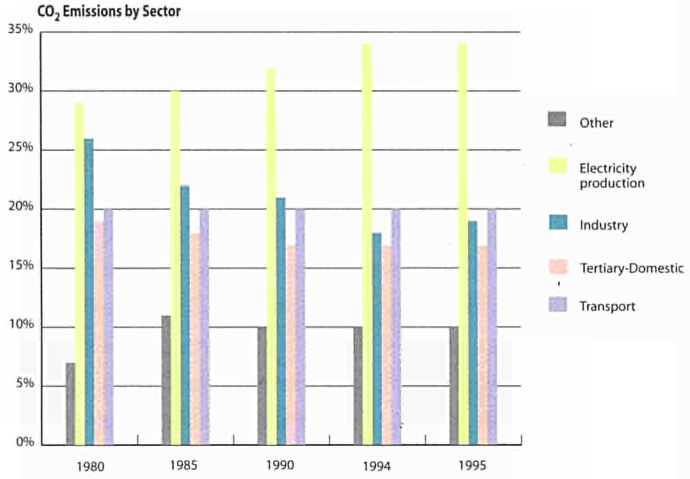


CO_2 emissions are given on an indicative basis, being calculated using common emission factors by energy aggregates across all countries in the world. Worldwide **emissions of CO_2** increased steadily by almost 1.4% per year during the 80's and by only 0.5% per year between 1990 and 1994. But in 1995 and 1996, CO_2 emission growth reached 2.4% each year leading to a global increase by 7% in 1996 over to the 1990 level. Since 1990, CO_2 emissions have been increasing in almost all regions in the world, in some cases by more than 5% per year (Asia and Middle East), with the exception of former Centrally Planned Economies due to the drastic reduction of energy consumption observed, mainly in CIS since 1990. The European Union almost stabilised its emissions, benefiting from energy efficiency and carbon intensity improvements.

At the same time CO_2 emissions per capita showed a reduction of 0.4% a year over the last sixteen years (3.8 tons of CO_2 per capita in 1996 compared to 4.0 in 1980). Carbon intensity declined regularly on the whole period, the main improvements being observed in the tertiary-domestic sector.

The contribution of CO_2 emissions from power generation increased from 28% in 1980 to 34% in 1996…

Looking at CO_2 worldwide emissions by sector, the first conclusion is that the power generation sector remained by far the largest in terms of emissions. CO_2 emissions from the power sector grew by 2.3% on average since 1980, with a relative slowdown since 1990, to represent about 34% of total world emissions in



CO_2 EMISSIONS (1) : TOTAL BY REGION

Mt of CO2	1980	1985	1988	1990	1994	1995	1996(3)	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
World	18114	18738	20399	20699	21109	21610	22134	0.7%	2.0%	0.5%	2.4%	2.4%
Western Europe	3504	3167	3223	3272	3181	3238	3346	-2.0%	0.7%	-0.7%	1.8%	3.3%
European Union	3431	3092	3147	3195	3098	3155	3260	-2.1%	0.7%	-0.8%	1.8%	3.3%
EFTA	73	75	76	77	83	83	86	0.5%	0.6%	1.8%	0.4%	3.3%
Rest of OECD	6598	6536	7025	7134	7533	7628	7865	-0.2%	1.8%	1.4%	1.3%	3.1%
NAFTA	5455	5359	5745	5742	6024	6090	6281	-0.4%	1.4%	1.2%	1.1%	3.1%
OECD Pacific	1074	1086	1175	1268	1372	1387	1425	0.2%	3.2%	2.0%	1.1%	2.8%
Central and Eastern Europe	1060	1095	1094	957	764	775	833	0.7%	-2.7%	-5.5%	1.4%	7.5%
CIS (2)	3267	3395	3641	3553	2533	2408	2299	0.8%	0.9%	-8.1%	-4.9%	-4.5%
Africa	433	507	551	571	597	628	645	3.2%	2.4%	1.1%	5.2%	2.8%
Middle East	383	538	630	650	826	851	877	7.0%	3.9%	6.2%	3.1%	3.1%
Asia	2286	2920	3581	3911	4916	5289	5435	5.0%	6.0%	5.9%	7.6%	2.8%
Latin America	584	580	655	650	761	792	834	-0.1%	2.3%	4.0%	4.2%	5.2%
of which (%)												
European Union	18.9	16.5	15.4	15.4	14.7	14.6	14.7	-2.7%	-1.3%	-1.3%	-0.5%	0.9%
OECD	55.4	51.3	49.7	49.7	50.1	49.6	49.9	-1.5%	-0.6%	-0.2%	-1.0%	0.7%

(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

WORLD : CO_2 Emissions by sector

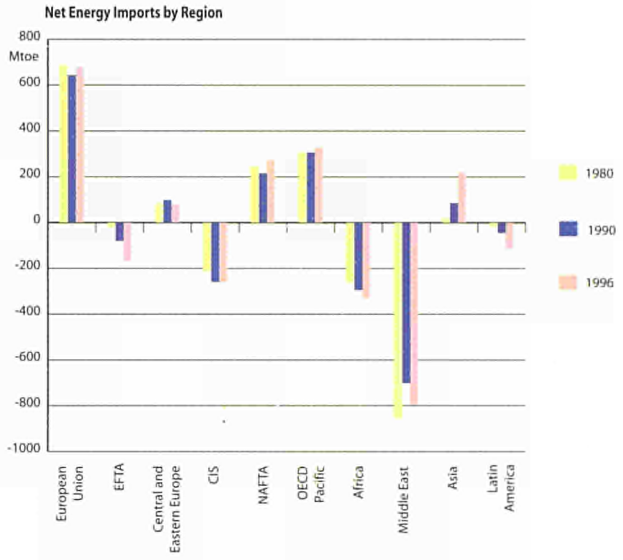
Mt of CO2	1980	1985	1988	1990	1994	1995	85/80	90/85	94/90	95/94	95/85
							Annual % Change				
Total	18114	18738	20399	20699	21109	21610	0.7%	2.0%	0.5%	2.4%	1.4%
Bunkers	336	294	323	367	389	401	-2.7%	4.5%	1.5%	3.0%	3.2%
Transformation	6307	7475	8155	8477	9141	9303	3.5%	2.5%	1.9%	1.8%	2.2%
Power Generation	5075	5530	6156	6459	7024	7177	1.7%	3.2%	2.1%	2.2%	2.6%
Energy sector	1232	1944	1999	2018	2117	2127	9.6%	0.7%	1.2%	0.4%	0.9%
Final Demand sectors	11471	10969	11921	11855	11579	11906	-0.9%	1.6%	-0.6%	2.8%	0.8%
Industry	4671	3991	4261	4191	3820	3932	-3.1%	1.0%	-2.3%	2.9%	-0.1%
Transport	3492	3726	4050	4131	4172	4312	1.3%	2.1%	0.2%	3.4%	1.5%
Domestic and Tertiary	3308	3252	3609	3533	3587	3662	-0.3%	1.7%	0.4%	2.1%	1.2%

1996. This is a consequence of rapid electrification in developing regions and this trend will continue in the near future. Within the final demand sectors, CO_2 emissions from transport were increasing since 1980 at an average growth rate of 1.5% despite relative stability between 1990 and 1994 only due to the particular situation in CIS and CEEC. The domestic and tertiary sectors showed a limited upward trend (+0.7% per year since 1980, excluding any correction for climatic conditions) in relation to the progression of natural gas and distributed heat on the heating market in place of heating oil and solids. Industry presented the greatest fall in CO_2 emissions between 1980 and 1996 (-1.1% per year). The evolution in industry is linked to the improvements of industrial equipment, the greater use of electricity and the move away from more CO_2-intensive fuels.

GLOBAL MARKETS

OECD absorbed about 80% of world interregional exchanges of energy…

The world **energy trade** (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. OECD Pacific is the second ranking with a relatively stable level since 1980, except for the drop in mid-1980's. The NAFTA region is also an important importer with a similar profile to that of the European Union, although with a faster growth rate between 1985 and 1996 (+13% per year). As a consequence of these evolution, it is clear that the OECD region is globally a net importer of energy, absorbing about 80% of world net exchange in 1996. Amongst the non-OECD regions although Central and Eastern Europe stabilised their level of imports at about 70 Mtoe, mainly oil and gas from CIS, Asia increased continuously its imports starting from a negligible level in 1980 to reach 222 Mtoe in 1996, a level comparable with NAFTA. The net exporters remained: the Middle East (797 Mtoe in 1996), Africa (330 Mtoe), CIS (261 Mtoe) and EFTA (167 Mtoe), all four mainly exporters of hydrocarbons. Although OPEC continued to dominate the oil market, it must be stressed that Russia accounted for 40% of the exchange of natural gas in 1996. Finally, it must be stressed that in 1995 interregional exchanges of energy represented only 16% of total world energy consumption (19% in 1980).



NET ENERGY IMPORT : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
Western Europe	671.5	488.7	519.9	563.3	501.6	508.3	513.1	-6.2%	2.9%	-2.9%	1.3%	1.0%
European Union	688.4	527.1	578.8	643.7	633.1	651.2	679.7	-5.2%	4.1%	-0.4%	2.9%	4.4%
EFTA	-21.4	-38.5	-58.9	-80.4	-131.5	-142.9	-166.6	12.4%	15.9%	13.1%	8.7%	16.5%
Rest of OECD	565.9	343.2	481.6	550.3	635.3	606.1	643.3	-9.5%	9.9%	3.7%	-4.6%	6.1%
NAFTA	246.0	68.9	185.1	215.7	280.0	249.8	274.1	-22.5%	25.6%	6.7%	-10.8%	9.7%
OECD Pacific	305.7	257.1	272.8	306.8	323.3	318.9	329.9	-3.4%	3.6%	1.3%	-1.4%	3.5%
Central and Eastern Europe	71.3	66.3	76.2	79.4	51.9	58.8	69.4	-1.4%	3.7%	-10.1%	13.2%	18.1%
CIS (1)	-212.2	-219.2	-272.9	-260.0	-227.2	-244.1	-261.0	0.6%	3.5%	-3.3%	7.4%	6.9%
Africa	-260.4	-240.6	-246.5	-295.3	-299.1	-309.6	-330.2	-1.6%	4.2%	0.3%	3.5%	6.6%
Middle East	-854.8	-394.6	-592.5	-701.3	-784.1	-791.3	-797.1	-14.3%	12.2%	2.8%	0.9%	0.7%
Asia	19.4	1.3	55.7	86.5	197.6	219.4	222.2	-42.2%	133.3%	22.9%	11.0%	1.3%
Latin America	-17.7	-35.7	-36.2	-45.4	-79.6	-97.4	-115.4	15.1%	4.9%	15.1%	22.3%	18.6%
of which												
OECD	1237.4	831.9	1001.5	1113.6	1137.0	1114.3	1156.4	-7.6%	6.0%	0.5%	-2.0%	3.8%

(1) Including Baltic countries for statistical reasons

WORLD : SUMMARY ENERGY BALANCE

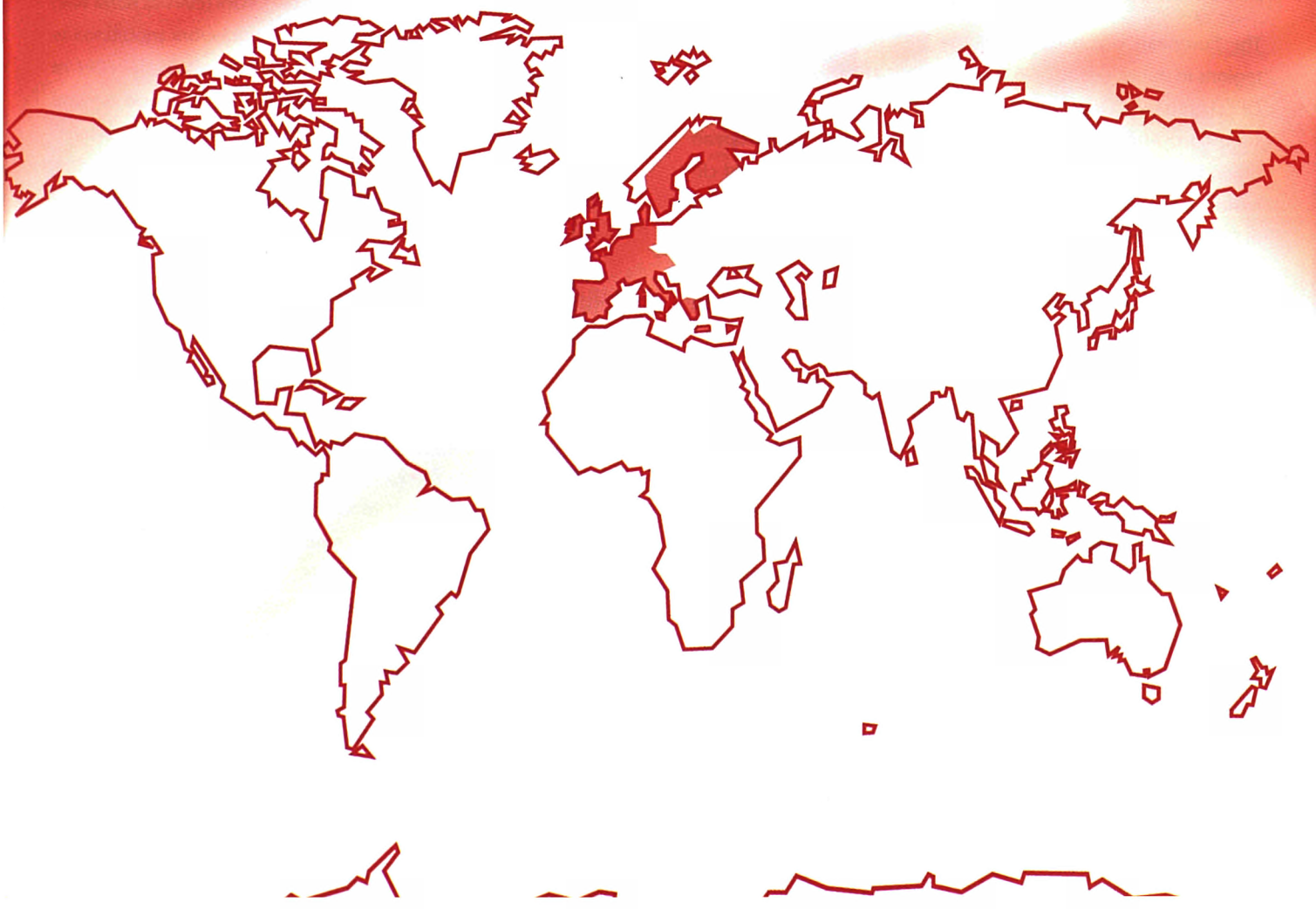
Mtoe	1980	1985	1990	1994	1995	1996(3)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	7147	7587	8589	8770	8998	9234	1.2%	2.5%	0.5%	2.6%	2.6%
Solids	1806	2024	2190	2145	2214	2234	2.3%	1.6%	-0.5%	3.2%	0.9%
Oil	3162	2870	3223	3284	3344	3431	-1.9%	2.4%	0.5%	1.8%	2.6%
Natural gas	1241	1429	1705	1775	1811	1906	2.9%	3.6%	1.0%	2.0%	5.2%
Nuclear	187	387	519	577	602	623	15.6%	6.0%	2.7%	4.4%	3.4%
Hydro & Wind	150	172	187	206	218	222	2.8%	1.7%	2.4%	5.7%	2.0%
Geothermal	12	20	32	35	34	36	11.1%	9.9%	2.1%	-2.3%	4.8%
Other renewable energy sources	589	685	732	748	774	782	3.1%	1.3%	0.5%	3.6%	1.0%
Net Imports(1)	-7	25	-3	5	-41	-43	-	-	-	-	6.6%
Solids	2	3	1	4	-13	-7	8.1%	-24.6%	49.9%	-	-43.9%
Oil	-6	27	-1	3	-24	-19	-	-	-	-	-19.1%
Crude oil	17	75	56	59	32	na	33.9%	-5.7%	1.5%	-46.3%	na
Oil products	-24	-48	-56	-56	-56	na	15.0%	3.4%	-0.2%	0.0%	na
Natural gas	-2	-5	-4	-2	-4	-17	14.2%	-5.2%	-11.4%	81.7%	326.5%
Electricity	0	0	0	0	0	0	-	-	-	149.8%	-17.3%
Gross Inland Consumption	6965	7521	8390	8618	8838	9082	1.5%	2.2%	0.7%	2.5%	2.8%
Solids	1789	2028	2165	2157	2204	2243	2.5%	1.3%	-0.1%	2.2%	1.8%
Oil	3001	2806	3081	3150	3200	3290	-1.3%	1.9%	0.6%	1.6%	2.8%
Natural gas	1237	1423	1674	1745	1805	1887	2.8%	3.3%	1.1%	3.4%	4.5%
Other (2)	938	1264	1470	1566	1629	1663	6.1%	3.1%	1.6%	4.0%	2.1%
Electricity Generation in Twh	8312	9828	11843	12809	13241	na	3.4%	3.8%	2.0%	3.4%	na
Nuclear	713	1492	2013	2241	2332	na	15.9%	6.2%	2.7%	4.0%	na
Hydro & wind	1755	2014	2188	2406	2544	na	2.8%	1.7%	2.4%	5.8%	na
Thermal	5843	6322	7642	8161	8364	na	1.6%	3.9%	1.7%	2.5%	na
Generation Capacity in GWe	1987	2444	2748	2999	3056	na	4.2%	2.4%	2.2%	1.9%	na
Nuclear	142	253	330	346	349	na	12.3%	5.4%	1.2%	0.8%	na
Hydro & wind	468	567	638	705	717	na	3.9%	2.4%	2.5%	1.7%	na
Thermal	1378	1625	1781	1947	1990	na	3.3%	1.9%	2.3%	2.2%	na
Average Load Factor in %	47.7	45.9	49.2	48.8	49.5	na	-0.8%	1.4%	-0.2%	1.4%	na
Fuel Inputs for Thermal Power Generation	1555	1696	2033	2228	2267	na	1.7%	3.7%	2.3%	1.7%	na
Solids	838	983	1147	1240	1295	na	3.3%	3.1%	2.0%	4.5%	na
Oil	427	328	322	331	308	na	-5.1%	-0.4%	0.6%	-6.9%	na
Gas	271	353	479	560	570	na	5.4%	6.3%	4.0%	1.7%	na
Geothermal	11	19	31	33	32	na	11.2%	9.8%	2.1%	-2.8%	na
Biomass	8	12	54	64	62	na	8.8%	34.6%	4.2%	-3.3%	na
Average Thermal Efficiency in %	32.3	32.1	32.3	31.5	31.8	na	-0.2%	0.2%	-0.6%	0.7%	na
Non-Energy Uses	340	350	423	435	464	na	0.6%	3.8%	0.7%	6.6%	na
Total Final Energy Demand	4928	5216	5656	5769	5921	na	1.1%	1.6%	0.5%	2.6%	na
Solids	781	846	844	752	762	na	1.6%	0.0%	-2.9%	1.4%	na
Oil	2059	2000	2188	2213	2285	na	-0.6%	1.8%	0.3%	3.2%	na
Gas	803	848	940	936	968	na	1.1%	2.1%	-0.1%	3.5%	na
Electricity	587	694	832	903	932	na	3.4%	3.7%	2.1%	3.2%	na
Heat	120	159	177	289	269	na	5.9%	2.1%	13.1%	-6.9%	na
Renewable energy sources	579	669	675	676	705	na	2.9%	0.2%	0.0%	4.2%	na
CO_2 Emissions in Mt of CO_2	17778	18444	20332	20720	21209	21728	0.7%	2.0%	0.5%	2.4%	2.4%
Indicators											
Population (Million)	4413	4808	5242	5567	5645	5724	1.7%	1.7%	1.5%	1.4%	1.4%
GDP (index 1985=100)	89.5	100.0	117.1	124.4	127.7	131.5	2.3%	3.2%	1.5%	2.6%	3.0%
GDP (1990 MECU)	12938	14462	16930	17994	18462	19019	2.3%	3.2%	1.5%	2.6%	3.0%
Gross Inl Cons./GDP (toe/1985 MECU)	538.3	520.1	495.6	479.0	478.7	477.5	-0.7%	-1.0%	-0.9%	0.0%	-0.2%
Gross Inl Cons./Capita (toe/inhabitant)	1.58	1.56	1.60	1.55	1.57	1.59	-0.2%	0.5%	-0.8%	1.1%	1.3%
Electricity Generated/Capita (kWh/inhabitant)	1883	2044	2259	2301	2346	na	1.7%	2.0%	0.5%	2.0%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	4.0	3.8	3.9	3.7	3.8	3.8	-1.0%	0.2%	-1.0%	1.0%	1.0%

(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	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Gross Inland Consumption (Mtoe)	6964.6	7521.2	8390.4	8618.5	8838.2	9082.2	1.5%	2.2%	0.7%	2.5%	2.8%
Power Generation	1545.5	1825.6	2185.8	2396.0	2442.2	na	3.4%	3.7%	2.3%	1.9%	na
Energy Branch	405.7	466.4	545.5	531.7	545.9	na	2.8%	3.2%	-0.6%	2.7%	na
Final Energy Consumption	4908.4	5189.6	5632.3	5744.5	5896.9	na	1.1%	1.7%	0.5%	2.7%	na
Industry	1893.4	1888.8	1961.4	1869.7	1904.5	na	0.0%	0.8%	-1.2%	1.9%	na
Transport	1138.9	1221.3	1424.4	1484.7	1533.2	na	1.4%	3.1%	1.0%	3.3%	na
Tertiary-Domestic	1875.3	2079.5	2246.5	2390.1	2459.2	na	2.1%	1.6%	1.6%	2.9%	na
Energy Intensity (toe/1990 MECU)	538.3	520.1	495.6	479.0	478.7	477.5	-0.7%	-1.0%	-0.9%	0.0%	-0.2%
Power Generation	119.5	126.2	129.1	133.2	132.3	na	1.1%	0.5%	0.8%	-0.7%	na
Final Energy Consumption	379.4	358.8	332.7	319.2	319.4	na	-1.1%	-1.5%	-1.0%	0.1%	na
Industry	146.3	130.6	115.9	103.9	103.2	na	-2.3%	-2.4%	-2.7%	-0.7%	na
Transport	88.0	84.4	84.1	82.5	83.0	na	-0.8%	-0.1%	-0.5%	0.6%	na
Tertiary-Domestic	144.9	143.8	132.7	132.8	133.2	na	-0.2%	-1.6%	0.0%	0.3%	na
Energy per capita (Kgoe/inhabitant)	1578	1564	1601	1548	1566	1587	-0.2%	0.5%	-0.8%	1.1%	1.3%
Power Generation	350	380	417	430	433	na	1.6%	1.9%	0.8%	0.5%	na
Final Energy Consumption	1112	1079	1074	1032	1045	na	-0.6%	-0.1%	-1.0%	1.2%	na
Industry	429	393	374	336	337	na	-1.7%	-1.0%	-2.7%	0.5%	na
Transport	258	254	272	267	272	na	-0.3%	1.4%	-0.5%	1.8%	na
Tertiary-Domestic	425	433	429	429	436	na	0.4%	-0.2%	0.0%	1.5%	na
Electricity Share (%)											
Final Energy Consumption	12.0%	13.4%	14.8%	15.7%	15.8%	na	2.3%	2.0%	1.6%	0.6%	na
Industry	15.7%	17.7%	19.7%	20.9%	21.0%	na	2.4%	2.2%	1.5%	0.6%	na
Transport	1.2%	1.3%	1.3%	1.3%	1.3%	na	1.0%	-0.5%	0.9%	-3.2%	na
Tertiary-Domestic	14.7%	16.5%	19.0%	20.6%	20.8%	na	2.4%	2.9%	2.0%	1.1%	na
Total Renewable consumption (Mtoe)	750.8	877.3	951.3	988.5	1026.6	na	3.2%	1.6%	1.0%	3.9%	na
Hydro	150.3	171.8	186.5	204.8	216.4	na	2.7%	1.6%	2.4%	5.7%	na
Biomass	588.7	685.1	731.9	747.4	774.6	na	3.1%	1.3%	0.5%	3.6%	na
Other renewable energy source	11.8	20.3	32.9	36.3	35.6	na	11.5%	10.1%	2.5%	-2.0%	na
Renewable Intensity (toe/1990 MECU)	58.0	60.7	56.2	54.9	55.6	na	.0.9%	-1.5%	-0.6%	1.2%	na
Renewable per capita (kgoe/inhabitant)	170.1	182.5	181.5	177.5	181.9	na	1.4%	-0.1%	-0.5%	2.4%	na
CO_2 Emissions (Mt of CO_2)	17778	18444	20332	20720	21209	21728	0.7%	2.0%	0.5%	2.4%	2.4%
Power Generation	5075	5530	6459	7024	7177	na	1.7%	3.2%	2.1%	2.2%	na
Energy Branch	898	894	1043	1017	1058	na	-0.1%	3.1%	-0.6%	4.0%	na
Final Energy Consumption	11471	10969	11855	11579	11906	na	-0.9%	1.6%	-0.6%	2.8%	na
Industry	4671	3991	4191	3820	3932	na	-3.1%	1.0%	-2.3%	2.9%	na
Transport	3492	3726	4131	4172	4312	na	1.3%	2.1%	0.2%	3.4%	na
Tertiary-Domestic	3308	3252	3533	3587	3662	na	-0.3%	1.7%	0.4%	2.1%	na
Carbon intensity (tn of CO2/toe)	2.6	2.5	2.4	2.4	2.4	2.4	-0.8%	-0.2%	-0.2%	-0.2%	-0.3%
Power Generation	3.3	3.0	3.0	2.9	2.9	na	-1.6%	-0.5%	-0.2%	0.2%	na
Energy Branch	2.2	1.9	1.9	1.9	1.9	na	-2.8%	0.0%	0.0%	1.3%	na
Final Energy Consumption	2.3	2.1	2.1	2.0	2.0	na	-2.0%	-0.1%	-1.1%	0.2%	na
Industry	2.5	2.1	2.1	2.0	2.1	na	-3.0%	0.2%	-1.1%	1.0%	na
Transport	3.1	3.1	2.9	2.8	2.8	na	-0.1%	-1.0%	-0.8%	0.1%	na
Tertiary-Domestic	1.8	1.6	1.6	1.5	1.5	na	-2.4%	0.1%	-1.2%	-0.8%	na
CO_2 per capita (kg of CO_2/inhabitant)	4029	3836	3879	3722	3757	3796	-1.0%	0.2%	-1.0%	1.0%	1.0%
Final Energy Consumption	2599	2282	2262	2080	2109	na	-2.6%	-0.2%	-2.1%	1.4%	na
Industry	1058	830	800	686	697	na	-4.7%	-0.7%	-3.8%	1.5%	na
Transport	791	775	788	749	764	na	-0.4%	0.3%	-1.3%	1.9%	na
Tertiary-Domestic	750	676	674	644	649	na	-2.0%	-0.1%	-1.1%	0.7%	na
CO_2 per unit of GDP (tn of CO_2/1990 MECU)	1374	1275	1201	1151	1149	1142	-1.5%	-1.2%	-1.0%	-0.2%	-0.6%
Power Generation	392	382	381	390	389	na	-0.5%	0.0%	0.6%	-0.4%	na
Public Thermal Power Generation	370	361	359	360	357	na	-0.5%	-0.1%	0.0%	-0.9%	na
Autoprod. Thermal Power Generation	22	21	22	31	32	na	-0.6%	0.6%	8.5%	4.7%	na
Energy Branch	69	62	62	57	57	na	-2.3%	-0.1%	-2.1%	1.4%	na
Final Energy Consumption	887	758	700	643	645	na	-3.1%	-1.6%	-2.1%	0.2%	na
Industry	361	276	248	212	213	na	-5.2%	-2.1%	-3.8%	0.3%	na
Transport	270	258	244	232	234	na	-0.9%	-1.1%	-1.3%	0.7%	na
Tertiary-Domestic	256	225	209	199	198	na	-2.5%	-1.5%	-1.1%	-0.5%	na

PART II EUROPEAN UNION



ENERGY OUTLOOK – Energy Demand : Recent evolution (1985-1996)

- Sluggish GDP growth in 1996
- Colder weather conditions pushed final energy consumption growth to 5.0%
- With about 45% of final energy demand, oil remained by far the first energy source

INDUSTRY

- Industrial energy consumption rebounded after 1994 even growing faster than industrial production in 1996
- Industry energy intensity declined by about 20% between 1985 and 1995, but rebounded in 1996
- The contribution of gas and electricity together reached 62.5% of total industrial consumption in 1996
- Improvements in energy intensity require industrial production growth
- Throughout the European Union, the margin between energy prices remained considerable

TRANSPORT

- Transport sector responsible for 70% of final energy demand increase since 1985
- Passenger traffic has grown more rapidly than economic growth driven by leisure travel
- Increasing energy and environmental implications of road transport
- Diesel oil share reached 46% of the total road consumption in 1996
- Surging demand for air transport, still driven by the liberalisation of the air market
- Transport energy intensity initiated a slow decline after 1994
- Since 1990 Prices for transport fuel increased by about 1% per year under the pressure of tax increases

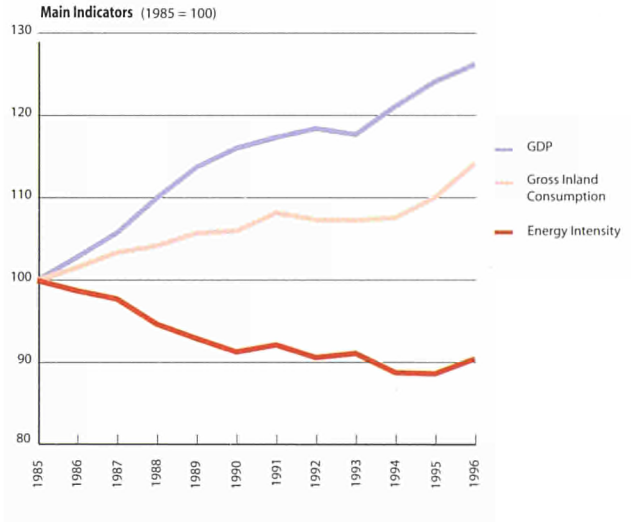
TERTIARY-DOMESTIC

- Constant share in final energy demand since 1985
- Energies distributed by networks increase their contribution from 49% in 1985 to 64% in 1996
- Technological improvements balanced by the emergence of new appliances
- Energy intensity, corrected for weather conditions, seems to be relatively stable since 1985
- Energy prices for domestic consumers showed an overall decrease despite large national discrepancies

The European Union is one of the largest energy consuming regions in the world. In 1996, it consumed 1417 Mtoe, 30% of total OECD primary energy consumption and about 15% of world consumption. Although examined as a whole region, the European union has many contrasts, ranging from countries with cold climates such as those in Scandinavia to those with milder climates in the Mediterranean. Similarly, there are substantial differences in national gross production and income levels. Both of these factors result in widely differing patterns of living standards and energy consumption.

Sluggish GDP growth in 1996...

The volume of energy consumed is largely a function, among other variables, of economic activity. During the 80's, GDP grew on average by 2.2% per annum with a marked acceleration between 1986-1990 (3% per year). Since then, GDP growth has been marked by a slowdown of 0.5% between 1991 and 1992, followed by sustained recovery in 1994-95 (+2.7% per year on average). In 1996, the economic growth saw a relative slowdown with an increase limited to 1.7%. Considering the period 1990-1996, economic growth amongst Member States was very varied with Finland demonstrating a limited growth of 0.1% per year on average although Ireland reached 6.3%.



1 To avoid a break in the time series, the analysis of the European Union includes all data regarding the former German Democratic Republic.

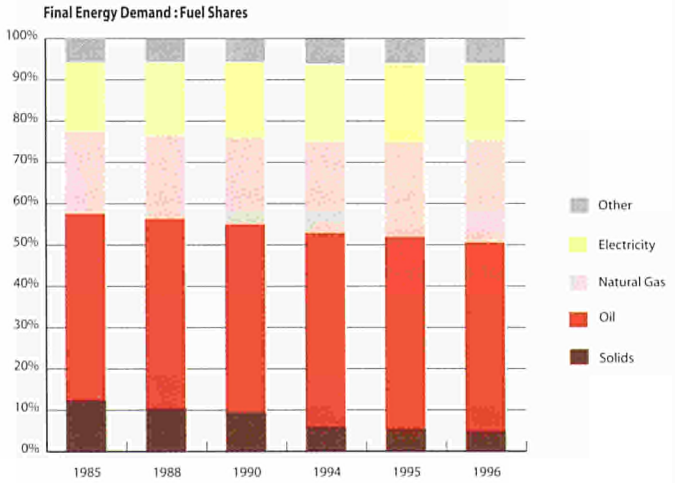
GROSS DOMESTIC PRODUCT (BILLIONS 1990 ECUS)

	1974	1980	1985	1990	1994	1995	1996	74/80	80/85	90/85	94/90	95/94	96/95	96/90
										Annual % Change				
Austria	84.5	99.3	107.3	125.6	135.7	138.5	140.7	2.7%	1.6%	3.2%	1.9%	2.1%	1.6%	1.9%
Belgium	110.1	125.9	133.0	154.4	160.6	163.9	166.3	2.3%	1.1%	3.0%	1.0%	2.1%	1.5%	1.2%
Denmark	74.2	83.5	94.8	99.6	106.6	109.3	112.0	2.0%	2.6%	1.0%	1.7%	2.5%	2.5%	2.0%
Finland	67.2	78.0	89.9	106.2	98.3	103.3	106.7	2.5%	2.9%	3.4%	-1.9%	5.1%	3.3%	0.1%
France	644.3	750.7	811.0	940.8	968.9	988.2	1000.2	2.6%	1.6%	3.0%	0.7%	2.0%	1.2%	1.0%
Germany	947.5	1098.7	1140.8	1297.4	1387.8	1413.6	1432.7	2.5%	0.8%	2.6%	1.7%	1.9%	1.4%	1.7%
Greece	36.6	48.1	59.5	65.3	67.8	69.0	70.8	4.6%	4.3%	1.9%	1.0%	1.8%	2.6%	1.4%
Ireland	19.1	25.2	27.4	35.9	42.9	47.7	51.8	4.7%	1.7%	5.5%	4.6%	11.1%	8.6%	6.3%
Italy	566.7	694.6	744.0	861.2	884.6	910.5	916.8	3.5%	1.4%	3.0%	0.7%	2.9%	0.7%	1.0%
Luxembourg	5.2	5.5	6.7	8.1	9.6	9.9	10.1	0.7%	4.3%	3.9%	4.1%	3.2%	2.6%	3.7%
Netherlands	160.3	182.2	191.7	223.4	242.5	247.9	256.0	2.2%	1.0%	3.1%	2.1%	2.3%	3.3%	2.3%
Portugal	33.7	40.8	41.6	54.4	57.7	59.2	60.9	3.2%	0.4%	5.5%	1.5%	2.5%	3.0%	1.9%
Spain	263.4	289.3	313.7	389.7	405.9	416.6	426.1	1.6%	1.6%	4.4%	1.0%	2.6%	2.3%	1.5%
Sweden	135.8	148.8	162.3	181.7	179.0	186.1	188.4	1.5%	1.8%	2.3%	-0.4%	3.9%	1.3%	0.6%
United Kingdom	545.1	592.0	653.4	769.6	798.9	820.9	839.9	1.4%	2.0%	3.3%	0.9%	2.8%	2.3%	1.5%
EUROPEAN UNION	**3693.9**	**4262.5**	**4577.1**	**5313.3**	**5546.6**	**5684.5**	**5779.5**	**2.4%**	**1.4%**	**3.0%**	**1.1%**	**2.5%**	**1.7%**	**1.4%**

FINAL ENERGY CONSUMPTION

Colder weather conditions pushed final energy consumption growth to 5.0%…

In 1996, the **final energy demand** in the European Union (944 Mtoe in 1995) increased by 5.0% mainly due to colder weather conditions inducing a 13% increase of degree-days compared to 1995. The major evolution was thus in heating fuels, with natural gas opening the way with a 13.4% increase in consumption, followed by distributed heat with 8% growth and heating gas oil with 7%. The 1996 growth is not representative of the long-term trend since over the period 1985-1996 final energy consumption increased by only 1.2% per year on average.



With about 45% of final energy demand, oil remained by far the first energy source…

Oil largely remained the first energy source (around 46% of demand) but its consumption increased slower than the global energy demand since the beginning of the 90's. Gas (25% share in 1996 against 20% in 1985) grew by 3.3% per year on average since 1985 gaining market shares in both the industry and tertiary-domestic sectors. Electricity demand (18% share in 1996 against 16% in 1985) increased by 2.2% a year since 1985, but the growth rate has been accelerating these last two years. At the same time, the distributed heat demand, pushed by the development of the combined production of heat and power in both industry and tertiary sectors, increased annually by 3.2% on average, with major growth since the 90's. Consequently, the contribution of energy distribution networks (electricity, natural gas and distributed heat) reached 45% of total final energy demand in 1996 (38% in 1985) and even 65% without the transport energy consumption (50% in 1985). A clear reduction in the demand for solid fuels was noticed with a share dropping from 9% to 5%. The contribution of renewable energy forms (biomass, wind, photovoltaic...) increased slowly. Consequently, their share declined from 4.4% in 1985 to 3.8% in 1996. These developments are due to a switch away from solid fuels, and to a lesser extent from oil, in both industry and the tertiary-domestic sector. The declining contribution of solid fuels can be attributed to the conversion of the iron and steel sectors to electrical furnaces and the continuing closing of mines limiting deliveries to the local workers. This evolution was completed by the increasing standard of living in the new German Landers, where historically the consumption of lignite by final consumers used to be significant but was totally marginal by 1996.

INDICES OF INDUSTRIAL PRODUCTION (1990=100) (1)

	1980	1985	1988	1990	1994	1995	1996	80/85	90/85	94/90	95/94	96/95	96/90
								Annual % Change					
Austria	80.9	86.3	87.9	100.0	105.9	112.3	114.5	1.3%	3.0%	1.4%	6.0%	2.0%	2.3%
Belgium	81.5	84.9	92.5	100.0	94.6	101.0	101.9	0.8%	3.3%	-1.4%	6.8%	0.8%	0.3%
Denmark	76.4	92.5	97.1	100.0	111.1	115.8	117.1	3.9%	1.6%	2.7%	4.2%	1.1%	2.7%
Finland	73.6	88.1	97.3	100.0	107.8	114.4	118.3	3.7%	2.6%	1.9%	6.2%	3.4%	2.8%
France	89.3	87.1	94.9	100.0	97.7	99.7	99.5	-0.5%	2.8%	-0.6%	2.0%	-0.1%	-0.1%
Germany	82.5	85.5	90.4	100.0	93.9	95.9	96.0	0.7%	3.2%	-1.6%	2.1%	0.2%	-0.7%
Greece	90.9	97.2	100.8	100.0	95.7	97.4	98.4	1.4%	0.6%	-1.1%	1.8%	1.0%	-0.3%
Ireland	54.2	69.6	85.6	100.0	133.3	158.5	171.1	5.1%	7.5%	7.5%	18.9%	8.0%	9.4%
Italy	87.5	84.8	96.9	100.0	101.7	107.9	104.9	-0.6%	3.3%	0.4%	6.1%	-2.8%	0.8%
Luxembourg	69.9	84.9	93.4	100.0	100.8	101.3	100.8	4.0%	3.3%	0.2%	0.5%	-0.4%	0.1%
Netherlands	85.3	90.8	94.1	100.0	105.2	108.3	111.2	1.3%	1.9%	1.3%	2.9%	2.7%	1.8%
Portugal	62.5	73.9	85.9	100.0	94.9	99.4	100.8	3.4%	6.2%	-1.3%	4.7%	1.3%	0.1%
Spain	82.9	86.0	95.5	100.0	98.6	103.2	102.1	0.7%	3.1%	-0.3%	4.6%	-1.0%	0.4%
Sweden	81.4	90.2	94.1	100.0	103.8	116.8	120.4	2.1%	2.1%	0.9%	12.6%	3.1%	3.1%
United Kingdom	85.8	88.9	97.6	100.0	104.4	106.7	107.7	0.7%	2.4%	1.1%	2.3%	0.9%	1.2%
EUROPEAN UNION	**80.5**	**86.6**	**93.8**	**100.0**	**99.2**	**103.0**	**103.0**	**1.5%**	**2.9%**	**-0.2%**	**3.8%**	**0.1%**	**0.5%**

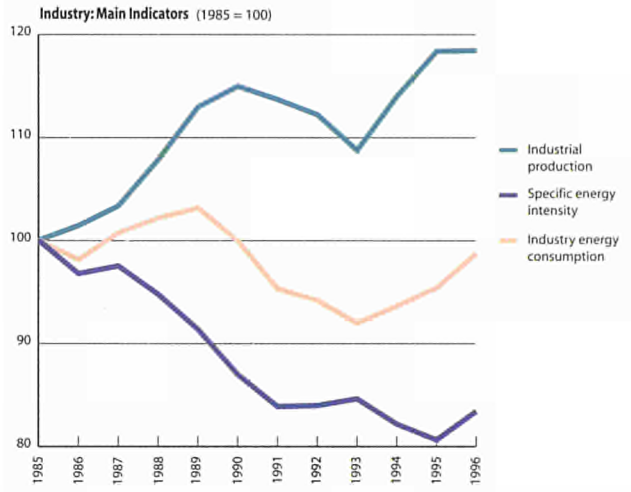
(1) Excluding construction

INDUSTRY

Industrial energy consumption rebounded after 1994, even growing faster than industrial production in 1996…

Energy consumption in Industry is evolving at varying rates with three specific periods. During the second part of the 80's, energy consumption remained stable. The 15% increase of industrial production was compensated by energy savings generated by rational use of energy measures dictated by the high energy prices prevailing in 1985. Between 1990 and 1994, energy consumption declined by 1.6% per year on average pushed by cost cutting measures and depressed industrial production. After 1994, energy consumption grew at an accelerating rate to reach 3.5% in 1996, despite stable industrial production. This can be a consequence of lower utilisation rate of capacities combined with increasing energy consumption to satisfy growing heating demand on account of weather conditions, but it could also indicate that the economic potential of energy savings has been reached.

The indices of industrial production reflect the '93 recession, with a slow-down of 3.2% in the European Union as a whole followed by sustained recovery in 1994 (5.2%) and 1995 (3.8%) and by relative stability in 1996. The 90-96 period showed a limited increase but the trends are very contrasted in the various Member States. Ireland obtains the best score was obtained by Ireland (+71%) followed by the Nordic countries (around +20%). Germany obtained the weakest scores due to the reunification (-4%), followed by Greece (-2%) and France (-1%).



Industry energy intensity declined by about 20% between 1985 and 1995, but rebounded in 1996…

Between 1985 and 1995, industrial production grew on average by 1.6% per annum. Evidence of the shift away from energy intensive industries, such as iron-steel, and of continuous improvement of energy efficiency is shown by the relative stability of energy consumption during the same period. As a result, industry energy intensity[2] decreased by about 23% between 1985 and 1995 but rebounded in 1996 as justified previously. It must be stressed that major improvements in specific energy intensity occurred only with increasing industrial activity. During the short recession between 1991 and 1993, lower utilisation of existing capacities and reduction in investments induced an increase of energy intensity by about 1%. The analysis of the specific energy intensi-

2 Defined as the ratio of energy demand to industrial production.

EUROPEAN UNION : INDUSTRY - FINAL ENERGY CONSUMPTION

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Total consumption	269.8	275.7	269.7	252.6	257.4	266.4	0.0%	-1.6%	1.9%	3.5%	-0.2%
Iron & Steel	62.3	58.6	56.6	52.5	54.2	56.5	-1.9%	-1.9%	3.3%	4.2%	0.0%
Chemicals	48.2	50.3	50.0	44.5	44.0	46.9	0.7%	-2.9%	-1.1%	6.6%	-1.1%
Building Materials	35.8	36.2	36.6	31.5	32.2	32.4	0.4%	-3.7%	2.0%	0.8%	-2.0%
Other	123.4	130.5	126.5	124.2	127.1	130.6	0.5%	-0.5%	2.3%	2.8%	0.5%
Solids	64.4	58.7	54.8	40.3	39.2	37.5	-3.2%	-7.4%	-2.6%	-4.5%	-6.1%
Iron & Steel	29.1	26.4	25.9	23.8	24.7	23.6	-2.3%	-2.2%	4.0%	-4.4%	-1.5%
Chemicals	7.0	7.0	6.2	3.3	2.7	2.7	-2.4%	-14.9%	-16.6%	-0.8%	-13.0%
Building Materials	13.7	11.5	10.9	7.7	6.9	6.5	-4.4%	-8.3%	-10.8%	-5.5%	-8.3%
Other	14.5	13.8	11.7	5.5	4.9	4.6	-4.2%	-17.1%	-11.0%	-6.0%	-14.3%
Oil	56.6	55.9	48.5	49.2	48.7	45.6	-3.0%	0.3%	-1.1%	-6.2%	-1.0%
Iron & Steel	4.1	4.3	3.8	3.9	3.8	3.5	-1.5%	0.4%	-2.7%	-8.6%	-1.7%
Chemicals	11.7	11.9	9.9	9.1	9.3	7.5	-3.4%	-2.0%	1.6%	-18.9%	-4.5%
Building Materials	8.8	9.3	9.5	8.5	8.4	8.3	1.6%	-2.7%	-1.4%	-1.5%	-2.3%
Other	32.0	30.3	25.3	27.7	27.2	26.4	-4.6%	2.3%	-1.7%	-3.0%	0.7%
Gas	69.9	76.1	79.6	78.4	82.1	94.9	2.6%	-0.4%	4.7%	15.6%	3.0%
Iron & Steel	20.5	19.1	18.4	16.8	17.1	21.0	-2.1%	-2.4%	2.2%	22.3%	2.2%
Chemicals	15.4	16.5	17.6	17.7	17.6	22.3	2.6%	0.1%	-0.1%	26.2%	4.0%
Building Materials	8.9	10.3	11.2	10.7	11.6	12.2	4.6%	-1.1%	8.6%	5.6%	1.6%
Other	25.1	30.1	32.4	33.3	35.8	39.5	5.3%	0.7%	7.4%	10.4%	3.4%
Electricity	62.5	68.2	70.0	69.4	71.4	71.7	2.3%	-0.2%	2.8%	0.4%	0.4%
Iron & Steel	8.5	8.7	8.3	8.1	8.6	8.5	-0.4%	-0.7%	6.6%	-1.5%	0.3%
Chemicals	13.5	14.4	15.8	14.3	14.2	14.1	3.3%	-2.6%	-0.9%	-0.2%	-1.9%
Building Materials	4.3	4.9	5.0	4.7	5.3	5.4	3.2%	-1.6%	14.0%	1.8%	1.4%
Other	36.3	40.3	40.9	42.4	43.3	43.7	2.4%	0.9%	2.1%	0.8%	1.1%
Heat	4.2	4.7	4.4	2.2	2.7	3.6	0.9%	-15.9%	22.0%	34.7%	-3.2%
Industrial Production Index (1990=100)	86.6	93.8	100.0	99.2	103.0	103.0	2.9%	-0.2%	3.8%	0.1%	0.5%
Industrial Energy Intensity (1990=100)	115.5	109.0	100.0	94.5	92.7	95.9	-2.8%	-1.4%	-1.9%	3.4%	-0.7%

ty ratio is complex: technological improvements did occur but at the same time as structural changes. The restructuring of European industry that started after the second petrol shock continued, and induced a further reduction of activity in energy-intensive branches, such as iron and steel, chemicals and non-metallic minerals. In addition these last years have been marked by the decline of manufacturing industries, including textile, hit by labour costs.

The contribution of gas and electricity together reached 62.5% of total consumption in 1996…

In terms of fuel mix, significant changes have occurred since 1985 with the declining contribution of solids on the coke and steam coal markets. Despite the recent development of electrical furnaces, coke consumption is decreasing slowly although hard coal and lignite consumption has been divided by more than two, even on the building materials market where they compete with petroleum coke and industrial wastes. Gas and electricity, which show a growth rate of about 2.8% and 1.2% respectively per annum in the period since 1985, largely dominated the industrial energy market. But, since 1990, only natural gas has been gaining market shares as its consumption increased by about 15 Mtoe, of which 12 Mtoe in 1996, although total energy consumption by industry declined by 3Mtoe. 50% of the jump in gas consumption observed in 1996 corresponded to an increase in energy consumption. The other 50% was due to substitution of oil products and some solid fuels in all industrial sectors. Oil consumption declined continuously, except during the recession period, falling by 20% since 1985. Overall, the resulting share of each fuel changed over the period 1985-1996 as follows: Solids from 24% to 14%, Oil from 21% to 17%, Gas from 26% to 36% and electricity from 23% to 27%.

Improvements in energy intensity require industrial production growth…

Energy developments in industry on a Member State basis show large discrepancies, with Ireland's industrial energy intensity dropping by about 53% in the 1990-96 period simultaneously with the

INDUSTRIAL ENERGY CONSUMPTION

	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Austria											
Total Consumption (Mtoe)	5.8	5.7	5.7	5.3	5.6	5.7	-0.3%	-1.8%	4.3%	2.0%	-0.2%
Share in European Union (%)	2.2%	2.1%	2.1%	2.1%	2.2%	2.1%	-0.3%	-0.2%	2.4%	-1.4%	0.0%
Specific Industrial Energy Intensity (1990=100)	117.7	113.0	100.0	87.7	86.3	86.3	-3.2%	-3.2%	-1.6%	0.0%	-2.4%
Belgium											
Total Consumption (Mtoe)	10.6	11.1	11.5	11.7	11.8	11.6	1.5%	0.5%	0.8%	-1.2%	0.2%
Share in European Union (%)	3.9%	4.0%	4.2%	4.6%	4.6%	4.4%	1.5%	2.1%	-1.1%	-4.6%	0.4%
Specific Industrial Energy Intensity (1990=100)	109.4	105.0	100.0	107.7	101.6	99.5	-1.8%	1.9%	-5.6%	-2.1%	-0.1%
Denmark											
Total Consumption (Mtoe)	2.7	2.7	2.8	2.9	3.0	3.0	0.6%	1.1%	1.3%	1.0%	1.1%
Share in European Union (%)	1.0%	1.0%	1.0%	1.2%	1.2%	1.1%	0.6%	2.7%	-0.6%	-2.4%	1.3%
Specific Industrial Energy Intensity (1990=100)	105.1	100.7	100.0	93.9	91.3	91.1	-1.0%	-1.6%	-2.8%	-0.2%	-1.5%
Finland											
Total Consumption (Mtoe)	8.0	8.4	8.8	9.8	9.9	10.0	1.9%	2.7%	1.0%	0.5%	2.1%
Share in European Union (%)	3.0%	3.0%	3.3%	3.9%	3.9%	3.7%	1.9%	4.4%	-0.8%	-2.9%	2.3%
Specific Industrial Energy Intensity (1990=100)	103.4	97.6	100.0	103.4	98.4	95.6	-0.7%	0.8%	-4.9%	-2.8%	-0.7%
France											
Total Consumption (Mtoe)	37.8	36.8	36.8	34.9	37.5	38.0	-0.5%	-1.3%	7.3%	1.5%	0.5%
Share in European Union (%)	14.0%	13.4%	13.7%	13.8%	14.6%	14.3%	-0.5%	0.3%	5.3%	-1.9%	0.7%
Specific Industrial Energy Intensity (1990=100)	118.0	105.4	100.0	97.1	102.1	103.8	-3.3%	-0.7%	5.2%	1.6%	0.6%
Germany											
Total Consumption (Mtoe)	85.4	84.8	76.2	60.5	61.8	68.6	-2.3%	-5.6%	2.0%	11.1%	-1.7%
Share in European Union (%)	31.7%	30.7%	28.3%	24.0%	24.0%	25.8%	-2.2%	-4.0%	0.1%	7.4%	-1.5%
Specific Industrial Energy Intensity (1990=100)	131.0	123.0	100.0	84.6	84.5	93.7	na	-4.1%	0.0%	10.9%	-1.1%
Greece											
Total Consumption (Mtoe)	3.7	4.1	3.9	3.8	4.1	4.3	1.0%	-1.0%	8.4%	4.9%	1.5%
Share in European Union (%)	1.4%	1.5%	1.5%	1.5%	1.6%	1.6%	1.0%	0.6%	6.4%	1.4%	1.7%
Specific Industrial Energy Intensity (1990=100)	97.6	102.6	100.0	100.2	106.8	110.9	0.5%	0.1%	6.5%	3.9%	1.7%
Ireland											
Total Consumption (Mtoe)	1.8	1.8	2.1	1.7	1.8	1.7	3.3%	-4.7%	2.4%	-4.3%	-3.5%
Share in European Union (%)	0.7%	0.7%	0.8%	0.7%	0.7%	0.6%	3.4%	-3.1%	0.5%	-7.5%	-3.3%
Specific Industrial Energy Intensity (1990=100)	121.9	101.9	100.0	61.9	53.3	47.3	-3.9%	-11.3%	-13.9%	-11.3%	-11.7%
Italy											
Total Consumption (Mtoe)	31.5	35.1	36.9	35.9	37.1	36.5	3.2%	-0.7%	3.4%	-1.7%	-0.2%
Share in European Union (%)	11.7%	12.7%	13.7%	14.2%	14.4%	13.7%	3.2%	1.0%	1.5%	-5.0%	0.0%
Specific Industrial Energy Intensity (1990=100)	100.6	98.2	100.0	95.7	93.3	94.4	-0.1%	-1.1%	-2.5%	1.2%	-1.0%
Luxembourg											
Total Consumption (Mtoe)	1.8	1.6	1.7	1.6	1.2	1.1	-0.6%	-2.5%	-24.0%	-2.7%	-6.5%
Share in European Union (%)	0.7%	0.6%	0.6%	0.6%	0.5%	0.4%	-0.6%	-0.9%	-25.4%	-6.0%	-6.3%
Specific Industrial Energy Intensity (1990=100)	121.5	101.7	100.0	89.6	67.8	66.3	-3.8%	-2.7%	-24.4%	-2.3%	-6.6%
Netherlands											
Total Consumption (Mtoe)	13.7	13.1	13.2	12.5	12.7	13.2	-0.7%	-1.5%	1.5%	4.1%	-0.1%
Share in European Union (%)	5.1%	4.8%	4.9%	4.9%	4.9%	4.9%	-0.7%	0.2%	-0.4%	0.6%	0.1%
Specific Industrial Energy Intensity (1990=100)	114.2	105.5	100.0	89.6	88.3	89.5	-2.6%	-2.7%	-1.4%	1.4%	-1.8%
Portugal											
Total Consumption (Mtoe)	3.7	3.8	4.1	4.6	4.3	4.7	2.3%	2.5%	-5.6%	9.6%	2.2%
Share in European Union (%)	1.4%	1.4%	1.5%	1.8%	1.7%	1.8%	2.3%	4.2%	-7.3%	5.9%	2.5%
Specific Industrial Energy Intensity (1990=100)	120.6	107.6	100.0	116.3	104.9	113.4	-3.7%	3.9%	-9.8%	8.1%	2.1%
Spain											
Total Consumption (Mtoe)	18.8	19.4	19.8	20.4	20.7	20.5	1.0%	0.8%	1.6%	-1.2%	0.6%
Share in European Union (%)	7.0%	7.0%	7.3%	8.1%	8.1%	7.7%	1.0%	2.5%	-0.3%	-4.5%	0.8%
Specific Industrial Energy Intensity (1990=100)	110.9	102.9	100.0	104.8	101.7	101.6	-2.1%	1.2%	-2.9%	-0.1%	0.3%
Sweden											
Total Consumption (Mtoe)	11.9	11.8	11.8	12.3	12.6	12.3	-0.1%	1.0%	2.5%	-2.2%	0.7%
Share in European Union (%)	4.4%	4.3%	4.4%	4.9%	4.9%	4.6%	-0.1%	2.7%	0.6%	-5.5%	0.9%
Specific Industrial Energy Intensity (1990=100)	111.3	106.4	100.0	100.4	91.4	86.8	-2.1%	0.1%	-8.9%	-5.1%	-2.3%
United Kingdom											
Total Consumption (Mtoe)	32.4	35.3	34.2	34.7	33.4	35.0	1.1%	0.3%	-3.6%	4.8%	0.4%
Share in European Union (%)	12.0%	12.8%	12.7%	13.7%	13.0%	13.1%	1.1%	2.0%	-5.4%	1.3%	0.6%
Specific Industrial Energy Intensity (1990=100)	106.4	105.5	100.0	97.0	91.4	95.0	-1.2%	-0.8%	-5.7%	3.9%	-0.9%
European Union											
Total Consumption (Mtoe)	269.78	275.68	269.72	252.63	257.41	266.37	0.0%	-1.6%	1.9%	3.5%	-0.2%
Specific Industrial Energy Intensity (1990=100)	115.5	109.0	100.0	94.5	92.7	95.9	-2.8%	-1.4%	-1.9%	3.4%	-0.7%

ENERGY PRICES TO INDUSTRIAL CONSUMERS IN CONSTANT 1990 ECU PER TOE (1)(2)

		1985	1988	1990	1993	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
									Annual % Change				
Austria	Steam Coal	154.6	97.0	91.7	76.5	71.8	72.4	67.4	-9.9%	-5.9%	0.9%	-7.0%	-5.0%
	Heavy fuel oil 3.5 % S	310.5	109.2	98.7	89.8	72.5	84.1	83.4	-20.5%	-7.4%	16.0%	-0.9%	-2.8%
	Natural gas	304.7	150.8	138.9	122.5	118.6	115.8	119.5	-14.5%	-3.9%	-2.3%	3.1%	-2.5%
	Electricity	726.2	699.4	598.2	600.7	579.1	561.2	579.5	-3.8%	-0.8%	-3.1%	3.3%	-0.5%
Belgium	Steam Coal	120.6	72.8	62.4	na	na	na	na	-12.3%	-	-	-	-
	Heavy fuel oil 3.5 % S	270.5	85.1	98.4	80.1	85.0	82.1	90.7	-18.3%	-3.6%	-3.5%	10.5%	-1.3%
	Natural gas	273.6	106.0	113.7	97.0	88.2	87.2	84.1	-16.1%	-6.2%	-1.1%	-3.6%	-4.9%
	Electricity	775.2	582.4	584.7	518.8	487.8	487.2	482.1	-5.5%	-4.4%	-0.1%	-1.0%	-3.2%
Denmark	Steam Coal	191.4	127.3	134.9	84.5	79.5	78.5	76.0	-6.7%	-12.4%	-1.2%	-3.2%	-9.1%
	Heavy fuel oil 3.5 % S	286.2	111.1	120.4	112.5	107.7	102.9	118.8	-15.9%	-2.7%	-4.5%	15.4%	-0.2%
	Natural gas	na	na	na	na	na	na	na	-	-	-	-	-
	Electricity	875.7	533.2	569.8	638.3	548.7	521.1	556.2	-8.2%	-0.9%	-5.0%	6.8%	-0.4%
Finland	Steam Coal	128.7	75.5	78.7	79.4	87.7	113.2	112.6	-9.4%	2.7%	29.1%	-0.5%	6.2%
	Heavy fuel oil 3.5 % S	345.5	132.1	144.9	154.4	167.0	170.1	181.4	-15.9%	3.6%	1.9%	6.6%	3.8%
	Natural gas	270.8	97.9	97.3	98.9	104.3	117.2	124.9	-18.5%	1.7%	12.4%	6.6%	4.2%
	Electricity	765.6	621.7	578.4	604.4	585.8	591.2	603.8	-5.5%	0.3%	0.9%	2.1%	0.7%
France	Steam Coal	144.6	111.2	106.1	101.2	99.5	97.8	95.9	-6.0%	-1.6%	-1.7%	-2.0%	-1.7%
	Heavy fuel oil 3.5 % S	288.2	98.7	110.2	81.8	107.9	107.7	114.3	-17.5%	-0.5%	-0.2%	6.1%	0.6%
	Natural gas	271.1	123.2	122.2	108.6	103.8	104.2	105.2	-14.7%	-4.0%	0.4%	1.0%	-2.5%
	Electricity	599.3	517.2	516.5	483.1	452.0	452.5	428.1	-2.9%	-3.3%	0.1%	-5.4%	-3.1%
Germany	Steam Coal	209.0	211.2	202.8	195.2	190.3	185.0	180.0	-0.6%	-1.6%	-2.8%	-2.7%	-2.0%
	Heavy fuel oil 3.5 % S	284.5	96.1	115.0	87.0	87.8	90.0	95.6	-16.6%	-6.5%	2.5%	6.2%	-3.0%
	Natural gas	284.0	127.8	147.7	134.7	126.6	123.8	124.7	-12.3%	-3.8%	-2.2%	0.7%	-2.8%
	Electricity	833.2	880.0	835.3	747.3	710.6	694.2	619.1	0.0%	-4.0%	-2.3%	-10.8%	-4.9%
Greece	Steam Coal	na	na	na	na	na	na	na	-	-	-	-	-
	Heavy fuel oil 3.5 % S	284.9	169.2	129.3	99.7	118.7	119.8	126.0	-14.6%	-2.1%	0.9%	5.1%	-0.4%
	Natural gas	na	na	na	na	na	na	na	-	-	-	-	-
	Electricity	775.4	657.6	593.3	495.4	440.7	431.0	396.0	-5.2%	-7.2%	-2.2%	-8.1%	-6.5%
Ireland	Steam Coal	na	na	na	na	na	na	na	-	-	-	-	-
	Heavy fuel oil 3.5 % S	328.2	130.9	129.9	119.2	122.9	129.7	147.9	-16.9%	-1.4%	5.5%	14.1%	2.2%
	Natural gas	389.0	280.4	260.8	240.8	234.4	228.5	224.8	-7.7%	-2.6%	-2.5%	-1.6%	-2.4%
	Electricity	965.7	700.3	619.5	574.3	561.4	547.3	538.0	-8.5%	-2.4%	-2.5%	-1.7%	-2.3%
	Electricity												
Italy	Steam Coal	131.9	74.6	65.8	67.7	63.6	68.5	60.7	-13.0%	-0.8%	7.7%	-11.4%	-1.3%
	Heavy fuel oil 3.5 % S	303.0	88.3	150.9	137.3	141.4	143.3	145.2	-13.0%	-1.6%	1.4%	1.3%	-0.6%
	Natural gas	271.7	86.9	123.7	132.8	137.5	145.6	151.1	-14.6%	2.7%	5.9%	3.8%	3.4%
	Electricity	1183.0	863.3	893.9	935.3	928.3	903.5	900.6	-5.4%	0.9%	-2.7%	-0.3%	0.1%
Luxembourg	Steam Coal	na	na	na	na	na	na	na	-	-	-	-	-
	Heavy fuel oil 3.5 % S	287.6	93.4	106.7	89.7	93.0	94.0	99.3	-18.0%	-3.4%	1.1%	5.6%	-1.2%
	Natural gas	na	na	na	na	na	na	na	-	-	-	-	-
	Electricity	739.6	708.0	649.0	575.8	541.4	540.7	535.1	-2.6%	-4.4%	-0.1%	-1.0%	-3.2%
Netherlands	Steam Coal	129.1	65.0	70.6	na	na	na	na	-11.4%	-	-	-	-
	Heavy fuel oil 3.5 % S	275.3	119.8	147.5	120.0	117.3	119.1	120.0	-11.7%	-5.6%	1.5%	0.8%	-3.4%
	Natural gas	234.9	97.9	98.6	87.8	82.6	89.6	87.9	-15.9%	-4.3%	8.5%	-1.9%	-1.9%
	Electricity	690.4	451.0	479.3	540.1	522.3	522.5	515.2	-7.0%	2.2%	0.0%	-1.4%	1.2%
Portugal	Heavy fuel oil 3.5 % S	294.9	163.2	147.8	119.2	110.7	105.5	110.3	-12.9%	-7.0%	-4.6%	4.5%	-4.8%
	Natural gas	na	na	na	na	na	na	na	-	-	-	-	-
	Electricity	1050.7	1115.4	1059.7	973.3	913.7	830.9	762.9	0.2%	-3.6%	-9.1%	-8.2%	-5.3%
Spain	Steam Coal	na	na	na	na	na	na	na	-	-	-	-	-
	Heavy fuel oil 3.5 % S	365.8	130.8	119.9	105.4	122.0	139.4	152.2	-20.0%	0.4%	14.3%	9.2%	4.1%
	Natural gas	359.5	155.7	129.0	106.5	114.3	119.2	124.1	-18.5%	-3.0%	4.3%	4.1%	-0.6%
	Electricity	969.3	1015.6	892.7	825.2	768.6	705.6	674.2	-1.6%	-3.7%	-8.2%	-4.4%	-4.6%
Sweden	Steam Coal	145.6	107.6	98.2	na	na	na	na	-7.6%	-	-	-	-
	Heavy fuel oil 3.5 % S	432.8	250.3	304.1	164.6	147.6	149.0	156.2	-6.8%	-16.5%	1.0%	4.8%	-10.5%
	Natural gas	na	na	na	na	na	na	na	-	-	-	-	-
	Electricity	503.6	465.5	456.2	363.4	360.7	354.3	377.8	-2.0%	-5.7%	-1.8%	6.6%	-3.1%
United Kingdom	Steam Coal	151.3	113.2	99.5	81.1	78.3	70.2	65.2	-8.1%	-5.8%	-10.3%	-7.1%	-6.8%
	Heavy fuel oil 3.5 % S	293.4	109.6	108.1	84.1	94.6	107.2	114.9	-18.1%	-3.3%	13.3%	7.2%	1.0%
	Natural gas	212.3	152.2	124.9	115.0	113.3	95.5	68.2	-10.1%	-2.4%	-15.7%	-28.6%	-9.6%
	Electricity	777.3	711.0	648.1	664.3	624.1	597.9	563.5	-3.6%	-0.9%	-4.2%	-5.8%	-2.3%
European Union	Steam Coal	155.8	131.5	122.9	119.2	117.1	114.0	110.0	-4.6%	-1.2%	-2.7%	-3.5%	-1.8%
	Heavy fuel oil 3.5 % S	311.5	114.6	129.4	102.7	111.6	117.6	124.8	-16.1%	-3.6%	5.5%	6.1%	-0.6%
	Natural gas	263.0	121.4	128.6	119.1	117.0	116.4	113.9	-13.3%	-2.3%	-0.5%	-2.2%	-2.0%
	Electricity	734.0	658.9	635.7	614.6	584.3	567.9	537.5	-2.8%	-2.1%	-2.8%	-5.4%	-2.8%

(1) Excluding Refundable VAT
(2) Estimates marked in bold

fastest growth in industrial production as a result of a large diversification towards high added values industries. Sweden, Finland, Denmark and Austria, who showed the most sustained industrial production after Ireland with a progress between 15% and 20% since 1990, are also amongst the best performers in terms of global energy efficiency. This confirms that improvements in energy intensity require sustained industrial production growth. The situation in the five major Member States (France, Germany, Italy, Spain and the United Kingdom) is not so clear. Between 1985 and 1990, all of them except Italy registered a progression in industrial production of about 12%-15% accompanied by a progress in energy intensity ranging from 1% in Italy to 31% in Germany. Since 1990, the evolution has been even more varied. The evolution of industrial production ranged from a reduction of 4% in Germany to an increase of 8% in the United Kingdom. At the same time, the brackets for energy intensity goes from –6% in Germany to +4% in France. If we exclude Germany, where energy intensity gains are mainly due to the restructuring and the closing of old industries in the new Landers, intensity improvement (about 5%) occurred only in Italy and United Kingdom who showed progress in industrial production. The share of total industrial energy demand of these five Member States remained globally stable, representing about three-quarters of the European Union's consumption. The most spectacular improvement occurred in Luxembourg in '94 and '95, largely the result of the reconversion of the steel industry to electrical furnaces.

Throughout the European Union, the margin between energy prices remained considerable…

The average **prices of energy for industrial consumers** (1990 ECU per toe), over the 1990-1996 period show an average yearly decrease of 1.8% for steam coal, 0.4% for heavy oil, 2.0% for natural gas and 2.8% for electricity considering a weighted average at the European level. In 1996, the difference between average European price per toe of heavy fuel (125 ECU) and natural gas (114 ECU) increased significantly and explained the important substitution operated in favour of gas. The more rapid decline of electricity prices also favoured electricity uses, increasing the competitiveness of a lot of electro-technologies. Between countries, the prices for the different energy sources show important discrepancies in both value and trends depending on supply conditions, market mechanisms and taxation. The gaps between extreme prices remained considerable: from 83 ECU/toe (Austria) to 181 ECU/toe (Finland) for heavy fuel oil, from 68 ECU/toe (United Kingdom) to 225 ECU/toe (Ireland) for natural gas and from 378 ECU/toe (Sweden) to 901 ECU/toe (Italy) for electricity. It must be stressed that the liberalisation of the electricity and gas market in the United Kingdom resulted in impressive price reductions for gas - more than 40% in only two years - but more limited ones for electricity with only 10%, in line with the average price reduction in the European Union.

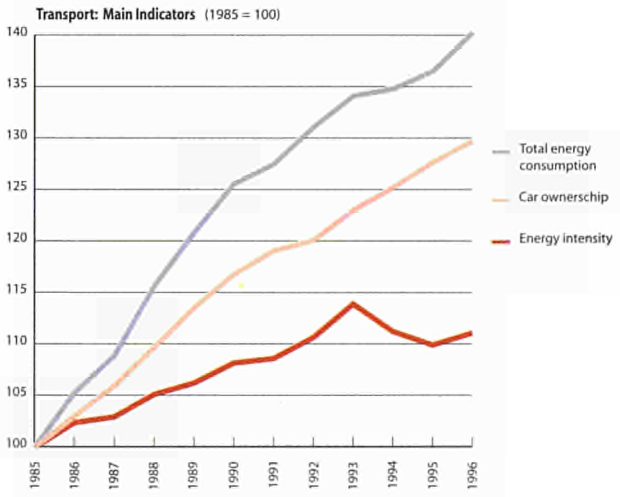
TRANSPORT

Transport sector responsible for 70% of final energy demand increase since 1985…

Energy consumption in Transport grew between 1985 and 1996 at an average annual rate of 3.1%. But in the period 1990-95, the growth remained limited to 1.9% per year despite a jump of 2.8% in 1996. In 1996, total energy demand in the transport sector (excluding marine bunkers) reached 283 Mtoe or 30% of total final energy demand compared to only 24.5% in 1985. This underlines the predominant contribution of the transport sector in the growth of final energy demand. Between 1985 and 1996, the increase of energy consumption for transport, about 82 Mtoe, represents 70% of final energy demand increase.

Passenger traffic has grown more rapidly than economic growth driven by leisure travel…

The volume of passenger traffic in the European Union has grown more rapidly than economic growth since the beginning of the 80's. This development has been largely uniform across most of the European countries; only Italy and Portugal showed above-average growth in passenger traffic while in Sweden growth was below average. Rises in overall European passenger traffic can be seen in absolute figures for all transportation modes but the relative proportion of rail and buses traffic has declined continuously in favour of the passenger car and air traffic sectors. The volume of work-related traffic (journeys between home and workplace, university or school as



EUROPEAN UNION : TRANSPORT - FINAL ENERGY CONSUMPTION

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Total consumption	201.84	233.57	253.57	272.20	275.69	283.27	4.7%	1.8%	1.3%	2.8%	1.9%
Solids	0.32	0.13	0.10	0.01	0.01	0.01	-21.4%	-39.6%	10.2%	2.4%	-27.1%
Oil	197.89	229.59	249.26	267.33	270.72	278.16	4.7%	1.8%	1.3%	2.7%	1.8%
of which:											
Road	169.71	196.66	212.07	226.37	228.75	234.20	4.6%	1.6%	1.1%	2.4%	1.7%
Motor Gasoline	*105.07*	*116.48*	*121.72*	*121.66*	*120.48*	*122.75*	*3.0%*	*0.0%*	*-1.0%*	*1.9%*	*0.1%*
Diesel Oil	*62.32*	*77.63*	*87.66*	*102.03*	*105.50*	*108.64*	*7.1%*	*3.9%*	*3.4%*	*3.0%*	*3.6%*
Air	20.75	25.08	27.66	31.30	32.54	34.37	5.9%	3.1%	4.0%	5.6%	3.7%
Jet Fuel	*20.59*	*24.89*	*27.51*	*31.18*	*32.41*	*34.25*	*6.0%*	*3.2%*	*3.9%*	*5.7%*	*3.7%*
Gas	0.24	0.22	0.21	0.25	0.27	0.29	-2.9%	4.7%	6.8%	8.4%	5.7%
Electricity	3.39	3.63	4.00	4.61	4.69	4.81	3.4%	3.6%	1.8%	2.5%	3.1%
Transport Energy Intensity (toe/1990 Mecu)	44.10	46.38	47.72	49.08	48.50	49.01	1.6%	0.7%	-1.2%	1.1%	0.4%
Transport Energy Intensity (1990=100)	92.40	97.18	100.00	102.83	101.62	102.70	1.6%	0.7%	-1.2%	1.1%	0.4%
Nb. of Vehicles (millions)	135.23	146.55	157.32	176.53	180.60	184.67	3.1%	2.9%	2.3%	2.3%	2.7%
Specific Consumption in Road Traffic (toe/vehicle)	1.25	1.34	1.35	1.28	1.27	1.27	1.4%	-1.2%	-1.2%	0.1%	-1.0%

well as business trips) has remained very constant. By contrast, leisure travel (attending leisure events, weekend excursions, holiday trips…) has risen by about 8% in just a few years.

Increasing energy and environmental implications of road transport…

Within the transport sector, road transport is the largest sub-sector, accounting for about 83% of total energy demand since 1985. The energy and environmental implications of road transport are increasing because the expected growth in traffic volumes is likely to more than offset the expected energy efficiency improvements in vehicle performance. Also, the rate of car ownership is steadily increasing with the number of cars in the European Union having increased by about 3% per year on average since 1985. In addition, larger cars (over 1500 cc) have increased their share of new registrations at the expense of smaller cars. Marked differences in car ownership rates still exist among countries, Greece presenting the lowest ownership with 177 passenger cars par 1000 inhabitants and Luxembourg the highest with 587 (1993 values). Differences in income levels and fuel prices are not a sufficient explanation of these differences. Factors such as different tax regimes for the purchase, ownership and use of cars also influence ownership levels. Fuel consumption is a function of car ownership but also of vehicle utilisation. Car utilisation varies greatly within Europe, ranging from 11000 km per year in Italy to almost 19000 km in Finland.

Diesel oil share reached 46% of the total road consumption in 1996…

Total freight transport has increased by more than 70% over the past 25 years and the road transport of goods has more than doubled. This implies that the proportion of freight transported by road has increased at the expense of other means of transport, mainly rail. Road transport advantages are numerous: commercial vehicles are more flexible and reliable, as well as faster, than other modes of transport; they can be easily integrated into production and distribution structures. Consequently, the share of diesel oil in road consumption continued to increase, passing from 41% in 1990 to 46% in 1995 as a consequence of increasing freight transport and growing share of diesel engine powered private cars.

Surging demand for air transport, still driven by the liberalisation of the air market…

The demand for aviation fuel grew on average by 4.7% per annum since 1985, as a result of rising real incomes implying increasing leisure air travel combined with the recent liberalisation of the air market that induced spectacular reduction in tariffs. The movement was initiated by low-cost companies and followed by the major companies.

Transport energy intensity initiated a slow decline after 1994…

The **transport energy intensity** grew continuously by 1.5% over the last decade, but recent observations both at the European and Member State level seem to indicate that the transport energy intensity perhaps peaked at the beginning of the 90's. But without statistical disaggregation between private and freight transport, it is not currently possible to analyse the reasons behind this new trend. The limited increase of energy intensity by 0.4% in 1996 can be attributed to the substantial increase of kerosene (+5.7%) as a consequence of the liberalisation of air market that occurred that year. The first available figures for 1997 showed a slow decrease in energy intensity to recover the 1995 level, confirming the short-term declining trend. Ireland excepted, all Member States showed increases in the transport energy intensity over the period 1985-1995. The situation, however, is different when only the 90's are considered. Since 1990, four Member

TRANSPORT ENERGY CONSUMPTION

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/85	96/90
							Annual % Change					
Austria	**4.52**	**5.06**	**5.40**	**6.08**	**6.23**	**6.29**	**3.6%**	**3.0%**	**2.4%**	**1.0%**	**3.1%**	**2.0%**
Transport Energy Intensity (toe/1990 Mecu)	42.09	43.86	42.98	44.85	44.99	44.71	0.4%	1.1%	0.3%	-0.6%	0.5%	0.7%
Road Consumption	4.02	4.47	4.75	5.30	5.39	5.39	3.4%	2.8%	1.7%	0.0%	2.7%	1.8%
Specific consumption in (toe/vehicle)	1.28	1.31	1.31	1.27	1.25	1.21	0.4%	-0.7%	-1.2%	-3.1%	-0.5%	-0.5%
Belgium	**6.13**	**7.39**	**7.70**	**8.48**	**8.48**	**8.89**	**4.7%**	**2.4%**	**0.0%**	**4.9%**	**3.4%**	**1.6%**
Transport Energy Intensity (toe/1990 Mecu)	46.12	51.07	49.90	52.78	51.72	53.47	1.6%	1.4%	-2.0%	3.4%	1.4%	0.9%
Road Consumption	5.12	6.39	6.44	7.06	7.08	7.21	4.7%	2.3%	0.3%	1.8%	3.2%	1.5%
Specific consumption in (toe/vehicle)	1.41	1.63	1.54	1.51	1.51	1.51	1.7%	-0.4%	-0.3%	0.2%	0.6%	-0.3%
Denmark	**3.63**	**3.96**	**4.50**	**4.58**	**4.64**	**4.74**	**4.4%**	**0.4%**	**1.4%**	**2.1%**	**2.4%**	**0.3%**
Transport Energy Intensity (toe/1990 Mecu)	38.32	40.50	45.16	42.94	42.45	42.30	3.3%	-1.3%	-1.1%	-0.4%	0.9%	-0.8%
Road Consumption	2.80	2.81	3.20	3.50	3.54	3.58	2.7%	2.3%	1.2%	1.2%	2.3%	1.5%
Specific consumption in (toe/vehicle)	1.58	1.48	1.68	1.69	1.70	1.66	1.3%	0.1%	0.9%	-2.3%	0.5%	0.0%
Finland	**3.35**	**3.92**	**4.27**	**4.16**	**4.11**	**4.03**	**5.0%**	**-0.6%**	**-1.3%**	**-1.8%**	**1.7%**	**-0.4%**
Transport Energy Intensity (toe/1990 Mecu)	37.24	38.99	40.17	42.29	39.75	37.79	1.5%	1.3%	-6.0%	-4.9%	0.1%	0.9%
Road Consumption	2.90	3.36	3.63	3.56	3.50	3.42	4.6%	-0.5%	-1.4%	-2.5%	1.5%	-0.4%
Specific consumption in (toe/vehicle)	1.35	1.56	1.64	1.67	1.63	1.55	4.0%	0.4%	-2.3%	-4.7%	1.3%	0.3%
France	**33.50**	**38.65**	**41.91**	**43.52**	**43.97**	**45.87**	**4.6%**	**0.9%**	**1.0%**	**4.3%**	**2.9%**	**0.6%**
Transport Energy Intensity (toe/1990 Mecu)	41.31	43.68	44.55	44.91	44.50	45.86	1.5%	0.2%	-0.9%	3.1%	1.0%	0.1%
Road Consumption	29.39	33.75	36.17	37.07	37.30	38.85	4.2%	0.6%	0.6%	4.2%	2.6%	0.4%
Specific consumption in (toe/vehicle)	1.21	1.29	1.32	1.29	1.28	1.33	1.8%	-0.6%	-0.9%	3.7%	0.8%	-0.4%
Germany	**47.24**	**53.32**	**58.54**	**61.95**	**62.86**	**62.56**	**4.4%**	**1.4%**	**1.5%**	**-0.5%**	**2.6%**	**0.9%**
Transport Energy Intensity (toe/1990 Mecu)	41.41	43.24	45.12	44.64	44.47	43.66	1.7%	-0.3%	-0.4%	-1.8%	0.5%	-0.2%
Road Consumption	40.41	45.99	50.23	53.16	54.19	53.77	4.4%	1.4%	1.9%	-0.8%	2.6%	1.0%
Specific consumption in (toe/vehicle)	1.47	1.50	1.54	1.26	1.26	1.23	1.0%	-4.9%	-0.2%	-2.2%	-1.6%	-3.3%
Greece	**4.68**	**5.18**	**5.82**	**6.44**	**6.43**	**6.56**	**4.5%**	**2.6%**	**-0.2%**	**2.0%**	**3.1%**	**1.7%**
Transport Energy Intensity (toe/1990 Mecu)	78.62	82.38	89.13	95.02	93.15	92.64	2.5%	1.6%	-2.0%	-0.5%	1.5%	1.1%
Road Consumption	3.06	3.56	3.90	4.44	4.58	4.81	5.0%	3.3%	3.2%	4.8%	4.2%	2.2%
Specific consumption in (toe/vehicle)	1.64	1.63	1.56	1.64	1.61	1.67	-1.0%	1.3%	-2.2%	3.5%	0.2%	0.9%
Ireland	**1.69**	**1.81**	**1.97**	**2.30**	**2.18**	**2.70**	**3.1%**	**4.0%**	**-5.1%**	**23.5%**	**4.3%**	**2.6%**
Transport Energy Intensity (toe/1990 Mecu)	61.76	57.92	54.93	53.68	45.82	52.10	-2.3%	-0.6%	-14.7%	13.7%	-1.5%	-0.4%
Road Consumption	1.43	1.40	1.56	1.81	1.73	2.17	1.7%	3.8%	-4.4%	25.5%	3.8%	2.5%
Specific consumption in (toe/vehicle)	1.71	1.59	1.65	1.66	1.57	1.90	-0.7%	0.2%	-5.4%	20.7%	0.9%	0.1%
Italy	**27.75**	**31.11**	**33.40**	**36.72**	**37.64**	**38.00**	**3.8%**	**2.4%**	**2.5%**	**1.0%**	**2.9%**	**1.6%**
Transport Energy Intensity (toe/1990 Mecu)	37.30	37.97	38.79	41.51	41.33	41.44	0.8%	1.7%	-0.4%	0.3%	1.0%	1.1%
Road Consumption	24.99	28.44	30.39	33.24	33.94	34.10	4.0%	2.3%	2.1%	0.4%	2.9%	1.5%
Specific consumption in (toe/vehicle)	0.99	1.02	1.01	1.01	1.00	0.98	0.3%	0.0%	-0.9%	-1.5%	-0.1%	0.0%
Luxembourg	**0.60**	**0.74**	**1.01**	**1.34**	**1.30**	**1.36**	**10.9%**	**7.4%**	**-2.7%**	**3.9%**	**7.7%**	**4.9%**
Transport Energy Intensity (toe/1990 Mecu)	88.90	96.51	123.55	140.37	132.38	134.08	6.8%	3.2%	-5.7%	1.3%	3.8%	2.2%
Road Consumption	0.51	0.62	0.87	1.17	1.11	1.14	11.2%	7.6%	-5.1%	2.9%	7.5%	5.0%
Specific consumption in (toe/vehicle)	3.08	3.23	4.13	4.58	4.10	3.97	6.0%	2.6%	-10.4%	-3.2%	2.3%	1.7%
Netherlands	**8.80**	**9.69**	**10.32**	**11.77**	**12.37**	**13.09**	**3.2%**	**3.4%**	**5.1%**	**5.8%**	**3.7%**	**2.2%**
Transport Energy Intensity (toe/1990 Mecu)	45.91	47.29	46.18	48.48	49.86	51.31	0.1%	1.2%	2.9%	2.9%	1.0%	0.8%
Road Consumption	7.47	7.52	8.04	8.71	8.95	9.52	1.5%	2.0%	2.7%	6.4%	2.2%	1.3%
Specific consumption in (toe/vehicle)	0.14	1.32	1.33	1.34	1.36	1.40	56.3%	0.3%	1.2%	3.3%	23.1%	0.2%
Portugal	**2.66**	**3.32**	**3.73**	**4.69**	**4.85**	**5.11**	**7.0%**	**5.8%**	**3.6%**	**5.3%**	**6.1%**	**3.9%**
Transport Energy Intensity (toe/1990 Mecu)	63.86	66.86	68.62	81.17	82.03	83.88	1.4%	4.3%	1.0%	2.3%	2.5%	2.8%
Road Consumption	2.06	2.65	3.03	3.95	4.10	4.36	8.0%	6.9%	4.0%	6.3%	7.1%	4.5%
Specific consumption in (toe/vehicle)	0.92	1.02	0.96	0.95	0.93	0.94	0.8%	-0.4%	-1.5%	0.3%	0.1%	-0.3%
Spain	**15.06**	**20.24**	**22.33**	**25.68**	**26.07**	**27.75**	**8.2%**	**3.6%**	**1.5%**	**6.4%**	**5.7%**	**2.4%**
Transport Energy Intensity (toe/1990 Mecu)	48.02	56.37	57.29	63.29	62.57	65.13	3.6%	2.5%	-1.1%	4.1%	2.8%	1.7%
Road Consumption	11.81	15.81	17.68	20.21	20.47	21.71	8.4%	3.4%	1.3%	6.1%	5.7%	2.3%
Specific consumption in (toe/vehicle)	1.08	1.23	1.22	1.22	1.20	1.22	2.4%	0.0%	-1.7%	1.5%	1.1%	0.0%
Sweden	**6.43**	**7.47**	**7.23**	**7.56**	**7.66**	**7.60**	**2.4%**	**1.1%**	**1.4%**	**-0.9%**	**1.5%**	**0.7%**
Transport Energy Intensity (toe/1990 Mecu)	39.62	42.67	39.80	42.22	41.19	40.32	0.1%	1.5%	-2.5%	-2.1%	0.2%	1.0%
Road Consumption	5.37	6.21	6.07	6.40	6.43	6.39	2.5%	1.3%	0.5%	-0.7%	1.6%	0.9%
Specific consumption in (toe/vehicle)	1.40	1.61	1.55	1.63	1.63	1.61	2.1%	1.4%	-0.3%	-1.4%	1.3%	0.9%
United Kingdom	**35.80**	**41.72**	**45.45**	**46.93**	**46.89**	**48.74**	**4.9%**	**0.8%**	**-0.1%**	**3.9%**	**2.8%**	**0.5%**
Transport Energy Intensity (toe/1990 Mecu)	54.79	55.61	59.06	58.75	57.13	58.04	1.5%	-0.1%	-2.8%	1.6%	0.5%	-0.1%
Road Consumption	28.62	33.90	36.31	37.05	36.69	38.06	4.9%	0.5%	-1.0%	3.8%	2.6%	0.3%
Specific consumption in (toe/vehicle)	1.44	1.52	1.51	1.51	1.47	1.49	0.9%	0.1%	-2.9%	1.7%	0.3%	0.0%
European Union	**201.84**	**233.57**	**253.57**	**272.20**	**275.69**	**283.27**	**4.7%**	**1.8%**	**1.3%**	**2.8%**	**3.1%**	**1.2%**
Transport Energy Intensity (toe/1990 Mecu)	44.1	46.4	47.7	49.1	48.5	49.0	1.6%	0.7%	-1.2%	1.1%	1.0%	0.5%
Road Consumption	169.7	196.7	212.1	226.4	228.8	234.2	4.6%	1.6%	1.1%	2.4%	3.0%	1.1%
Specific consumption in (toe/vehicle)	1.25	1.34	1.35	1.28	1.27	1.27	1.4%	-1.2%	-1.2%	0.1%	0.1%	-0.8%

ENERGY PRICES OF TRANSPORT FUELS IN CONSTANT 1990 ECU PER TOE (1)

	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Austria											
Premium leaded gasoline	1258.7	900.6	978.6	na	na	na	-4.9%	na	na	na	na
Premium Unleaded gasoline (95)	na	870.4	940.6	845.8	915.5	909.1	na	-2.6%	8.2%	-0.7%	-0.6%
Diesel	831.1	584.8	600.9	480.0	509.5	533.4	-6.3%	-5.5%	6.2%	4.7%	-2.0%
Belgium											
Premium leaded gasoline	1278.8	899.2	1038.4	1045.9	1025.3	1102.9	-4.1%	0.2%	-2.0%	7.6%	1.0%
Premium Unleaded gasoline (95)	na	na	975.1	940.9	923.4	1016.5	na	-0.9%	-1.9%	10.1%	0.7%
Diesel	637.6	387.0	499.1	520.8	502.5	531.2	-4.8%	1.1%	-3.5%	5.7%	1.0%
Denmark											
Premium leaded gasoline	1298.8	1226.2	1096.9	913.0	964.5	na	-3.3%	-4.5%	5.6%	na	na
Premium Unleaded gasoline (98)	na	na	1022.0	908.1	959.8	1023.9	na	-2.9%	5.7%	6.7%	0.0%
Diesel	522.6	277.6	289.4	438.0	450.9	476.6	-11.2%	10.9%	2.9%	5.7%	8.7%
Finland											
Premium leaded gasoline	1390.2	1070.6	1179.1	na	na	na	-3.2%	na	na	na	na
Premium Unleaded gasoline (95)	na	na	1087.8	1164.0	1225.9	1374.0	na	1.7%	5.3%	12.1%	4.0%
Diesel	881.8	793.4	921.4	675.8	637.4	675.5	0.9%	-7.5%	-5.7%	6.0%	-5.0%
France											
Premium leaded gasoline	1291.6	1023.7	1059.7	1014.6	1042.8	1080.1	-3.9%	-1.1%	2.8%	3.6%	0.3%
Premium Unleaded gasoline (95)	na	na	1035.3	952.2	999.7	1038.5	na	-2.1%	5.0%	3.9%	0.1%
Diesel	802.7	540.1	521.0	516.1	502.0	542.9	-8.3%	-0.2%	-2.7%	8.1%	0.7%
Germany											
Premium leaded gasoline	1066.5	746.9	885.9	1014.0	1001.2	1026.8	-3.6%	3.4%	-1.3%	2.6%	2.5%
Premium Unleaded gasoline (95)	na	713.3	817.5	933.7	917.7	944.0	na	3.4%	-1.7%	2.9%	2.4%
Diesel	739.4	478.0	512.6	504.7	489.0	523.5	-7.1%	-0.4%	-3.1%	7.0%	0.3%
Greece											
Premium leaded gasoline	1038.6	718.0	783.2	777.2	724.7	717.9	-5.5%	-0.2%	-6.8%	-0.9%	-1.4%
Premium Unleaded gasoline (95)	na	774.0	738.9	724.4	675.4	669.2	na	-0.5%	-6.8%	-0.9%	-1.6%
Diesel	472.2	289.4	290.7	373.0	368.9	381.3	-9.2%	6.4%	-1.1%	3.4%	4.6%
Ireland											
Premium leaded gasoline	1395.7	1116.4	1125.7	966.7	956.6	989.0	-4.2%	-3.7%	-1.0%	3.4%	-2.1%
Premium Unleaded gasoline (95)	na	na	1086.4	905.2	888.7	919.1	na	na	-1.8%	3.4%	-2.7%
Diesel	833.5	686.1	680.4	642.1	612.1	792.7	-4.0%	-1.4%	-4.7%	29.5%	2.6%
Italy											
Premium leaded gasoline	1653.8	1461.4	1400.5	1325.7	1362.4	1348.9	-3.3%	-1.4%	2.8%	-1.0%	-0.6%
Premium Unleaded gasoline (95)	na	na	1382.4	1235.7	1281.3	1280.2	na	-2.8%	3.7%	-0.1%	-1.3%
Diesel	656.5	558.8	670.3	700.5	723.8	741.8	0.4%	1.1%	3.3%	2.5%	1.7%
Luxembourg											
Premium leaded gasoline	961.4	735.4	740.1	775.1	789.6	809.8	-5.1%	1.2%	1.9%	2.6%	1.5%
Premium Unleaded gasoline (95)	na	na	705.0	683.0	698.8	720.6	na	-0.8%	2.3%	3.1%	0.4%
Diesel	585.4	355.1	374.6	438.9	430.2	458.5	-8.5%	4.0%	-2.0%	6.6%	3.4%
Netherlands											
Premium leaded gasoline	1259.4	1063.4	1126.4	1139.5	1118.6	1137.8	-2.2%	0.3%	-1.8%	1.7%	0.2%
Premium Unleaded gasoline (95)	1219.6	1025.9	1077.6	1046.1	1026.4	1057.6	-2.4%	-0.7%	-1.9%	3.0%	-0.3%
Diesel	593.7	392.7	500.5	633.6	616.9	659.2	-3.4%	6.1%	-2.6%	6.9%	4.7%
Portugal											
Premium leaded gasoline	1467.5	1196.6	1077.2	898.6	869.8	875.8	-6.0%	-4.4%	-3.2%	0.7%	-3.4%
Premium Unleaded gasoline (95)	na	1196.6	1032.0	876.3	858.7	856.6	na	-4.0%	-2.0%	-0.2%	-3.1%
Diesel	762.9	615.2	586.2	492.0	477.7	478.4	-5.1%	-4.3%	-2.9%	0.2%	-3.3%
Spain											
Premium leaded gasoline	1349.6	918.9	877.6	940.0	930.8	935.3	-8.2%	1.7%	-1.0%	0.5%	1.1%
Premium Unleaded gasoline (95)	na	na	na	912.4	881.0	884.2	na	na	-3.4%	0.4%	na
Diesel	789.3	535.1	517.8	536.5	511.5	544.5	-8.1%	0.9%	-4.7%	6.4%	0.8%
Sweden											
Premium leaded gasoline	1149.5	958.8	1179.5	1197.0	1173.4	1212.6	0.5%	0.4%	-2.0%	3.3%	0.5%
Premium Unleaded gasoline (95)	na	na	na	1143.8	1116.3	1162.1	na	na	-2.4%	4.1%	na
Diesel	664.6	498.7	634.2	669.6	662.6	690.6	-0.9%	1.4%	-1.0%	4.2%	1.4%
United Kingdom											
Premium leaded gasoline	1166.8	896.2	911.6	1010.8	1025.6	1033.0	-4.8%	2.6%	1.5%	0.7%	2.1%
Premium Unleaded gasoline (95)	na	na	852.8	913.1	924.2	947.5	na	1.7%	1.2%	2.5%	1.8%
Diesel	834.8	599.2	603.8	657.4	670.5	695.6	-6.3%	2.1%	2.0%	3.7%	2.4%
European Union											
Premium leaded gasoline	1249.3	961.6	1012.7	1054.3	1061.9	1078.8	-4.1%	1.0%	0.7%	1.6%	1.1%
Premium Unleaded gasoline (95)	1219.6	774.0	966.7	980.0	989.7	1012.6	-4.5%	0.3%	1.0%	2.3%	0.8%
Diesel	734.0	524.8	559.4	565.6	558.5	590.3	-5.3%	0.3%	-1.3%	5.7%	0.9%

(1) Excluding refundable VAT only for Diesel

States (Denmark, Germany, Ireland and the United Kingdom) experienced declining energy intensity and only the southern countries, if we except the particular situation of Luxembourg demonstrated increases over 1% per year on average. The Luxembourg pattern, the highest transport energy intensity and consumption per vehicle in Europe reflects the fact that consumers in neighbouring Member States (Belgium, France and Germany) took advantage of lower prices and got a part of their supplies in Luxembourg. Since the peak reached in 1993, the figure has still been modified with ten Member States showing declining transport energy intensity, while it has stabilised in two other Member States. Only the Netherlands, Portugal and Spain still showed increase in energy intensity.

Since 1990 prices for transport fuel increased by about 1% per year under the pressure of tax increases...

Transport fuel prices increased regularly since 1990, by a yearly average of about 1% for oil products. This evolution is the result of two opposite trends: a reduction of pre-tax prices by about 23% since 1990 according to the fuels, and an increase of taxes by only 4% for unleaded gasoline to favour its use and by 21% for leaded gasoline and diesel. Large price fluctuations existed per Member State and per fuel. Furthermore, relative prices of gasoline versus diesel differed very sharply per country, inducing possible distortions in competition in the road transport sector. In 1996, leaded gasoline prices ranged between 1348 and 718 ECU/toe, unleaded gasoline between 1374 and 669 ECU/toe and diesel prices ranged between 793 and 381 ECU/toe. The difference between leaded and unleaded gasoline in a same country ranged, during 1996, between 90 (Luxembourg) and 19 (Portugal) ECU/toe, with an average difference of 66 ECU/toe. Comparing unleaded gasoline and diesel, the difference in price ranged between 698 (Finland) and 126 (Ireland) ECU/toe, with an average value of 422 ECU/toe over all the Member States.

Because of the transport sector's unresponsiveness to fuel price changes in the short- to medium-term, many European governments have been encouraged to tax fuel as a source of revenue. The tax share of the retail price of road transport fuels has increased over time and typically now stands at about 70% in the European Union compared with less than 40% in the United States. As a consequence, any increases in the crude oil price will have a limited impact on the road transport sector's energy demand, as the high tax component of the retail price dampens the direct impact of increase in oil prices.

DOMESTIC AND TERTIARY

Constant share in final energy demand since 1985...

In 1996, the domestic and tertiary sectors represented around 42% of final energy demand, almost the same proportion as in 1985 with warmer weather conditions. **Energy consumption in the domestic and tertiary sectors** increased yearly by 1% on average since 1985 under the pressure of continual increase of specific uses (electrical appliances and cooking) and living standards (central heating and house size). In fact, energy consumption in this sector, although a function of population, number of households, private income and evolution of the services sector, is also highly dependent on weather conditions (space heating) and thus presents some marked fluctuations reflecting prevailing weather conditions.

EUROPEAN UNION : DOMESTIC AND TERTIARY - FINAL ENERGY CONSUMPTION

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Total consumption	353.30	348.62	341.47	355.96	365.50	393.77	-0.7%	1.0%	2.7%	7.7%	2.4%
Solids	38.03	31.58	26.58	11.94	9.83	9.75	-6.9%	-18.1%	-17.7%	-0.8%	-15.4%
Oil	119.21	110.47	98.55	99.43	100.20	108.10	-3.7%	0.2%	0.8%	7.9%	1.6%
of which:											
Gas Oil	*96.23*	*89.67*	*79.56*	*80.37*	*81.40*	*87.77*	*-3.7%*	*0.3%*	*1.3%*	*7.8%*	*1.7%*
Gas	93.89	96.95	101.47	116.26	124.31	139.21	1.6%	3.5%	6.9%	12.0%	5.4%
Electricity	71.06	78.07	82.67	91.15	93.27	97.36	3.1%	2.5%	2.3%	4.4%	2.8%
of which :											
Residential	40.50	42.61	44.61	49.56	50.03	52.67	2.0%	2.7%	1.0%	5.3%	2.8%
Commercial & Public Services	28.09	32.92	35.37	38.73	40.28	41.67	4.7%	2.3%	4.0%	3.5%	2.8%
Heat	9.89	10.25	10.52	15.47	15.64	16.21	1.2%	10.1%	1.1%	3.6%	7.5%
Renewable (1)	21.22	21.29	21.68	21.72	22.25	23.15	0.4%	0.0%	2.5%	4.0%	1.1%
Total consumption per Capita (toe/inhabitant)	0.98	0.96	0.94	0.96	0.98	1.06	-1.0%	0.6%	2.4%	7.4%	2.0%
Absolute Degree Days (Eur12)	2836	2268	2141	2126	2202	2486	-5.5%	-0.2%	3.6%	12.9%	2.5%
Difference to Average in %	6.7%	-7.6%	-12.8%	-13.4%	-10.4%	1.2%	-	-	-	-	-

(1) Geothermal heat, solar heat, biomass

Energies distributed by networks increase their contribution from 49% in 1985 to 64% in 1996...

In terms of **fuel mix**, solid fuel consumption dropped by 74% since 1985, and represents, so far, only 2% of the total energy demand. Oil demand dropped throughout the whole period by a yearly average of 0.9% but presented wide fluctuations due to weather conditions, and still represented 27% of the total demand in 1996 against 34% in 1985. Gas and electricity consumption slowly increased their market share to reach 35% and 25% respectively of total energy demand in 1996 (against 27% and 20% in 1985). Since 1985, gas consumption has increased by 3.6% per year on average, gaining substantial market share on the heating market to the detriment of heating gas oil and solids. The electricity demand that grew during the second part of the 80's at the same rate as the GDP growth increased two times faster than GDP since 1990. Between 1985 and 1996, electricity demand from services increased 50% more rapidly than in the domestic sector even though growth rates are similar in these two sub-sectors since 1990. Heat progressively increased its market share by 4.6% per year and now represents more than 4% of the total energy demand. Renewable energy contribution remained almost stable over the decade with some increases these last two years. In 1996, renewable energy represented about 6% of the energy demand, similar to 1985.

Technological improvements balanced by the emergence of new appliances...

Over the past ten years, a number of factors are important in determining energy demand in tertiary and domestic sectors. Higher energy efficiency in new buildings have had a dampening effect, whereas rising private incomes have resulted in a larger area of living space per household and in greater appliance penetration. Technological change both improved appliances in use and led to the development of new appliances. Thus, while the major appliance stocks such as refrigerators are renewed with less energy consuming unit, the emergence of new appliances, e.g. video recorders or home computers, partly offset this improvement.

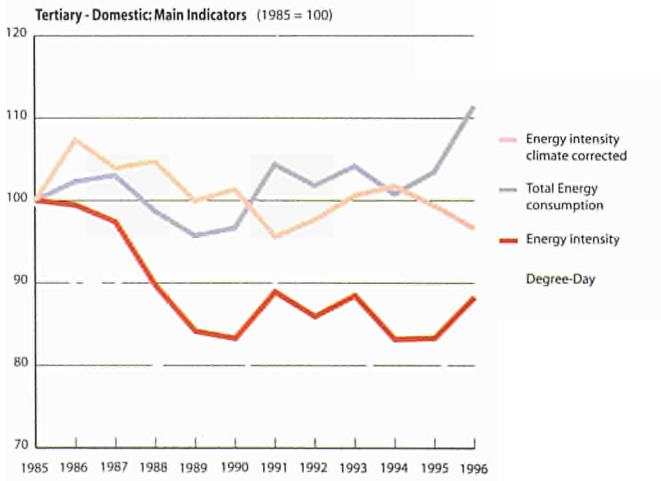
Energy intensity, corrected for climatic effects, appears quite stable since 1985...

Measuring **energy intensity** gains in the domestic and tertiary sectors is a very difficult task. The classical ratio of energy consumption on GDP demonstrated a global improvement of about 12% since 1985. But at the same time, more favourable weather conditions in 1996 compared to 1985 reduced the requirements of heating by an estimated 8%. Estimating total energy demand to take into account standard weather conditions[3], it appears that the new calculated energy intensity seems to be relatively stable since 1985. This suggests that increased standards of living and the growth of the services sector have made up for all the technological and other efficiency improvements introduced, mainly since 1980.

Energy prices for domestic consumers showed an overall decrease despite large national discrepancies...

Average **energy prices for tertiary-domestic** showed an overall decrease since 1990 in the European Union as a whole but at contrasting rates depending on the fuel. The decrease is rather marginal for electricity: -0.8% per year for the European Union as a whole with extremes going from +2.3% in Sweden to –5.6% in Greece. The most important price decrease concerns heating oil: -2.0% per year on average over the European Union with extremes of between -3.8% in the Netherlands and +4% in Greece. The average yearly decrease of natural gas prices is also significant: -1.4% at the European level with extremes of between –3.3% in France and +4.5 in Finland.

The 1996 heating oil prices showed large discrepancies amongst Member States: 218 ECU/toe in Belgium compared to 820 in Italy, for a European average price of 338 ECU/toe. Natural gas prices ranged between 152 ECU/toe in Finland and 544 ECU/toe in Italy, for a European average price of 304 ECU/toe. Minimum price for electricity was 764 ECU/toe in Greece and maximum price was 1642 ECU/toe in Denmark, with a European average of 1140 ECU/toe. Three Member States very much involved in sustainable development programmes- Denmark, the Netherlands and Sweden - substantially increased their taxes on energy products in 1996.



3 Estimation made considering that for the European Union as a whole about 70% of tertiary domestic energy consumption is directly related to weather. SOEC is analysing the possibilities of weather corrections for energy statistics. Our estimates stick only to qualitative statements.

ENERGY PRICES TO DOMESTIC CONSUMERS IN CONSTANT 1990 ECU PER TOE (1) (2)

		1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
								Annual % Change				
Austria	Steam Coal	572.0	448.9	417.6	353.3	353.5	359.2	-6.1%	-4.1%	0.0%	1.6%	-2.5%
	Heating Oil	660.3	357.0	413.9	312.4	310.8	341.9	-8.9%	-6.8%	-0.5%	10.0%	-3.1%
	Natural gas	597.5	333.1	308.5	279.8	273.7	287.3	-12.4%	-2.4%	-2.2%	5.0%	-1.2%
	Electricity	1569.0	1526.7	1425.4	1334.2	1326.8	1383.7	-1.9%	-1.6%	-0.6%	4.3%	-0.5%
Belgium	Steam Coal	395.2	383.7	338.6	328.1	318.1	311.1	-3.0%	-0.8%	-3.1%	-2.2%	-1.4%
	Heating Oil	522.2	203.9	244.6	193.3	176.8	217.6	-14.1%	-5.7%	-8.5%	23.0%	-1.9%
	Natural gas	516.2	326.4	327.4	308.7	300.2	286.4	-8.7%	-1.5%	-2.8%	-4.6%	-2.2%
	Electricity	1832.2	1594.8	1560.2	1449.2	1454.7	1407.4	-3.2%	-1.8%	0.4%	-3.3%	-1.7%
Denmark	Steam Coal	385.1	412.5	439.2	423.9	432.5	447.3	2.7%	-0.9%	2.0%	3.4%	0.3%
	Heating Oil	686.4	647.3	657.5	581.7	563.8	594.7	-0.9%	-3.0%	-3.1%	5.5%	-1.7%
	Natural gas	609.6	576.2	529.9	477.6	447.5	484.8	-2.8%	-2.6%	-6.3%	8.3%	-1.5%
	Electricity	1635.3	1502.9	1506.0	1573.3	1569.9	1642.1	-1.6%	1.1%	-0.2%	4.6%	1.5%
Finland	Heating Oil	531.1	258.3	336.9	341.0	316.7	358.2	-8.7%	0.3%	-7.1%	13.1%	1.0%
	Natural gas	270.8	116.6	117.3	127.2	142.9	152.3	-15.4%	2.1%	12.4%	6.6%	4.5%
	Electricity	988.3	973.3	942.0	992.5	1014.9	1066.2	-1.0%	1.3%	2.3%	5.0%	2.1%
France	Steam Coal	654.1	640.3	467.0	445.2	441.5	437.9	-6.5%	-1.2%	-0.8%	-0.8%	-1.1%
	Heating Oil	608.7	339.2	380.1	323.2	311.7	335.1	-9.0%	-4.0%	-3.6%	7.5%	-2.1%
	Natural gas	565.5	398.9	373.7	336.4	323.8	305.7	-8.0%	-2.6%	-3.7%	-5.6%	-3.3%
	Electricity	1527.9	1401.4	1374.3	1276.7	1253.5	1238.8	-2.1%	-1.8%	-1.8%	-1.2%	-1.7%
Germany	Steam Coal	583.2	571.3	543.6	453.1	446.8	440.2	-1.4%	-4.5%	-1.4%	-1.5%	-3.5%
	Heating Oil	496.6	198.2	281.4	214.1	203.0	239.0	-10.7%	-6.6%	-5.2%	17.7%	-2.7%
	Natural gas	460.6	287.8	312.3	299.0	285.1	271.6	-7.5%	-1.1%	-4.7%	-4.7%	-2.3%
	Electricity	1460.2	1557.2	1500.0	1422.6	1411.7	1296.9	0.5%	-1.3%	-0.8%	-8.1%	-2.4%
Greece	Heating Oil	489.3	317.9	324.2	360.5	356.8	410.9	-7.9%	2.7%	-1.0%	15.2%	4.0%
	Electricity	1103.5	1087.8	1081.6	790.0	792.4	764.0	-0.4%	-7.6%	0.3%	-3.6%	-5.6%
Ireland	Steam Coal	300.8	259.9	274.3	321.9	310.1	305.0	-1.8%	4.1%	-3.7%	-1.6%	1.8%
	Heating Oil	543.6	393.9	395.9	341.6	332.0	361.7	-6.1%	-3.6%	-2.8%	8.9%	-1.5%
	Natural gas	620.2	407.9	379.3	348.8	340.0	334.4	-9.4%	-2.1%	-2.5%	-1.6%	-2.1%
	Electricity	1493.0	1316.0	1222.3	1132.4	1102.6	1084.4	-3.9%	-1.9%	-2.6%	-1.6%	-2.0%
Italy	Heating Oil	714.7	589.4	745.2	816.7	820.2	838.1	0.8%	2.3%	0.4%	2.2%	2.0%
	Natural gas	529.5	426.3	505.6	581.7	559.3	544.4	-0.9%	3.6%	-3.9%	-2.7%	1.2%
	Electricity	1692.4	1430.1	1435.7	1665.8	1649.7	1577.9	-3.2%	3.8%	-1.0%	-4.4%	1.6%
Luxembourg	Steam Coal	409.4	419.7	392.2	373.0	366.3	361.2	-0.9%	-1.2%	-1.8%	-1.4%	-1.4%
	Heating Oil	471.8	231.8	254.7	203.8	191.1	219.3	-11.6%	-5.4%	-6.2%	14.8%	-2.5%
	Natural gas	355.3	186.1	194.5	183.2	180.6	200.4	-11.3%	-1.5%	-1.4%	11.0%	0.5%
	Electricity	1189.1	1163.6	1134.8	981.0	1029.4	1036.2	-0.9%	-3.6%	4.9%	0.7%	-1.5%
Netherlands	Heating Oil	523.2	296.4	353.4	249.9	236.6	280.2	-7.5%	-8.3%	-5.3%	18.4%	-3.8%
	Natural gas	366.7	248.9	264.2	225.5	217.4	225.3	-6.3%	-3.9%	-3.6%	3.6%	-2.6%
	Electricity	1522.3	1093.7	1072.8	933.7	945.4	1066.8	-6.8%	-3.4%	1.3%	12.8%	-0.1%
Portugal	Heating Oil	762.9	638.9	608.7	516.6	501.5	502.3	-4.4%	-4.0%	-2.9%	0.2%	-3.1%
	Electricity	1431.7	1455.7	1346.8	1284.2	1233.1	1195.6	-1.2%	-1.2%	-4.0%	-3.0%	-2.0%
Spain	Heating Oil	576.3	352.1	364.1	323.2	291.9	319.5	-8.8%	-2.9%	-9.7%	9.5%	-2.2%
	Natural gas	745.3	496.1	482.4	456.0	456.8	451.1	-8.3%	-1.4%	0.2%	-1.3%	-1.1%
	Electricity	1794.7	1739.1	1739.9	1724.5	1700.0	1635.4	-0.6%	-0.2%	-1.4%	-3.8%	-1.0%
Sweden	Heating Oil	587.7	382.5	559.3	518.6	501.9	556.6	-1.0%	-1.9%	-3.2%	10.9%	-0.1%
	Electricity	708.4	689.1	804.1	844.2	849.9	922.6	2.6%	1.2%	0.7%	8.6%	2.3%
United Kingdom	Steam Coal	313.7	289.4	264.7	266.9	262.5	258.9	-3.3%	0.2%	-1.7%	-1.4%	-0.4%
	Heating Oil	492.7	219.9	250.7	198.7	201.0	233.8	-12.6%	-5.6%	1.1%	16.3%	-1.2%
	Natural gas	305.6	274.8	259.5	247.1	247.0	241.5	-3.2%	-1.2%	-0.1%	-2.2%	-1.2%
	Electricity	1165.9	1105.0	1086.1	1132.7	1110.5	1080.0	-1.4%	1.1%	-2.0%	-2.7%	-0.1%
European Union	Steam Coal	394.0	366.2	331.3	320.9	326.5	321.1	-3.4%	-0.8%	1.7%	-1.6%	-0.5%
	Heating Oil	559.5	309.5	380.9	317.1	311.7	338.3	-7.4%	-4.5%	-1.7%	8.5%	-2.0%
	Natural gas	425.4	317.2	330.5	324.3	315.6	304.4	-4.9%	-0.5%	-2.7%	-3.6%	-1.4%
	Electricity	1279.2	1216.8	1199.4	1192.2	1180.6	1140.0	-1.3%	-0.2%	-1.0%	-3.4%	-0.8%

(1) Includind all taxes
(2) Estimated in bold and italic

ENERGY OUTLOOK – Energy supply: Recent evolution (1985-1996)

POWER GENERATION

- Since 1994, the electricity growth rate has returned to a level close to the long-term average (2.7%)
- Nuclear and thermal production contributed equally to incremental production these last two years
- Since 1990, combined cycle units accounted for about 50% of new capacity
- Increasing contribution of combined heat and power mainly in Northern Europe
- These last three years, incremental production in thermal stations covered only by gas
- United Kingdom inaugurated way through liberalisation of electricity market

REFINERY

- Closure of crude oil distillation capacity increased utilisation rate to 88%
- Desulphurization capacity increased diesel quality improvement due to stricter legislation
- Refining profitability remained insufficient to sustain the industrial development of the refinery sector

GROSS INLAND CONSUMPTION

- Share of natural gas in gross inland consumption reached 21.3% in 1996 against only 16.9% in 1990
- Since 1990, gross inland consumption growth rate increased in northern countries and decreased in southern ones
- Transport fuels and petrochemical feedstock accounted for 62% of total oil consumption in 1996
- Natural gas, the fuel of the 90's, showed a continuous acceleration of its growth rate
- In-depth restructuring in producing countries reduced solid consumption since 1985 by 25%

INDIGENOUS PRODUCTION

- Indigenous production peaked in 1996 at 770 Mtoe
- Contribution of renewable energy still limited to about 5% of gross inland consumption
- Real economic potential now exists now for renewables energy sources…
- Primary energy production dominated by the United Kingdom, Germany and France

ELECTRICITY SECTOR

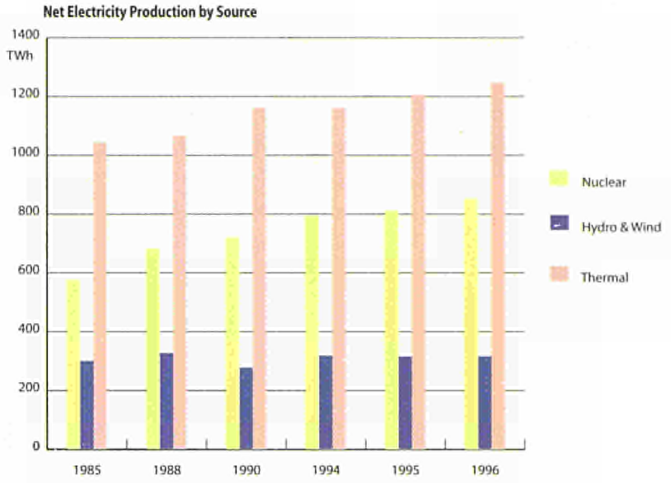
Since 1994, the electricity growth rate has recovered to a level close to the long term average (2.7%)…

Since 1985, **electricity consumption** has shown a steady increase of 2.2% per year on average. However, in the beginning of the 90's a slower growth (1.3%) was registered compared to the sustained rate in the second half of the 80's (2.7%). This was due to the economic slow-down of 1992-93. Since 1994, sustained by economic activity, electricity demand growth recovered levels closer to the long term average, 2.5% in 1995 and 2.7% in 1996. The share of electricity in final demand is increasing significantly. In industry, it increased at the European level from 23.2% in 1985 to 26.9% in 1996 with a peak of 27.7% in 1995. In fact, electricity gained substantial market shares during the 80's and progressed marginally during the 90's, even retreating somewhat in 1996. The lowest contribution occurred in Luxembourg, despite a spectacular jump since 1990 due to the ongoing conversion of the iron steel production to electrical furnaces. The highest rate occurred in Sweden and Finland, where electricity prices are relatively low thanks to the major contribution of hydro. In the tertiary-domestic sector, the share of electricity increased from 20.1% to 24.7% on average over the same period with a peak of 25.6% in 1994. In this sector also the contribution of electricity seems to have stabilised these last three or four years. The gap between the minimum share (16.1% in Netherlands) and the maximum (43.7% in Sweden) is more important for a number of specific reasons. In the South of Europe, as energy demand for heating is limited, the weight of electrical appliances increased proportionally and justified penetration rates of between 29% and 39%. In the central European Union, the increasing energy demand for heating induced a share of between 18 and 29%, depending on the contribution of electricity to heating requirements. On the other hand, the major contribution of electric heating in Sweden, combined by cold weather conditions, was responsible for the 44% share observed in 1996.

ELECTRICITY SHARE IN FINAL CONSUMPTION

	Industry			Tertiary-Domestic		
	1985	1990	1996	1985	1990	1996
Austria	22.5%	27.2%	27.1%	19.1%	21.8%	23.5%
Belgium	20.8%	22.9%	25.5%	14.9%	19.3%	18.4%
Denmark	23.7%	26.8%	27.8%	18.7%	24.1%	24.2%
Finland	29.2%	31.7%	31.1%	25.2%	28.6%	31.6%
France	22.9%	26.8%	28.2%	21.3%	27.3%	28.8%
Germany	21.1%	24.4%	25.2%	17.1%	20.3%	19.7%
Greece	25.3%	26.5%	24.3%	26.8%	29.2%	33.2%
Ireland	17.4%	18.4%	31.3%	19.3%	20.4%	22.5%
Italy	25.3%	25.8%	28.0%	17.5%	20.8%	22.8%
Luxembourg	12.2%	13.1%	22.4%	17.8%	21.1%	21.3%
Netherland	17.7%	21.6%	24.4%	13.8%	17.2%	16.1%
Portugal	21.1%	25.4%	24.7%	21.8%	25.9%	29.0%
Spain	25.9%	27.5%	26.8%	27.4%	35.0%	38.8%
Sweden	35.5%	39.3%	35.7%	41.5%	48.3%	43.7%
United Kingdom	23.4%	25.3%	25.3%	22.0%	25.6%	25.3%
European Union	23.2%	26.0%	26.9%	20.1%	24.2%	24.7%

ELECTRICITY DEMAND GROWTH RATE		
	1985-1990	1990-1996
Austria	3.1%	1.8%
Belgium	3.7%	3.2%
Denmark	2.9%	1.6%
Finland	4.0%	2.0%
France	3.6%	2.8%
Germany	1.0%	0.1%
Greece	3.6%	3.8%
Ireland	4.0%	4.9%
Italy	4.3%	1.9%
Luxembourg	1.7%	3.0%
Netherland	3.7%	2.7%
Portugal	6.2%	4.0%
Spain	4.1%	2.7%
Sweden	1.2%	0.8%
United Kingdom	2.5%	1.8%
European Union	**2.7%**	**1.7%**



Nuclear and thermal production contributed equally to incremental electricity production these last two years…

In 1996, **electricity generation** in the European Union reached 2409 TWh showing an average growth of 2.1% since 1985. Despite a very limited increase in generating capacity since 1990 coming partly from capacity extension in existing units when replacing steam generators, nuclear production showed the fastest growth (3.6% per year on average since 1985). Its contribution reached a little over 35% of the total electricity production in 1996 compared to just 30% in 1985. The utilisation factor of nuclear units has increased continuously over the past ten years to reach 80% on average at the European level. Hydro and wind power together generated 13% during 1996 with an average growth of only 0.5% per year since 1985. These last years, the increasing contribution came mainly from wind power. Some European countries, such as Germany and Denmark, are amongst the largest world contributors. Thermal electricity production showed a slower annual growth of 1.6% on average since 1985, but still represented about 52% of the total electricity generation (54% in 1985). Short-term evolution demonstrated that nuclear and thermal production contributed equally to incremental electricity production. In the near future, as the prospects for new nuclear capacity are very limited, incremental generation requirements will necessarily only be covered by thermal units, with all the energy and environmental implications that this implies.

Since 1990, combined cycle units have accounted for about 50% of new capacity…

In 1996, the **installed capacity** for electricity generation was about 549 GWe, of which 56% is of thermal nature, the rest being supported equally by nuclear power stations, and hydro and wind power stations. Since 1990, installed capacity has increased by 26 GWe. New capacity, excluding repowering and conversion of existing units, represents about 45 GWe, of which: 6.5 GWe of nuclear units, 4 GWe for hydro power, 3 GWe for wind power, about 20 GWe of combined cycle units, 6.5 GWe of gas turbines and 3 GWe of internal combustion engines. About 50% of combined cycle capacity was still located in the United Kingdom but this technology is expanding in a lot of other Member States: the Netherlands (4.8 GWe installed in 1993), Italy (2.5 GWe), Spain (1.3 GWe), Belgium (1.2 GWe) and Austria (1 GWe). In addition, the increasing deregulation of electricity markets will favour the use of gas in power generation, especially in combined cycle units, as smaller companies entering the markets are looking for shorter lead times, lower capital costs and higher efficiency inducing lower fuel costs.

Increasing contribution of combined heat and power mainly in Northern Europe…

The last decade was also marked by the **development of combined heat and power** generation. In 1996, 9% of total electricity production was generated in combined heat and power units. The major EU contributors, according to Eurelectric statistics, were Germany (57 TWh cogenerated), Italy (31 TWh), the Netherlands (23 TWh), Finland (23 TWh) and the United Kingdom (19 TWh). When compared to the total electricity production, the European leaders are Denmark (46% of electricity cogenerated) followed by Finland (32%), the Netherlands (28%) and Austria (21%). Cogeneration was sustained by district heating networks, industrial combined heat and power production on-site, and more recently by the rapid expansion of cogeneration in buildings. The installed capacity in 1996 can be estimated at about 70 GWe or 23% of total thermal capacity in the European Union. The expected growth by 2000, about 15 GWe, will be helpful in improving

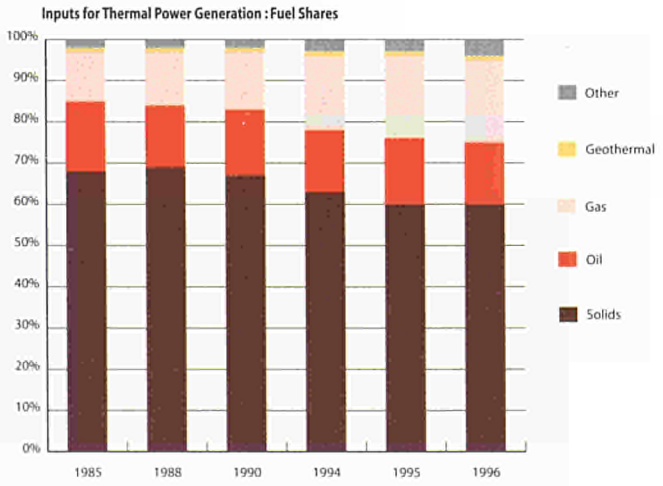
global efficiency of the electricity sector and limiting CO_2 emissions. Furthermore, the Commission has prepared a communication (com(97), 514 final) to promote the use of combined heat and power with an objective of doubling its contribution to electricity production by 2010.

These last two years, incremental production in thermal stations covered only by gas…

Concerning the **fuel mix** in thermal power stations, solid fuels remain the foremost contributor (60% of total energy consumed in 1996 from 68% in 1985) even if their share decreased slightly by 1.1% a year on average over the last decade. Oil and gas account for 15 and 20% respectively. Although oil consumption in the power sector was relatively stable over the 1985-1996 period, gas almost doubled with an average growth of more than 5.5% per year over the same period. The last three years showed that all the incremental production in thermal stations was covered by gas alone, leading to a 30% growth of gas supplies to the power sector. Although the participation of other sources (mainly urban and industrial waste) remained small (about 4% of total inputs in 1996), their consumption, constant over the period 1985-1990, increased sharply after 1992 due to the development of incinerators in some Member States.

United Kingdom inaugurated way through liberalisation of electricity market…

The European electricity industry is likely to become increasingly integrated in the near future. In 1997, the Community adopted a Directive with the intention of progressively **liberalising** the electricity market and providing independent producers with greater access to the European power network. Led by the United Kingdom, several European countries have undertaken important electricity reforms. To varying degrees, these reforms have reduced government oversight and increased the role of market forces in balancing electricity supply and demand. The United Kingdom first began to privatise its electricity industry in 1990 and completed the final phase in 1996. The UK's reforms were motivated by the belief that the industry could be made more competitive through deregulation and privatisation. Sweden and Norway also operate a joint electricity pool and Finland was scheduled to join the pool in early 1998.



REFINERY SECTOR

Closure of crude oil distillation capacity increased utilisation rate to 88%…

Total **crude oil distillation capacity** as reported by Member States for 1996 was 634 million ton/year. The closure of two refineries in Germany during 1995 caused a fall of total European capacity of atmospheric distillation. This loss was, to a certain extent, compensated by additions recorded in Denmark (+1.6 million ton/year), France (+1.5 million ton/ year), Spain (+ 1 million ton/year) and Ireland (+0.2 million ton/year). This limited the total fall to about 4 million ton/year. In 1995, the utilisation rate reached 88% and followed the more or less steady rise observed since 1985 when it was only 63%. This increase reflects the programme of crude distillation capacity reductions undertaken by many refiners over the period, in part accounted for by the closures of complete refineries such as those in Germany in 1995. Conversion capacity amounted to 200 million tonnes per year, expressed in terms of catalytic cracking equivalent, up 35% compared to 1985. Some capacity increases were recorded, mainly in Denmark, Spain, France and in the United Kingdom thus compensating for the German closures. **Total conversion capacity** accounted for about 32% of distillation capacity. This strong growth in conversion capacity since 1985 reflects the industry's expectations at the time concerning future gasoline demand growth and increasingly heavy crude supply slate. These expectations were justified up until the early nineties when gasoline growth flattened and the crude slate started to lighten.

Desulphurization capacity increased diesel quality improvement due to stricter legislation…

The Community obligation to market diesel fuel with 0.05% sulphur as of 1 October 1996, led European refiners to increase the capacity of middle distillate desulphurization by improving existing or installing new capacity. Thus, between 1 January 1995 and 1 January 1996, the Community capacity of middle distillate desulphurization passed from 169 to 178 Million ton/year, accounting for approximately 70% of the production of middle distillates by EU refineries. As the fall in sulphur content applies

only to road diesel, this percentage seems sufficient to satisfy the Community obligation taking account, on the one hand, of the preponderance of low-sulphur crude and, on the other, of the expected growth of desulphurization capacity during 1996 (+ 12 Million ton).

Refining profitability remained insufficient to sustain the industrial development of the refinery sector...

The refining sector has suffered from poor profitability for some time. Margins on the most basic of the refining processes, the initial processing by distillation, are currently virtually nil whilst the margins on upgrading processes which improve the intermediate products, such as catalytic reforming and cracking, remained too low. Individual refineries may be able to cover operating costs, but to sustain industrial development in the sector this is not sufficient. The principal reasons for this situation were the excess refining capacity both at the distillation and conversion levels, and a mix of products inadequate for the demand.

GROSS INLAND CONSUMPTION

Share of natural gas in gross inland consumption reached 21.3% in 1996 against only 16.9% in 1990...

The **gross inland energy consumption** of the European Union (1417 Mtoe in 1996) increased slightly by 1.2% over the period 1985-1996, notwithstanding relative stability between 1990-1994 due to the 92-93 economic recession. But gross inland energy consumption rebounded sharply these last two year under the pressure of economic growth and colder weather conditions in 1996. The resulting increases reached 2.3% in 1995 and 3.7% in 1996. Since 1985, solid fuels have demonstrated a continuous decrease of about 2.3% per year on average, resulting solely from a reduction in consumption by final users. Their share in gross inland consumption therefore fell from 25.6% in 1985 to 22.9% in 1990 and only 16.7% in 1996. Oil products, driven by increasing consumption for transport showed an average yearly increase of 1.3% since 1985, leading to a stabilisation of their share at about 41.5%. The growth of natural gas consumption accelerated continuously to reach 8% in 1995 with a two-digit increase of about 11% in 1996. So its share grew to 21.3% in 1996 against only 16.9% in 1990. The other sources of energy, including nuclear, hydro, wind, net imports of electricity and other energy sources increased regularly from 17.3% of total gross inland consumption in 1985 to 20.3% in 1996. At this level, the winners are nuclear energy, mainly before 1990, and more recently wind power and biomass.

Since 1990, gross inland consumption growth rate increased in northern countries and decreased in southern ones...

When looking at their energy consumption over the period 1985-1996, a large majority of Member States presented a yearly average growth of between 1% and 2%. The fast growers in primary energy demand with annual rates above 2% over the period were Portugal, Spain, Greece, and Ireland. Those with very modest growth, below 1%, are limited to Sweden and Luxembourg. Finally, the German situation is relatively unusual with a continuous slow decrease of about 0.2% of gross inland consumption since 1985. Data also show that most of the growth was concentrated on southern European Member states, where economic growth has been faster than the European Union average, especially in the case of Portugal, Spain and Greece. The short-term evolution (1990-96) showed contrasting trends. In the northern part of Europe, the consumption growth rate increased slowly due to colder weather conditions in 1996 compared to very warm ones in 1990. Two exceptions require some explanation: Denmark, where consumption grew by about 13% in 1996 under the impetus of increasing exportation of electricity, and Luxembourg (-11.2% in 1995) which benefited from the conversion of iron steel industry to electrical furnace. On the other hand, the consumption growth rate fell substantially in all southern countries: Portugal (from 4.8% per year between 1985 and 1990 to 2.8% per year in the 90's) Greece (from 3% to 2.2%) Spain (From 2.8% to 2%) and Italy (from 1.6% to 0.8%).

Transport fuels and petrochemical feedstock accounted for 62% of total oil consumption in 1996...

Total oil demand increased steadily by 1.3% yearly since 1985. This growth was sustained by increases in transport and non-

GROSS INLAND CONSUMPTION GROWTH IN 1997

	Solids	Oil	Natural gas	Total
Austria	-2.8%	3.4%	-0.8%	1.2%
Belgium	-7.6%	0.9%	-4.5%	0.7%
Denmark	-24.6%	-16.9%	4.0%	-14.0%
Finland	33.4%	-0.8%	-1.9%	7.6%
France	-2.5%	-2.9%	-4.1%	-1.2%
Germany	-2.2%	-0.6%	-7.7%	-1.7%
Greece	-5.4%	3.4%	n.s.	0.9%
Ireland	3.7%	7.0%	5.2%	5.8%
Italy	-1.5%	0.3%	3.5%	1.2%
Luxembourg	-38.5%	3.5%	2.4%	-3.0%
Netherlands	19.7%	-3.1%	-6.0%	-1.9%
Portugal	8.1%	7.4%	n.s.	7.6%
Spain	33.4%	-0.8%	-1.9%	7.6%
Sweden	-11.6%	-11.4%	0.1%	-7.2%
United Kingdom	-8.8%	-13.6%	4.8%	-4.9%
European Union	**-2.0%**	**-2.3%**	**-0.3%**	**-1.0%**

GROSS INLAND CONSUMPTION

Mtoe	1985	1990	1994	1996	90/85	94/90	96/94	96/90	1985	1990	1994	1996
					Annual % change				Share in %			
Austria	23.7	25.7	26.0	27.6	1.7%	0.3%	3.1%	1.2%	1.9%	2.0%	1.9%	1.9%
Solids	4.0	4.2	2.9	3.3	1.0%	-8.3%	6.3%	-3.7%	1.2%	1.4%	1.2%	1.4%
Oil	9.6	10.5	11.2	11.3	1.8%	1.5%	0.7%	1.2%	1.9%	1.9%	2.0%	1.9%
Natural Gas	4.6	5.2	5.8	6.8	2.6%	2.8%	7.8%	4.4%	2.3%	2.4%	2.3%	2.2%
Belgium	43.8	47.3	49.7	54.0	1.5%	1.3%	4.2%	2.2%	3.5%	3.6%	3.7%	3.8%
Solids	9.9	10.2	8.9	8.2	0.7%	-3.5%	-4.1%	-3.7%	3.1%	3.4%	3.6%	3.4%
Oil	17.3	17.7	20.0	22.1	0.4%	3.0%	5.3%	3.8%	3.4%	3.3%	3.5%	3.8%
Natural Gas	7.3	8.2	9.7	11.8	2.2%	4.3%	10.5%	6.3%	3.7%	3.7%	3.8%	3.9%
Denmark	19.6	18.2	20.3	23.2	-1.5%	2.7%	7.1%	4.2%	1.6%	1.4%	1.5%	1.6%
Solids	7.4	6.1	7.6	8.9	-3.7%	5.7%	7.9%	6.4%	2.3%	2.0%	3.1%	3.7%
Oil	10.7	8.6	9.0	10.4	-4.3%	1.2%	7.9%	3.4%	2.1%	1.6%	1.6%	1.8%
Natural Gas	0.6	1.8	2.7	3.7	25.8%	10.8%	16.8%	12.8%	0.3%	0.8%	1.1%	1.2%
Finland	26.8	28.5	30.7	30.9	1.2%	1.9%	0.4%	1.4%	2.2%	2.2%	2.3%	2.2%
Solids	5.0	5.1	6.5	7.3	0.4%	6.4%	6.1%	6.3%	1.6%	1.7%	2.7%	3.1%
Oil	10.2	9.9	9.9	9.2	-0.6%	-0.1%	-3.5%	-1.3%	2.0%	1.8%	1.7%	1.6%
Natural Gas	0.8	2.3	2.8	3.0	23.1%	5.9%	2.2%	4.6%	0.4%	1.0%	1.1%	1.0%
France	202.4	219.2	225.2	248.0	1.6%	0.7%	4.9%	2.1%	16.3%	16.7%	16.9%	17.5%
Solids	24.4	20.0	14.4	16.1	-3.9%	-7.9%	6.0%	-3.5%	7.7%	6.6%	5.9%	6.8%
Oil	83.9	87.7	82.5	90.2	0.9%	-1.5%	4.6%	0.5%	16.4%	16.1%	14.6%	15.3%
Natural Gas	24.2	24.6	27.2	32.7	0.3%	2.5%	9.7%	4.8%	12.2%	11.1%	10.7%	10.8%
Germany	359.4	354.7	333.9	350.1	-0.3%	-1.5%	2.4%	-0.2%	29.0%	27.0%	25.0%	24.7%
Solids	149.7	132.7	96.5	92.0	-2.4%	-7.7%	-2.3%	-5.9%	47.1%	43.9%	39.6%	38.8%
Oil	119.7	123.6	133.1	136.8	0.6%	1.9%	1.4%	1.7%	23.4%	22.7%	23.5%	23.3%
Natural Gas	49.3	55.0	61.2	73.5	2.2%	2.7%	9.6%	5.0%	24.9%	24.8%	24.2%	24.2%
Greece	18.3	22.2	23.6	25.4	3.9%	1.5%	3.7%	2.2%	1.5%	1.7%	1.8%	1.8%
Solids	6.1	8.1	8.5	9.0	5.9%	1.2%	2.8%	1.7%	1.9%	2.7%	3.5%	3.8%
Oil	11.0	12.8	13.8	14.9	3.1%	1.9%	3.8%	2.5%	2.2%	2.4%	2.4%	2.5%
Natural Gas	0.1	0.1	0.0	0.0	14.0%	-23.3%	1.8%	-15.7%	0.0%	0.1%	0.0%	0.0%
Ireland	8.8	10.2	11.0	11.7	2.9%	1.9%	3.1%	2.3%	0.7%	0.8%	0.8%	0.8%
Solids	2.6	3.5	3.0	3.0	6.5%	-4.4%	0.2%	-2.9%	0.8%	1.2%	1.2%	1.3%
Oil	4.1	4.6	5.6	5.9	2.1%	5.0%	2.5%	4.1%	0.8%	0.8%	1.0%	1.0%
Natural Gas	1.9	1.9	2.2	2.7	-0.5%	3.7%	9.9%	5.8%	1.0%	0.9%	0.9%	0.9%
Italy	136.1	154.8	154.1	162.4	2.6%	-0.1%	2.7%	0.8%	11.0%	11.8%	11.5%	11.5%
Solids	15.2	14.6	11.4	11.3	-0.7%	-6.1%	-0.5%	-4.3%	4.8%	4.8%	4.7%	4.8%
Oil	81.0	89.8	89.1	92.2	2.1%	-0.2%	1.7%	0.4%	15.9%	16.5%	15.8%	15.7%
Natural Gas	27.2	39.0	40.5	46.1	7.5%	1.0%	6.6%	2.8%	13.8%	17.6%	16.0%	15.2%
Luxembourg	3.1	3.6	3.8	3.4	2.5%	1.4%	-4.8%	-0.7%	0.3%	0.3%	0.3%	0.2%
Solids	1.4	1.1	0.9	0.5	-4.5%	-5.4%	-26.8%	-13.1%	0.4%	0.4%	0.4%	0.2%
Oil	1.1	1.6	1.9	1.8	8.8%	4.6%	-2.2%	2.3%	0.2%	0.3%	0.3%	0.3%
Natural Gas	0.3	0.4	0.5	0.6	7.2%	3.2%	11.9%	6.0%	0.2%	0.2%	0.2%	0.2%
Netherlands	61.5	66.9	70.7	76.2	1.7%	1.4%	3.8%	2.2%	5.0%	5.1%	5.3%	5.4%
Solids	6.6	9.1	8.8	9.1	6.7%	-0.7%	1.5%	0.0%	2.1%	3.0%	3.6%	3.8%
Oil	20.4	24.4	25.6	26.4	3.7%	1.2%	1.5%	1.3%	4.0%	4.5%	4.5%	4.5%
Natural Gas	32.3	30.8	33.4	37.5	-1.0%	2.0%	6.0%	3.3%	16.3%	13.9%	13.2%	12.3%
Portugal	12.4	17.2	19.2	20.3	6.8%	2.8%	2.9%	2.8%	1.0%	1.3%	1.4%	1.4%
Solids	0.7	2.6	3.3	3.5	31.2%	6.5%	2.2%	5.0%	0.2%	0.9%	1.4%	1.5%
Oil	8.4	11.6	12.4	12.8	6.7%	1.7%	1.3%	1.6%	1.6%	2.1%	2.2%	2.2%
Natural Gas	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Spain	73.9	89.1	97.4	100.3	3.8%	2.3%	1.5%	2.0%	6.0%	6.8%	7.3%	7.1%
Solids	19.5	18.9	18.9	16.4	-0.6%	0.0%	-7.0%	-2.4%	6.1%	6.3%	7.8%	6.9%
Oil	38.3	45.5	51.4	53.9	3.5%	3.1%	2.4%	2.9%	7.5%	8.4%	9.1%	9.2%
Natural Gas	2.4	5.0	6.3	8.6	16.1%	6.1%	17.2%	9.7%	1.2%	2.2%	2.5%	2.8%
Sweden	46.9	46.9	49.0	51.5	0.0%	1.1%	2.5%	1.5%	3.8%	3.6%	3.7%	3.6%
Solids	2.8	2.7	2.9	3.1	-0.5%	1.5%	4.1%	2.3%	0.9%	0.9%	1.2%	1.3%
Oil	17.6	14.5	14.9	16.4	-3.8%	0.7%	5.0%	2.1%	3.4%	2.7%	2.6%	2.8%
Natural Gas	0.1	0.5	0.6	0.7	47.8%	4.9%	6.6%	5.5%	0.0%	0.2%	0.3%	0.2%
United Kingdom	203.7	210.9	220.6	232.3	0.7%	1.1%	2.6%	1.6%	16.4%	16.0%	16.5%	16.4%
Solids	62.8	63.3	49.3	45.4	0.2%	-6.1%	-4.1%	-5.4%	19.8%	20.9%	20.2%	19.1%
Oil	77.4	81.7	85.4	83.8	1.1%	1.1%	-0.9%	0.4%	15.2%	15.0%	15.1%	14.2%
Natural Gas	46.6	47.2	60.2	75.9	0.2%	6.3%	12.3%	8.2%	23.6%	21.3%	23.8%	25.0%
European Union	1240.5	1315.3	1335.1	1417.3	1.2%	0.4%	3.0%	1.3%	100.0%	100.0%	100.0%	100.0%
Solids	317.8	302.3	243.8	237.0	-1.0%	-5.2%	-1.4%	-4.0%	100.0%	100.0%	100.0%	100.0%
Oil	510.6	544.6	565.8	588.2	1.3%	1.0%	2.0%	1.3%	100.0%	100.0%	100.0%	100.0%
Natural Gas	197.7	222.0	253.2	303.6	2.3%	3.3%	9.5%	5.4%	100.0%	100.0%	100.0%	100.0%

energy uses (+40% over the period 1985-1996) that largely compensated for the drop in industry use (-19% over the same period) and for domestic and tertiary applications (-4%) even though the power sector consumption slowed down marginally. This means that the European oil market is becoming increasingly captive, with specific markets (transport and petrochemistry) reaching 62% of total demand in 1996. In other markets, oil use for power generation and home heating is declining and being replaced by natural gas throughout the whole of Europe. Oil is also losing market shares to natural gas and electricity in many industrial energy uses. In addition, energy-intensive industries are beginning to be replaced by service industries, which are more likely to use natural gas and electricity than oil products.

Natural gas, the fuel of the 90's, showed a continuous acceleration of its growth rate…

Primary consumption of natural gas increased by about 4% per year since 1985, demonstrating continuous growth: 2.3% annually between 1985 and 1990, 3.3% in the period 1991-1994 despite the economic recession, 8% in 1995 and even 11% in 1996. Increases were spectacular on the three main markets; the power sector (+81% or + 25Mtoe), tertiary-domestic market (+48% or +45 Mtoe) and industry (+36% or +25 Mtoe). These last three years, natural gas demand grew the fastest among primary fossil fuels and in general in all Member States even in the Netherlands where the gas market was already saturated for a long time. Some mature markets, Austria, Germany or the United Kingdom also demonstrated very high growth rates, largely above 8% per annum.

Resource availability, government energy policy and infrastructure development all favour increased use of natural gas. Environmental policy also encourages gas use. Natural gas prices have been competitive at the same time as requirements for fitting coal-fired or oil-fired generators with pollution control equipment have increased the costs associated with continued coal use. Privatisation of the electricity sector and the ensuing, widespread development of independent power plants add another dimension of policy encouraging expanded gas use. Growth in natural gas demand is being accompanied by much activity in terms of gas infrastructure, which will enable customers to diversify suppliers and gas supply contracts.

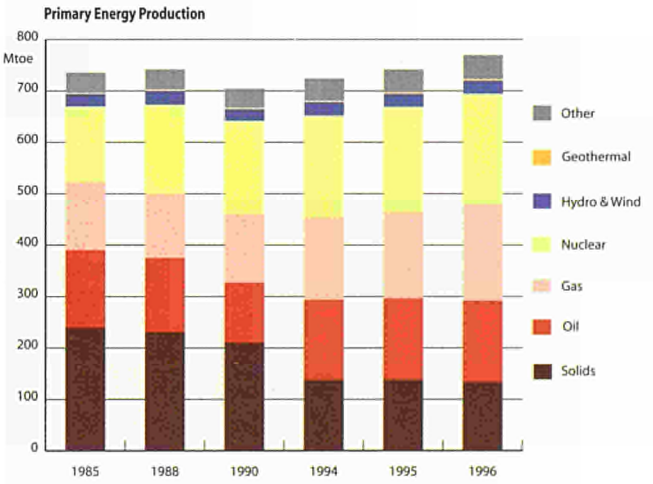
In-depth restructuring in producing countries reduced solid consumption since 1985 by 25%…

The **use of solid fuels** decreased in most of the Member States and sectors over the 1985-1996 period. The slow-down was particularly noticeable in France, Germany and the United Kingdom, all three historically identified as mining countries and absorbing about 75% of total European consumption in 1985. The in-depth restructuring of the mining industry has suppressed protected markets in these countries and opened the door for competition with gas and oil products. Consequently, the reduction of consumption reached 35% in these three countries since 1986. On the contrary, since 1990, coal consumption has slightly increased in Finland, Greece, Portugal and Sweden with growth mainly located in the power sector. All over the European Union, the consumption of solid fuels is increasingly concentrated in power generation whose share increased from 54% in 1985 to about 70% in 1996.

INDIGENOUS PRODUCTION

Indigenous production peaked in 1996 at 770 Mtoe…

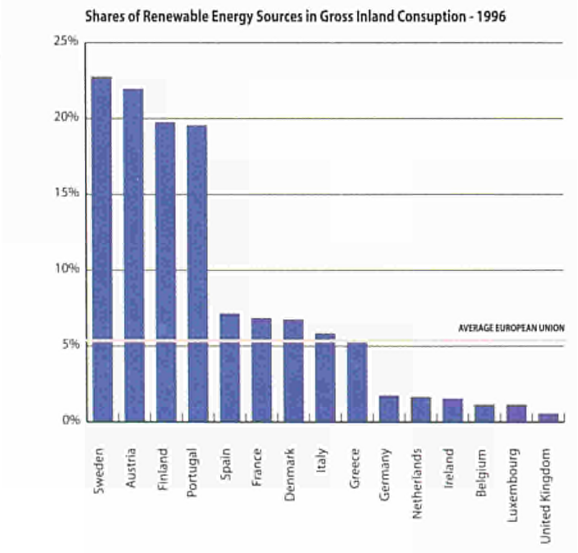
Domestic production of primary energy in the European Union as a whole peaked at 770 Mtoe in 1996, a new maximum after that of 1986, 754 Mtoe. After a continuous decrease between 1986 and 1992, production rebounded sharply showing an accelerating growth rate: 2.1% in 1994, 2.5% in 1995 and 3.7% in 1996. Solid fuels that were declining faster and faster until 1994 with a reduction of about 35% since 1990 stabilised progressively these last two years. Oil production, hit by a significant decline between 1985 and 1990, showed an annual increase of 5.2% since then, driven by the application of more efficient and economical methods for offshore exploitation and reached a new peak in 1995. Despite a period of low oil prices, reduced costs have made small field development profitable. Consequently, satellite developments from existing fields have been a significant contributor to enlarged European production in North Sea. At the same time, declining size of reserves necessary for the field to be developed have been observed. Whereas fields once required at least 100



million barrels of reserve in order to be developed, now fields with reserves of as little as 10 million barrels are being developed. Natural gas and nuclear energy became the main energy sources in Europe (24.5% and 27.8% respectively), with a continuous increase of 3.3% and 3.4% per year respectively over the period 1985-1996. The recent increase in natural gas production was really impressive with a progression of 4.4% in 1995 and 13.2% in 1996. This trend was mainly sustained by the United Kingdom, the first European gas producer in 1996 to double its production since 1990, and by the Netherlands, which played the role of switching producer from their major Groningen gas field characterised by very low production costs. For its part, nuclear also performed well with production increasing these last two years by 3.6% on average, while average capacity growth reached only 1.1%. This implied an increasing utilisation rate that now exceeds 80% for the European Union as a whole - one of the best performances in the world.

Contribution of renewable energy still limited to about 5% of gross inland consumption…

In 1996, the **contribution of renewable energy sources** represented 9.8% of the total primary energy production and 5.3% of gross inland consumption respectively. Hydroelectricity and wind energy put together have remained quite stable since 1995, representing only 3.3% of the primary production. Increasing production from wind power compensated a relative slowdown of hydro production linked to the poor hydraulic conditions these last years. Geothermal energy remained globally marginal but the prospects for the near future were favourable with the Italian capacity foreseen to almost double. Finally, biomass whose use grew for power generation mainly in the northern countries showed a regular progression since 1990 to reach 6% of total primary production in 1996. The situation varies widely from Member State to Member State. Renewable energy sources are mainly used in Sweden, Austria, Finland and Portugal with a national share of gross inland consumption ranging between 18 to 24. They are also used significantly in Spain, France, Denmark Italy and Greece, with a share of between 5% and 7%. Its use is almost negligible in the other Member States.



Real economic potential now exists for renewable energy sources…

Renewable sources of energy are currently unevenly and insufficiently exploited in the European Union. Although many of them are abundantly available, and the real economic potential considerable, renewable sources of energy make a disappointingly small contribution to the European Union's gross inland energy consumption. Current trends show that considerable technological progress related to renewable energy technologies has been achieved over recent years. Costs are rapidly dropping and many renewables, under the right conditions, have reached or are approaching economic viability. The first signs of large-scale implementation are also appearing for wind energy and solar thermal collectors. Some technologies, in particular biomass, small hydro and wind, are currently competitive and economically viable in particular compared to other decentralised applications. Solar photovoltaic, although characterised by rapidly declining costs, remain more dependent on favourable conditions. Under prevailing economic conditions, a serious obstacle to greater use of certain renewables has been higher initial investment costs. Although comparative costs for many renewables are becoming less disadvantageous, in certain cases quite markedly so, their use is still hampered in many situations by higher initial investment costs compared to conventional fuel cycles.

As a first step towards a strategy for renewable energy, the Commission adopted a **White Paper** for a Community Strategy and Action Plan (com(97), 599 final). This strategy and action plan are directed towards the goal of achieving a 12% penetration of renewables in the European Union by 2010, an ambitious but realistic approach. This overall target of doubling the share of renewables to 12% by 2010 could be an important instrument for attaining CO_2 emissions reduction, decreasing energy dependence, developing national industries and creating jobs.

Primary production dominated by the United Kingdom, Germany and France…

Globally, three major Member States covered the largest part of the domestic energy production: the United Kingdom (34%), Germany (18%) and France (16%), representing about 69% of the total contribution to EU's domestic production. But these figures vary quite substantially over the period 1985-1996. While in 1985

RENEWABLE ENERGY SOURCES IN 1996

Ktoe	Hydro	Wind	Solar	Geoth	Biomass	Other	Total	Contribution of Renewable
Production = Gross Inland Consumption								
Austria	2942	0	0	0	3139	0	6081	22.0%
Belgium	21	1	1	2	642	128	794	1.5%
Denmark	2	105	6	1	1469	0	1582	6.8%
Finland	1020	1	0	0	5090	0	6110	19.8%
France	5650	0	15	154	11202	0	17022	6.9%
Germany	1718	208	56	10	4465	0	6458	1.8%
Greece	374	3	111	3	891	0	1382	5.4%
Ireland	62	1	0	0	123	0	186	1.6%
Italy	3615	3	7	2524	3440	93	9681	6.0%
Luxembourg	5	0	0	0	35	0	40	1.2%
Netherlands	7	28	4	0	1255	0	1304	1.7%
Portugal	1269	2	16	42	2647	0	3976	19.6%
Spain	3393	29	25	7	3812	0	7266	7.2%
Sweden	4423	12	4	0	7269	0	11709	22.8%
United Kingdom	289	42	6	1	1140	0	1478	0.6%
European Union	**24789**	**444**	**252**	**2742**	**46620**	**220**	**75069**	**5.3%**
Inputs to Thermal Power Generation								
Austria	2942	0	0	0	384	0	3325	45.3%
Belgium	21	1	0	0	346	128	495	2.8%
Denmark	2	105	0	0	908	0	1014	8.2%
Finland	1020	1	0	0	1127	0	2148	15.1%
France	5650	0	0	0	1245	0	6894	6.4%
Germany	1718	208	0	0	1797	0	3724	3.0%
Greece	374	3	0	0	0	0	377	3.6%
Ireland	62	1	0	0	0	0	63	1.5%
Italy	3615	3	0	2311	244	93	6265	13.6%
Luxembourg	5	0	0	0	18	0	23	19.0%
Netherlands	7	38	0	0	876	0	921	4.8%
Portugal	1269	2	0	42	148	0	1461	26.3%
Spain	3393	29	0	0	562	0	3984	11.4%
Sweden	4423	12	0	0	3118	0	7554	26.6%
United Kingdom	289	42	0	0	800	0	1131	1.5%
European Union	24789	444	0	2353	11572	220	39379	9.3%
Final Energy Demand								
Austria	0	0	0	0	2755	0	2755	12.7%
Belgium	0	0	1	2	296	0	299	0.8%
Denmark	0	0	6	1	561	0	568	3.6%
Finland	0	0	0	0	3963	0	3963	17.9%
France	0	0	15	154	9958	0	10127	6.8%
Germany	0	0	56	10	2668	0	2734	1.2%
Greece	0	0	111	3	891	0	1005	6.0%
Ireland	0	0	0	0	123	0	123	1.5%
Italy	0	0	7	213	3196	0	3416	2.9%
Luxembourg	0	0	0	0	17	0	17	0.5%
Netherlands	0	0	4	0	379	0	383	0.7%
Portugal	0	0	16	0	2499	0	2514	17.3%
Spain	0	0	25	7	3250	0	3282	5.0%
Sweden	0	0	4	0	4151	0	4155	12.2%
United Kingdom	0	0	6	1	340	0	347	0.2%
European Union	**0**	**0**	**252**	**390**	**35048**	**0**	**35690**	**3.8%**

Germany accounted for 28% of the total, it only accounted for 18% in 1996 due to significant cuts in hard coal production. The continuation of French nuclear programmes allowed it to reinforce its contribution despite cuts in coal production and drops in natural gas output. Finally, the United Kingdom that became the leading European energy producer in 1990, has increased its energy production by about 30% since then. Its North Sea oil and gas production offset the closure of about 50% of the coal mining capacity. Amongst the other Member States, some reinforced their contribution: Spain and Sweden mainly due to the expansion of nuclear energy, Italy thanks to increasing production of natural gas and Denmark due to oil and gas production growth.

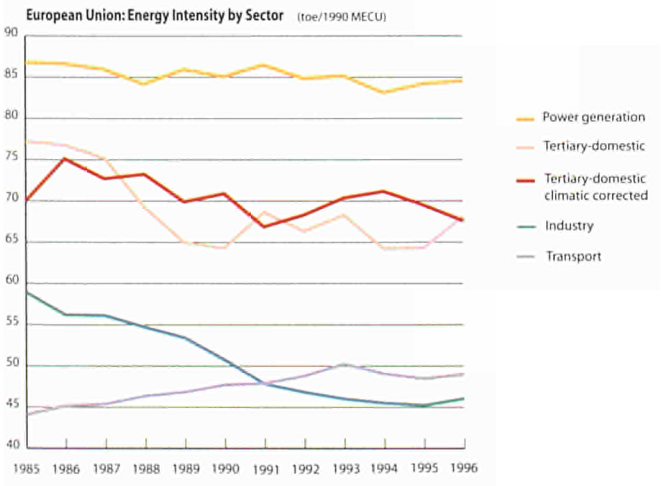
COMPETITIVENESS: Recent evolution (1985-1996)

- Apparent slowdown of improvements of overall energy intensity since 1990…
- …corrected by taking climatic conditions into account
- Geographical discrepancies between Member States
- Consumption per capita increased on average by about 10% at European level since 1985
- European energy prices are not competitive compared to United States and non-OECD region

COMPETITIVENESS

Apparent slowdown of improvements of overall energy intensity since 1990…

The European Union has continuously improved its overall energy intensity (as measured by the **energy intensity** of its economy) between 1985-1996 (-1.8% per year between 1985 and 1990 and -0.2% between 1990 and 1996), in spite of a slight increase of 0.8% in 1991 and 0.4% in 1993. In 1996, however, energy intensity increased by 2% as a result of increasing heating demand generated by colder weather. This energy intensity indicator is the result of different developments in the main consuming sectors, including power generation. Indeed, intensity improvements in industry (-2.2% per year on average since 1985) and tertiary-domestic sector (-1.1% per year on average since 1985) were the main drivers in reducing the overall energy intensity since 1985. But short-term evolutions indicated a flattening of industrial progress that, if confirmed in the near future, could negatively influence the energy intensity of the whole economy. The power sector, despite a continuous increase in thermal production, managed to stabilise its energy intensity since 1990, thanks to spectacular efficiency gains. On the other hand, until now, the transport sector has suffered losses in energy efficiency (+1.2% per year on average since 1985) even if the first signs of stabilisation have appeared since 1993.



…corrected by taking climatic conditions into account

As previously mentioned, the domestic and tertiary sector energy intensity improved markedly since 1990 (by about 0.8% per year on average) if corrected energy consumption that reflects variation of climatic conditions are taken into account. If these corrections are reflected back to the gross inland consumption it appears that improvements of energy intensity are almost constant in the period 1985-1996 (0.7% per year on average over the period 1985-1990 and 0.6% over the period 1990-1996).

Geographical discrepancies between Member States…

Excluding any consideration of weather conditions, two Member States increased their energy intensity throughout the period 1985-1996, Greece (+16%) and Portugal (+12%). Two other Member States, Spain and Denmark, remained almost stable. As already stated, this evolution is the result, for the Southern countries, of higher economic growth mainly based on a strong industrialisation and improved living standards. During the same period, energy intensity at the European level declined by 0.9% per year on average. The trend was led by Germany, which showed an improvement of 2.5% per year before the reunification in 1990 that increased to 3.8% per year after. Between 1990 and 1995, which have the advantage of offering comparable climatic conditions of very warm weather, seven Member States located at the extreme North (Denmark, Finland and Sweden) and the extreme South of Europe (Greece, Portugal and Spain) showed an increase in energy intensity. At the same time, Member States located in the middle of Europe, except France, improved their energy intensity. Luxembourg helped by the conversion of steel industry to arc furnaces, Ireland sustained by strong industrial growth oriented through high added-value industries, and Germany guided by the restructuring of new Landers are the best performers both for short- and long-term.

MAIN INDICATORS

	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Austria											
Gross inl. Cons./GDP (toe/1990 MECU)	220.5	209.7	204.6	191.4	192.7	196.1	-1.5%	-1.7%	0.7%	1.8%	-0.7%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	3122.8	3174.2	3324.2	3233.9	3315.7	3423.7	1.3%	-0.7%	2.5%	3.3%	0.5%
Electricity Generated/Capita (kWh/inhabitant)	5913.9	6478.8	6576.6	6637.8	7031.2	6802.6	2.1%	0.2%	5.9%	-3.3%	0.6%
Belgium											
Gross inl. Cons./GDP (toe/1990 MECU)	329.8	315.4	306.1	309.8	307.7	324.5	-1.5%	0.3%	-0.7%	5.5%	1.0%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	4447.3	4607.5	4741.9	4918.1	4975.9	5314.2	1.3%	0.9%	1.2%	6.8%	1.9%
Electricity Generated/Capita (kWh/inhabitant)	5813.5	6598.6	7106.5	7139.7	7341.1	7496.1	4.1%	0.1%	2.8%	2.1%	0.9%
Denmark											
Gross inl. Cons./GDP (toe/1990 MECU)	206.7	192.6	182.7	190.2	188.3	207.5	-2.4%	1.0%	-1.0%	10.2%	2.1%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	3833.8	3670.8	3541.7	3894.2	3936.2	4416.2	-1.6%	2.4%	1.1%	12.2%	3.7%
Electricity Generated/Capita (kWh/inhabitant)	5679.6	5450.8	5010.4	7702.0	7035.5	10176.1	-2.5%	11.3%	-8.7%	44.6%	12.5%
Finland											
Gross inl. Cons./GDP (toe/1990 MECU)	298.2	282.2	268.1	312.4	279.7	290.0	-2.1%	3.9%	-10.5%	3.7%	1.3%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	5465.4	5730.7	5708.2	6036.9	5655.8	6036.3	0.9%	1.4%	-6.3%	6.7%	0.9%
Electricity Generated/Capita (kWh/inhabitant)	10139.7	10893.9	10903.0	12896.8	12505.1	13534.7	1.5%	4.3%	-3.0%	8.2%	3.7%
France											
Gross inl. Cons./GDP (toe/1990 MECU)	249.6	236.2	233.0	232.5	237.0	248.0	-1.4%	-0.1%	1.9%	4.6%	1.0%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	3661.5	3725.3	3863.9	3890.3	4027.9	4248.5	1.1%	0.2%	3.5%	5.5%	1.6%
Electricity Generated/Capita (kWh/inhabitant)	6226.7	6982.7	7404.2	8248.9	8507.5	8776.1	3.5%	2.7%	3.1%	3.2%	2.9%
Germany											
Gross inl. Cons./GDP (toe/1990 MECU)	315.0	295.2	273.4	240.6	239.5	244.4	-2.8%	-3.1%	-0.5%	2.0%	-1.9%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	4627.1	4659.9	4469.3	4101.1	4146.2	4275.3	-0.7%	-2.1%	1.1%	3.1%	-0.7%
Electricity Generated/Capita (kWh/inhabitant)	6706.5	7015.5	6912.6	6484.2	6565.5	6779.7	0.6%	-1.6%	1.3%	3.3%	-0.3%
Greece											
Gross inl. Cons./GDP (toe/1990 MECU)	308.4	321.0	340.9	348.2	349.6	358.8	2.0%	0.5%	0.4%	2.6%	0.9%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	1845.9	2009.0	2189.3	2264.4	2309.1	2425.8	3.5%	0.8%	2.0%	5.1%	1.7%
Electricity Generated/Capita (kWh/inhabitant)	2791.8	3327.6	3444.2	3895.5	3973.9	4061.6	4.3%	3.1%	2.0%	2.2%	2.8%
Ireland											
Gross inl. Cons./GDP (toe/1990 MECU)	322.4	304.9	284.2	255.7	232.0	225.0	-2.5%	-2.6%	-9.3%	-3.0%	-3.8%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	2494.6	2697.6	2906.7	3058.6	3071.4	3213.5	3.1%	1.3%	0.4%	4.6%	1.7%
Electricity Generated/Capita (kWh/inhabitant)	3414.1	3745.9	4139.5	4769.2	4958.2	5288.8	3.9%	3.6%	4.0%	6.7%	4.2%
Italy											
Gross inl. Cons./GDP (toe/1990 MECU)	182.9	179.5	179.7	174.2	178.7	177.2	-0.3%	-0.8%	2.5%	-0.8%	-0.2%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	2404.0	2596.4	2729.1	2694.1	2838.9	2830.2	2.6%	-0.3%	5.4%	-0.3%	0.6%
Electricity Generated/Capita (kWh/inhabitant)	3281.4	3594.0	3823.3	4051.5	4213.5	4257.7	3.1%	1.5%	4.0%	1.0%	1.8%
Luxembourg											
Gross inl. Cons./GDP (toe/1990 MECU)	465.3	411.0	435.8	393.1	338.4	336.3	-1.3%	-2.5%	-13.9%	-0.6%	-4.2%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	8548.5	8466.8	9300.5	9300.2	8140.5	8184.2	1.7%	0.0%	-12.5%	0.5%	-2.1%
Electricity Generated/Capita (kWh/inhabitant)	2560.2	3572.9	3610.7	2946.8	3028.5	3144.7	7.1%	-5.0%	2.8%	3.8%	-2.3%
Netherlands											
Gross inl. Cons./GDP (toe/1990 MECU)	321.0	316.4	299.4	291.1	295.8	298.8	-1.4%	-0.7%	1.6%	1.0%	0.0%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	4246.8	4393.9	4473.3	4596.0	4757.4	4917.1	1.0%	0.7%	3.5%	3.4%	1.6%
Electricity Generated/Capita (kWh/inhabitant)	4342.1	4715.3	4805.7	5178.7	5255.6	5504.5	2.0%	1.9%	1.5%	4.7%	2.3%
Portugal											
Gross inl. Cons./GDP (toe/1990 MECU)	296.7	298.0	315.5	332.0	339.5	332.9	1.2%	1.3%	2.3%	-1.9%	0.9%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	1234.2	1482.5	1735.0	1935.2	2025.5	2043.7	7.0%	2.8%	4.7%	0.9%	2.8%
Electricity Generated/Capita (kWh/inhabitant)	1908.3	2255.7	2879.4	3168.4	3353.7	3476.5	8.6%	2.4%	5.8%	3.7%	3.2%
Spain											
Gross inl. Cons./GDP (toe/1990 MECU)	235.6	231.9	228.6	240.0	245.5	235.3	-0.6%	1.2%	2.3%	-4.1%	0.5%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	1924.4	2152.3	2293.6	2487.9	2608.6	2553.4	3.6%	2.1%	4.9%	-2.1%	1.8%
Electricity Generated/Capita (kWh/inhabitant)	3315.5	3607.5	3906.1	4124.5	4260.1	4424.1	3.3%	1.4%	3.3%	3.8%	2.1%
Sweden											
Gross inl. Cons./GDP (toe/1990 MECU)	289.2	280.4	258.3	273.7	268.3	273.1	-2.2%	1.5%	-2.0%	1.8%	0.9%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	5621.6	5821.5	5484.8	5579.7	5655.4	5819.8	-0.5%	0.4%	1.4%	2.9%	1.0%
Electricity Generated/Capita (kWh/inhabitant)	16421.4	17331.0	17114.7	16287.1	16803.3	15796.9	0.8%	-1.2%	3.2%	-6.0%	-1.3%
United Kingdom											
Gross inl. Cons./GDP (toe/1990 MECU)	311.7	281.1	274.0	276.1	268.0	276.6	-2.5%	0.2%	-2.9%	3.2%	0.2%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	3593.5	3689.4	3663.2	3777.0	3753.9	3951.1	0.4%	0.8%	-0.6%	5.3%	1.3%
Electricity Generated/Capita (kWh/inhabitant)	5257.7	5389.9	5540.5	5571.4	5698.9	5906.4	1.1%	0.1%	2.3%	3.6%	1.1%
European Union											
Gross inl. Cons./GDP (toe/1990 MECU)	271.0	256.7	247.5	240.7	240.3	245.2	-1.8%	-0.7%	-0.2%	2.0%	-0.2%
Gross Inl. Cons./Capita (Kgoe/inhabitant)	3457.6	3577.1	3608.4	3599.0	3672.2	3798.9	0.9%	-0.1%	2.0%	3.5%	0.9%
Electricity Generated/Capita (kWh/inhabitant)	5343.0	5738.1	5914.1	6114.5	6257.6	6457.8	2.1%	0.8%	2.3%	3.2%	1.5%

Consumption per capita increased on average by about 10% at European level since 1985…

In 1996, **energy consumption per capita**, considering the differences in living standards and space heating requirements (where geography is the key element), was the lowest in Portugal with 2.04 toe/inhabitant while Finland had the highest with 6.04 toe/inhabitant, or almost three times higher. This was excluding Luxembourg, whose value is not representative due to the weight of iron steel industry in a small country and the importance of motor fuel purchases by drivers from neighbouring Member States. However, over the period 1985 to 1996, Portugal has been increasing its per capita consumption four times faster than Finland. This illustrates the differences between an economy growing from a low level of development and an already stable economic system.

The oil consumption per capita is characterised by a convergence between all the Member States to the European average since 1985. This resulted from the progressive concentration of oil consumption on its captive markets: motor fuels and petrochemicals. With the exception of the Netherlands, per capita gas consumption has been increasing significantly in all countries where distribution networks are well developed under the impulse of power generation, industry and tertiary-domestic sectors.

European energy prices are not competitive compared to the United States and non-OECD region…

If energy efficiency is a main factor in competitiveness, energy prices are also of primary importance if we limit the analysis to the energy point of view, to the exclusion of any considerations of labour costs, fiscal systems and regulation. As already mentioned, the average European energy prices for industrial users since 1985 show an average yearly decrease of 3.1% for steam coal, 8.0% for heavy oil, 7.3% for natural gas and 3.3% for electricity. Compared with the prices of the main competitors inside OECD, the United States and Japan, the US prices are clearly well below Europe's. Japanese prices are comparable for heavy fuel oil but twice for gas and electricity. As a first approximation, it can be considered that US prices reflect low prices observed on liberalised and competitive markets, especially for gas and electricity. Additionally, tax levels are also considerably lower in the United States.

Energy prices in the non-OECD regions are generally very low compared to the international markets for a number of specific reasons: abundant domestic production, low incomes, absence of national structured markets, etc... These differences explain the delocalisation of some high-energy intensive industries, especially for petrochemicals which also consume energy as a raw material.

INDUSTRIAL CONSUMERS - ENERGY PRICES COMPARISON (1)

	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
Ecu90/toe							Annual % Change				
Heavy fuel oil											
France	288.2	98.7	110.2	107.9	107.7	114.3	-17.5%	-0.5%	-0.2%	6.1%	0.6%
Germany	284.5	96.1	115.0	87.8	90.0	95.6	-16.6%	-6.5%	2.5%	6.2%	-3.0%
Italy	303.0	88.3	150.9	141.4	143.3	145.2	-13.0%	-1.6%	1.4%	1.3%	-0.6%
United Kingdom	293.4	109.6	108.1	94.6	107.2	114.9	-18.1%	-3.3%	13.3%	7.2%	1.0%
European Union average	311.5	114.6	129.4	111.6	117.6	124.8	-16.1%	-3.6%	5.5%	7.7%	-0.6%
United States	257.2	74.0	89.3	70.7	76.7	85.7	-19.1%	-5.7%	8.5%	11.7%	-0.7%
Japan	337.2	149.5	155.8	98.3	91.4	100.5	-14.3%	-10.9%	-7.0%	10.0%	-7.0%
Natural gas											
France	271.1	123.2	122.2	103.8	104.2	105.2	-14.7%	-4.0%	0.4%	1.0%	-2.5%
Germany	284.0	127.8	147.7	126.6	123.8	124.7	-12.3%	-3.8%	-2.2%	0.7%	-2.8%
Italy	271.7	86.9	123.7	137.5	145.6	151.1	-14.6%	2.7%	5.9%	3.8%	3.4%
United Kingdom	212.3	152.2	124.9	113.3	95.5	68.2	-10.1%	-2.4%	-15.7%	-28.6%	-9.6%
European Union average	263.0	121.4	128.6	117.0	116.4	113.9	-13.3%	-2.3%	-0.5%	-2.2%	-2.0%
United States	145.2	99.0	87.5	78.8	67.9	83.6	-9.6%	-2.6%	-13.8%	23.1%	-0.8%
Japan	580.9	351.9	325.1	242.1	234.7	233.9	-11.0%	-7.1%	-3.1%	-0.3%	-5.3%
Electricity											
France	599.3	517.2	516.5	452.0	452.5	428.1	-2.9%	-3.3%	0.1%	-5.4%	-3.1%
Germany	833.2	880.0	835.3	710.6	694.2	619.1	0.0%	-4.0%	-2.3%	-10.8%	-4.9%
Italy	1183.0	863.3	893.9	928.3	903.5	900.6	-5.4%	0.9%	-2.7%	-0.3%	0.1%
United Kingdom	777.3	711.0	648.1	624.1	597.9	563.5	-3.6%	-0.9%	-4.2%	-5.8%	-2.3%
European Union average	734.0	658.9	635.7	584.3	567.9	537.5	-2.8%	-2.1%	-2.8%	-5.4%	-2.8%
United States	572.7	466.3	433.9	380.1	367.3	348.5	-5.4%	-3.3%	-3.4%	-5.1%	-3.6%
Japan	1536.2	1248.0	1120.1	1039.8	1028.8	1010.1	-6.1%	-1.8%	-1.1%	-1.8%	-1.7%

(1) Excluding Refundable VAT

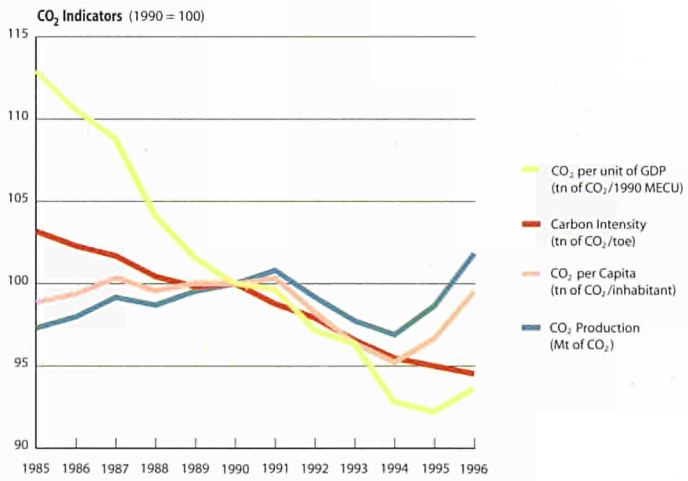
ENVIRONMENT: Recent evolution (1985-1996)

- CO_2 emissions in the European Union increased by 5% in only two years but…
- …considering standard climatic conditions, estimated CO2 emissions were practically stable since 1990
- The contribution of CO_2 emissions from transport increased from 19% in 1985 to 26% in 1996
- SO_2 and NOx emissions are declining

ENVIRONMENT

CO_2 emissions in the European Union increased by 5% in only two years but…

CO_2 emissions indicators are of primordial importance in the current political debate. To facilitate international comparisons, the calculation of total emissions was done on an indicative basis, using common emissions factors by energy aggregate. This could explain some limited differences, below 0.1%, with the latest figures from the Statistical Office of the European Communities (Eurostat). In general terms, the CO_2 emissions in the European Union grew substantially in 1996 (+3.6%) to be about 2% above the 1990 level. This increase followed a 1.8% growth in 1995 so that CO_2 emissions increased globally by about 5% in only two years. Since 1990, the per capita CO_2 emissions showed a smooth reduction of 0.1% per year on average at about 8.4 tons of CO_2 per capita in 1996. The CO_2 emitted per unit of GDP demonstrated a more sustained reduction as it declined by about 1.1% per year on average since 1990. These evolutions were favoured by the fact that the carbon intensity (ton of CO_2 /toe) also declined by about 1% per year on average since 1990 thanks to conversion from oil and solid to natural gas and increasing consumption of CO_2 -free energies (nuclear, wind, biomass, …).



By country, Germany ranks first in spite of an average yearly slowdown of 1.2% between 1990 and 1996. Its share in total European CO_2 emissions reached 28% in 1996 (34% in 1985). The second Member State is the United Kingdom with still a yearly slowdown of 0.5% and a share almost stable at around 18%. Italy comes third with a share of about 12% but a yearly increase of 0.4% on average and France fourth with a share of 11% and a yearly growth by 0.5%. These four Member States together account for 70% of total European emissions.

considering standard climatic conditions, estimated CO_2 emissions were almost stable since 1990

The short-term evolution of CO_2 emissions perfectly illustrated their sensitivity to climatic conditions. 1994 was the warmest of these last ten years with weather conditions 13.4% warmer than the 25 year's average. Degree-days, representative of heating requirements, increased by about 4% in 1995 and again by about 17% in 1996 to be close to the 25 year's average. Estimating possible correction of the total energy consumption to take into account standard climatic conditions, it appears that the estimated CO_2 emissions were almost stable since 1990. In the same period, estimated gross inland consumption increased about two times faster than CO_2 emissions. In fact, between 1990 and 1996, total CO_2 emissions, excluding those issued from tertiary-domestic sector, have been stabilised. Reduction in industry (-8.4% in six years) and the power sector (-3.1%) compensated an increase from the transport sector (+11.9%). CO_2 emissions from all these sector are almost independent of climatic conditions. On the contrary, in the tertiary-domestic sector where energy consumption for heating dominates, CO_2 emissions were directly correlated with degree-days. It appears that the impact of temperature variations on CO_2 emissions in the tertiary-domestic sector can be estimated at +/-6% following colder or warmer temperature extremes. As tertiary-domestic CO_2 emissions accounted in 1996 for 22% of total emissions, this means that the weather effect on total CO_2 emissions can be estimated at +/-1.2% compared to an average climate. This is important in the perspective of the political EU objective of a stabilisation of CO_2 emissions in 2000 compared to the 1990 level.

CO_2 EMISSIONS (1) (TRADITIONAL CALCULATION)

	1985	1988	1990	1994	1995	1996	90/85	93/90	94/90	95/94	96/95	96/90
	Million tonnes of CO_2						Annual % Change					
Austria	51.0	50.7	55.0	54.1	56.7	58.7	1.5%	-0.4%	-0.3%	4.9%	3.6%	1.1%
Belgium	98.8	101.7	104.5	110.5	111.0	116.7	1.1%	0.6%	0.9%	0.5%	5.1%	1.9%
Denmark	60.9	56.3	52.7	62.6	59.9	73.9	-2.8%	3.5%	2.9%	-4.3%	23.4%	5.8%
Finland	46.8	50.1	51.6	58.9	56.2	60.0	2.0%	2.3%	2.2%	-4.6%	6.8%	2.5%
France	360.0	338.5	352.4	334.0	345.4	364.0	-0.4%	-0.3%	-0.9%	3.4%	5.4%	0.5%
Germany	1008.6	998.0	957.1	854.8	866.2	888.8	-1.0%	-2.8%	-1.9%	1.3%	2.6%	-1.2%
Greece	56.7	65.5	70.9	75.4	77.9	81.7	4.6%	1.0%	1.0%	3.3%	4.9%	2.4%
Ireland	26.1	29.2	30.2	32.2	33.3	34.9	3.0%	0.6%	1.1%	3.3%	4.8%	2.4%
Italy	337.6	367.4	388.6	380.4	403.2	399.1	2.9%	-0.4%	-0.4%	6.0%	-1.0%	0.4%
Luxembourg	10.0	9.6	10.6	10.7	8.7	8.9	1.2%	1.9%	0.2%	-18.8%	2.0%	-2.9%
Netherlands	141.2	148.6	153.0	160.5	166.8	177.7	1.6%	2.4%	0.8%	3.9%	6.5%	2.5%
Portugal	25.1	29.9	39.1	44.4	48.0	45.6	9.2%	3.8%	2.1%	8.2%	-5.0%	2.6%
Spain	176.8	181.4	202.0	221.2	226.7	224.7	2.7%	1.4%	1.5%	2.5%	-0.9%	1.8%
Sweden	58.0	55.3	50.6	54.1	53.6	58.4	-2.7%	0.3%	1.1%	-0.9%	8.8%	2.4%
United Kingdom	544.2	563.0	566.9	537.0	531.3	550.2	0.8%	-1.2%	-0.9%	-1.1%	3.5%	-0.5%
EUROPEAN UNION	**3003.2**	**3046.4**	**3086.2**	**2990.9**	**3045.0**	**3143.3**	**0.5%**	**-0.8%**	**-0.5%**	**1.8%**	**3.2%**	**0.3%**

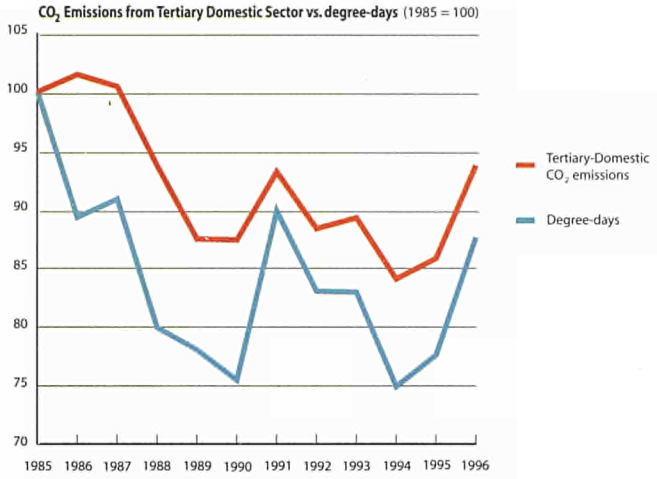
CO_2 EMISSIONS (1) (TOTAL INCLUDING BUNKER)

	1985	1988	1990	1994	1995	1996	90/85	93/90	94/90	95/94	96/95	96/90
	Million tonnes of CO_2						Annual % Change					
Austria	51.0	50.7	55.0	54.1	56.7	58.7	1.5%	-0.4%	-0.3%	4.9%	3.6%	1.1%
Belgium	106.2	113.4	117.5	123.5	123.4	131.0	2.1%	0.7%	0.8%	-0.1%	6.2%	1.8%
Denmark	62.1	59.0	55.7	67.2	64.9	78.6	-2.2%	4.0%	3.2%	-3.5%	21.1%	5.9%
Finland	48.2	51.6	53.4	60.2	57.2	61.1	2.0%	2.1%	2.0%	-4.9%	6.9%	2.3%
France	367.5	345.5	360.5	340.7	353.3	372.6	-0.4%	-0.4%	-0.9%	3.7%	5.5%	0.6%
Germany	1019.5	1007.1	964.9	861.3	872.7	895.2	-1.1%	-2.8%	-1.9%	1.3%	2.6%	-1.2%
Greece	60.2	72.0	78.9	85.8	89.1	91.6	5.6%	1.6%	1.4%	3.8%	2.8%	2.5%
Ireland	26.2	29.3	30.3	32.3	33.6	35.4	3.0%	0.7%	1.1%	4.1%	5.2%	2.6%
Italy	348.4	377.1	397.0	387.8	410.9	406.4	2.6%	-0.4%	-0.4%	6.0%	-1.1%	0.4%
Luxembourg	10.0	9.6	10.6	10.7	8.7	8.9	1.2%	1.9%	0.2%	-18.8%	2.0%	-2.9%
Netherlands	168.7	182.0	187.4	195.7	202.4	213.9	2.1%	2.4%	0.7%	3.4%	5.7%	2.2%
Portugal	26.6	31.4	41.0	45.9	49.5	47.2	9.0%	3.4%	1.9%	7.9%	-4.7%	2.4%
Spain	185.1	191.5	214.0	230.9	236.7	239.2	2.9%	1.1%	1.3%	2.5%	1.1%	1.9%
Sweden	59.7	57.4	52.7	57.5	56.9	61.8	-2.5%	0.8%	1.5%	-1.0%	8.7%	2.7%
United Kingdom	550.8	568.6	574.7	544.1	538.9	558.1	0.9%	-1.2%	-0.9%	-1.0%	3.6%	-0.5%
EUROPEAN UNION	**3091.8**	**3147.5**	**3194.6**	**3098.0**	**3155.1**	**3259.9**	**0.7%**	**-0.7%**	**-0.5%**	**1.8%**	**3.3%**	**0.3%**

CO_2 EMISSIONS (1) (EXCLUDING BUNKERS AND AIR TRANSPORT)

	1985	1988	1990	1994	1995	1996	90/85	93/90	94/90	95/94	96/95	96/90
	Million tonnes of CO_2						Annual % Change					
Austria	50.4	49.8	54.0	52.8	55.3	57.2	1.4%	-0.6%	-0.4%	4.8%	3.4%	1.0%
Belgium	97.2	99.7	101.7	107.8	108.2	113.5	0.9%	0.6%	1.0%	0.4%	4.9%	1.8%
Denmark	59.2	54.2	50.6	60.3	57.6	71.4	-3.1%	3.6%	3.0%	-4.4%	23.9%	5.9%
Finland	46.0	49.0	50.2	57.7	54.9	58.7	1.8%	2.5%	2.3%	-4.7%	6.8%	2.6%
France	352.0	328.2	341.0	320.5	331.4	349.2	-0.6%	-0.5%	-1.0%	3.4%	5.4%	0.4%
Germany	997.3	984.0	940.8	837.1	848.4	870.7	-1.2%	-2.9%	-1.9%	1.4%	2.6%	-1.3%
Greece	53.2	62.2	67.1	71.3	74.2	78.1	4.8%	0.8%	1.0%	4.0%	5.3%	2.5%
Ireland	25.4	28.1	29.2	31.0	32.2	33.7	2.8%	1.0%	1.0%	3.7%	4.6%	2.4%
Italy	332.3	362.5	383.0	373.6	396.0	391.3	2.9%	-0.5%	-0.4%	6.0%	-1.2%	0.4%
Luxembourg	9.8	9.3	10.2	10.2	8.1	8.3	0.9%	2.0%	0.0%	-20.4%	1.6%	-3.5%
Netherlands	137.5	144.1	148.2	153.9	159.1	169.5	1.5%	2.1%	0.6%	3.4%	6.5%	2.3%
Portugal	23.7	28.4	37.3	42.6	46.2	43.8	9.5%	3.9%	2.2%	8.4%	-5.2%	2.7%
Spain	171.0	174.2	194.7	212.8	217.5	214.6	2.6%	1.3%	1.5%	2.2%	-1.3%	1.6%
Sweden	56.3	53.0	48.4	51.6	51.1	55.8	-3.0%	0.2%	1.1%	-1.0%	9.3%	2.4%
United Kingdom	528.9	544.0	546.8	514.7	508.1	525.7	0.7%	-1.3%	-1.0%	-1.3%	3.5%	-0.7%
EUROPEAN UNION	**2941.7**	**2972.1**	**3004.2**	**2898.1**	**2948.5**	**3041.4**	**0.4%**	**-0.9%**	**-0.6%**	**1.7%**	**3.1%**	**0.2%**

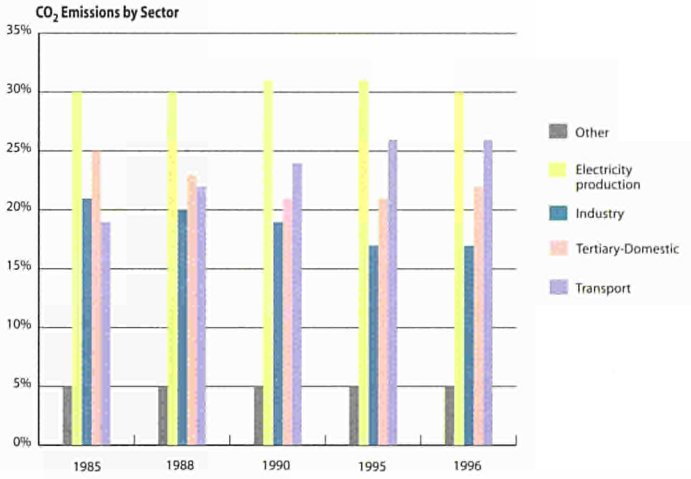
(1) CO2 emissions given on an indicative basis, calculated using common emissions factors by energy aggregate



The stabilisation of estimated climate-corrected CO_2 emissions between 1990 and 1996 is the result of two main factors: the increasing contribution of non-fossil fuels, mainly nuclear completed by some wind energy and biomass, and larger penetration of natural gas both for power generation and on final markets in substitution of solid fuels and oil products. It is important to underline that the contribution of these two factors could be modified in the near future. The potential for new nuclear power is very limited and the load factor of existing units is already so high that it will be difficult to increase nuclear contribution. The contribution of renewable energy sources is increasing very slowly even if the European Union proposes a goal of a 12% share of renewable energy sources by the year 2010. The substitution limits for natural gas on final markets will be progressively reached. This means that to reduce CO_2 emissions in the near future, it will be necessary to substantially increase the contribution of renewable energy and to promote rational use of energy thus improving the EU's energy intensity.

The contribution of CO_2 emissions from the transport increased from 19% in 1985 to 26% in 1995…

Looking at CO_2 emissions by sector at a European Union level, the first conclusion is that the largest sector in terms of emissions remained power generation. In spite of thermal production increases by 1.2% per year since 1990, CO_2 emissions from the power sector declined by as much as 0.5% per year. This is largely the result of the development of combined cycle that associated high conversion efficiency with the fossil fuel having the lowest CO_2 content per unit of energy. The total share of emissions from the power sector declined regularly from 31.2% in 1990 to 29.7% in 1996. The spectacular increase in Denmark in 1996 was only due to large export of electricity to Norway and Sweden. Within the final demand sectors, transport was the only one with steadily increasing emissions since 1990 (1.9% per year on average). The contribution of this sector has increased from 24% in 1990 (19% in 1985) to 26% in 1996. The domestic and tertiary sectors showed



EUROPEAN UNION : CO2 EMISSIONS BY SECTORS

European Union	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
	Millions tonnes of CO2						Annual % Change				
Total (including bunker)	**3091.8**	**3147.5**	**3194.6**	**3098.0**	**3155.1**	**3259.9**	**0.7%**	**-0.8%**	**1.8%**	**3.3%**	**0.3%**
Bunkers	88.6	101.1	108.4	107.1	110.1	116.6	4.1%	-0.3%	2.8%	5.9%	1.2%
Air Transport	61.5	74.3	82.0	92.8	96.5	101.9	5.9%	3.1%	4.0%	5.6%	3.7%
Transformation	1054.9	1064.6	1124.9	1062.7	1091.0	1096.0	1.3%	-1.4%	2.7%	0.5%	-0.4%
Power Generation	897.2	899.9	963.7	905.8	931.1	933.3	1.4%	-1.5%	2.8%	0.2%	-0.5%
Energy sector	157.7	164.8	161.2	156.9	159.8	162.6	0.4%	-0.7%	1.9%	1.7%	0.1%
Final Demand sectors	1886.8	1907.4	1879.3	1835.4	1857.6	1945.4	-0.1%	-0.6%	1.2%	4.7%	0.6%
Industry	624.9	610.9	578.2	514.7	517.1	529.8	-1.5%	-2.9%	0.5%	2.4%	-1.4%
Transport	523.8	604.6	655.8	699.9	706.7	723.5	4.6%	1.6%	1.0%	2.4%	1.7%
Domestic and Tertiary	738.2	691.9	645.2	620.9	633.7	692.1	-2.7%	-1.0%	2.1%	9.2%	1.2%

CO_2 EMISSIONS

	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
	Millions tons of CO2						Annual % Change				
Austria											
Total CO_2 emissions	51.04	50.69	54.96	54.05	56.70	58.72	1.5%	-0.4%	4.9%	3.6%	1.1%
of which power generation	7.00	8.16	12.13	9.82	11.26	12.12	11.6%	-5.1%	14.6%	7.7%	0.0%
of which final markets	40.38	38.93	39.49	40.09	41.58	42.15	-0.4%	0.4%	7.4%	-4.5%	-0.3%
Belgium											
Total CO_2 emissions	98.85	101.69	104.51	110.47	111.00	116.67	1.1%	1.4%	0.5%	5.1%	1.9%
of which power generation	17.90	17.21	21.83	22.92	22.88	22.41	4.1%	1.2%	-0.2%	-2.0%	0.4%
of which final markets	76.03	78.85	77.40	82.28	83.02	88.44	0.4%	1.5%	5.6%	1.5%	0.1%
Denmark											
Total CO_2 emissions	60.86	56.27	52.67	62.56	59.86	73.87	-2.8%	4.4%	-4.3%	23.4%	5.8%
of which power generation	26.87	25.51	22.99	31.94	29.08	42.07	-3.1%	8.6%	-9.0%	44.7%	10.6%
of which final markets	33.02	27.64	27.38	27.78	27.97	28.87	-3.7%	0.4%	1.4%	-3.1%	0.6%
Finland											
Total CO_2 emissions	46.76	50.05	51.58	58.86	56.16	59.98	2.0%	3.4%	-4.6%	6.8%	2.5%
of which power generation	12.81	14.83	15.65	22.85	20.63	26.67	4.1%	9.9%	-9.7%	29.3%	9.3%
of which final markets	29.22	31.76	33.14	32.65	32.40	30.75	2.5%	-0.4%	-3.3%	6.0%	0.0%
France											
Total CO_2 emissions	359.96	338.51	352.43	333.96	345.36	364.05	-0.4%	-1.3%	3.4%	5.4%	0.5%
of which power generation	47.29	31.50	40.02	24.97	27.52	29.06	-3.3%	-11.1%	10.2%	5.6%	-5.2%
of which final markets	297.53	292.19	296.45	291.31	299.59	316.41	-0.1%	-0.4%	2.2%	0.5%	-0.1%
Germany											
Total CO_2 emissions	1008.65	998.00	957.09	854.80	866.18	888.79	-1.0%	-2.8%	1.3%	2.6%	-1.2%
of which power generation	347.97	344.97	344.23	320.84	322.61	314.83	-0.2%	-1.7%	0.6%	-2.4%	-1.5%
of which final markets	605.21	597.18	559.77	495.14	502.43	535.66	-1.5%	-3.0%	-5.2%	-4.6%	0.3%
Greece											
Total CO_2 emissions	56.69	65.45	70.92	75.39	77.89	81.74	4.6%	1.5%	3.3%	4.9%	2.4%
of which power generation	25.15	30.55	34.34	37.36	38.92	39.53	6.4%	2.1%	4.2%	1.6%	2.4%
of which final markets	30.19	32.85	34.56	35.85	36.74	39.51	2.7%	0.9%	1.8%	-0.2%	-0.2%
Ireland											
Total CO_2 emissions	26.06	29.21	30.20	32.21	33.28	34.89	3.0%	1.6%	3.3%	4.8%	2.4%
of which power generation	8.26	10.06	10.28	12.46	13.44	14.27	4.5%	4.9%	7.8%	6.2%	5.6%
of which final markets	17.71	18.99	19.73	19.54	19.64	20.41	2.2%	-0.2%	-3.6%	-0.8%	-0.4%
Italy											
Total CO_2 emissions	337.57	367.37	388.56	380.36	403.22	399.12	2.9%	-0.5%	6.0%	-1.0%	0.4%
of which power generation	90.16	105.93	118.64	114.68	125.86	122.22	5.6%	-0.8%	9.7%	-2.9%	0.5%
of which final markets	229.42	243.85	252.61	249.23	259.96	259.87	1.9%	-0.3%	2.1%	-0.3%	0.0%
Luxembourg											
Total CO_2 emissions	10.02	9.64	10.62	10.72	8.70	8.88	1.2%	0.2%	-18.8%	2.0%	-2.9%
of which power generation	0.53	0.61	0.72	0.62	0.38	0.34	6.4%	-3.8%	-37.8%	-11.5%	-11.8%
of which final markets	9.49	9.03	9.90	10.10	8.32	8.54	0.8%	0.5%	6.5%	-2.0%	-0.3%
Netherlands											
Total CO_2 emissions	141.17	148.56	153.01	160.53	166.83	177.67	1.6%	1.2%	3.9%	6.5%	2.5%
of which power generation	35.38	41.33	43.30	46.40	48.90	51.05	4.1%	1.7%	5.4%	4.4%	2.8%
of which final markets	96.89	94.82	96.07	98.90	102.18	110.59	-0.2%	0.7%	4.3%	-1.2%	-0.8%
Portugal											
Total CO_2 emissions	25.13	29.92	39.06	44.35	48.00	45.61	9.2%	3.2%	8.2%	-5.0%	2.6%
of which power generation	5.76	7.87	14.81	15.67	19.22	15.13	20.8%	1.4%	22.6%	-21.3%	0.4%
of which final markets	18.44	20.77	22.74	26.63	26.55	28.64	4.3%	4.0%	5.1%	4.1%	-0.9%
Spain											
Total CO_2 emissions	176.83	181.42	202.00	221.21	226.67	224.65	2.7%	2.3%	2.5%	-0.9%	1.8%
of which power generation	59.49	48.93	63.23	65.40	69.45	63.61	1.2%	0.8%	6.2%	-8.4%	0.1%
of which final markets	108.70	121.44	127.25	142.92	144.26	147.70	3.2%	2.9%	7.5%	-0.3%	-0.8%
Sweden											
Total CO_2 emissions	57.96	55.29	50.62	54.13	53.62	58.36	-2.7%	1.7%	-0.9%	8.8%	2.4%
of which power generation	7.71	5.79	4.07	6.68	6.09	9.55	-12.0%	13.2%	-8.9%	56.9%	15.3%
of which final markets	45.57	45.84	42.59	43.80	44.04	44.65	-1.3%	0.7%	-3.8%	1.4%	0.7%
United Kingdom											
Total CO_2 emissions	544.18	562.99	566.92	537.01	531.34	550.18	0.8%	-1.3%	-1.1%	3.5%	-0.5%
of which power generation	203.85	205.57	216.43	172.37	174.20	169.85	1.2%	-5.5%	1.1%	-2.5%	-4.0%
of which final markets	310.17	327.39	322.24	332.34	325.72	345.49	0.8%	0.8%	3.2%	0.2%	0.1%
European Union											
Total CO_2 emissions	3003.17	3046.38	3086.16	2990.92	3045.00	3143.27	0.5%	-0.8%	1.8%	3.2%	0.3%
of which power generation	897.19	899.85	963.71	905.76	931.12	933.35	1.4%	-1.5%	2.8%	0.2%	-0.5%
of which final markets	1948.32	1981.76	1961.25	1928.21	1954.04	2047.30	0.1%	-0.4%	0.7%	-1.2%	0.0%

an upward trend (+1.2% per year since 1990, excluding any correction for weather conditions) despite the progression of natural gas and distributed heat on the heating market in place of heating gas oil and solids. Industry showed the greatest fall in CO_2 emissions since 1990 (-1.5% per year) but emissions rebounded by 5% since 1993, under the impulse of economic growth. This recent evolution raises questions for the future.

SO_2 and NO_x emissions are declining...

Concerning other polluting emissions, SO_2 and NO_x in particular, it can be considered in the absence of complete statistical data, that the European situation is generally improving. SO_2 emissions are declining significantly as a result of different actions: improvement of fuel quality to reduce sulphur content in oil products, regulation in large industrial combustion installations, substitution of solid fuels and oil products by natural gas. NO_x emissions are also decreasing, but to a lesser extent than SO_2 emissions under the pressure of both regulation in large industrial combustion installations and regulations concerning catalytic converter for new cars.

SO_2 AND NOX EMISSIONS

Kton/year	SO_2 Emissions			NOx Emissions		
	1990	1994	variation	1990	1994	variation
Austria	92.5	54.9	-41%	226.7	170.8	-25%
Belgium	316.7	279.2	-12%	343.2	374.1	9%
Denmark	197.8	158.0	-20%	273.3	275.8	1%
Finland	226.9	110.6	-51%	268.5	287.9	7%
France	1300.4	1013.2	-22%	1590.1	1682.1	6%
Germany	5254.5	2998.0	-43%	2979.7	2267.7	-24%
Greece	641.2	443.9	-31%	548.9	380.2	-31%
Ireland	177.9	177.2	0%	115.7	117.3	1%
Italy	2253.0	1436.6	-36%	2053.3	2157.3	5%
Luxembourg	14.3	12.8	-10%	23.1	22.6	-2%
Netherlands	201.2	154.0	-23%	576.0	532.5	-8%
Portugal	282.6	273.0	-3%	220.8	249.0	13%
Spain	2205.6	2060.9	-7%	1257.1	1223.3	-3%
Sweden	104.9	69.0	-34%	345.3	438.6	27%
United Kingdom	3786.8	2718.9	-28%	2773.2	2216.0	-20%
European Union	**17056.148**	**11960.171**	**-30%**	**13595.0**	**12395.2**	**-9%**

Source : Corinair

GLOBAL MARKETS: Recent evolution (1985-1996)

- Energy self-sufficiency stable since 1990
- Diversified and stable sources for solid fuels
- Technological improvements and cost reductions are limiting the share of external supplies to the European oil market
- Reinforcement of the European gas transport network
- Less concern about security of supply

SELF-SUFFICIENCY

Energy self-sufficiency stable since 1990…

The **degree of self-sufficiency** of the European Union as a whole has fluctuated since 1985 in parallel with local production. From 58.5% in 1985, it declined to 50.2% in 1992 to reach a level of 53.3% in 1996. Denmark, the Netherlands and the United Kingdom present the highest degrees of self-sufficiency, due to the massive exploitation of their gas and oil reserves. In the cases of Belgium, France and Spain the levels of self-sufficiency are mainly made up by use of nuclear energy completed for the last two by hydro contribution. The contribution of each Member State to European Union domestic production and their respective evolutions were quite varied, depending on reserves, implementation of nuclear programme, and acceptance and promotion of renewable energy sources, especially biomass. Since 1990, although self-sufficiency increased by 0.3% per year on average at the European level, evolutions were more contrasted per Member States. Major increases, above 2% par year on average, occurred in Denmark, Finland, Italy, Portugal and United Kingdom. Major losers, by more than 2% per year on average, were Belgium, Germany and Spain, all three marked by coal mine closures.

EXTERNAL SUPPLIES

Closing the gap between domestic production and gross consumption, the European Union took about 47% of its total energy needs from third countries in 1996 (from 42% in 1985 with a peak of 50% in 1992). The **net import of energy** in the Union represented globally 680 Mtoe in 1996, and increased, in absolute figures, by 0.9% per year on average since 1990.

Diversified and stable sources for solid fuels…

For solid fuels some 40% of total needs came from external suppliers in 1996 (24% in 1985 and 29% in 1990). Of this 40%, 24% came from the United States, 22% from South Africa, 11% from Poland, 11% from Colombia and 10% from Australia. In 1996, Colombian supplies increased by about 38%, compensating a reduction in US and Australian deliveries. Although the share varied a little from year to year between these main sources depending on market conditions and long term contracts, these sources have the advantage of being well diversified and presenting political stability.

DEGREE OF SELF-SUFFICIENCY IN ENERGY SUPPLY (Total Domestic Production / Gross Consumption)

%	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Austria	34.69	37.61	32.75	35.48	34.87	30.51	-1.1%	2.0%	-1.7%	-12.5%	-1.2%
Belgium	30.73	27.80	24.34	20.78	19.61	19.68	-4.6%	-3.9%	-5.6%	0.4%	-3.5%
Denmark	22.40	43.31	52.62	71.33	64.27	75.60	18.6%	7.9%	-9.9%	17.6%	6.2%
Finland	40.93	44.88	37.88	34.31	47.25	44.96	-1.5%	-2.4%	37.7%	-4.9%	2.9%
France	45.44	47.87	45.99	51.80	51.28	50.47	0.2%	3.0%	-1.0%	-1.6%	1.6%
Germany	57.75	55.19	53.73	42.57	42.71	41.00	-1.4%	-5.7%	0.3%	-4.0%	-4.4%
Greece	39.26	38.67	37.94	41.26	34.22	33.98	-0.7%	2.1%	-17.1%	-0.7%	-1.8%
Ireland	39.93	34.43	30.62	35.95	31.69	29.46	-5.2%	4.1%	-11.8%	-7.0%	-0.6%
Italy	17.96	19.88	16.19	19.58	18.42	18.38	-2.1%	4.9%	-5.9%	-0.2%	2.1%
Luxembourg	1.02	2.25	1.00	1.32	2.34	0.70	-0.5%	7.3%	77.3%	-70.2%	-5.8%
Netherlands	94.28	73.05	77.67	79.01	80.70	84.00	-3.8%	0.4%	2.1%	4.1%	1.3%
Portugal	24.84	23.54	14.71	18.44	13.44	20.35	-10.0%	5.8%	-27.1%	51.4%	5.6%
Spain	39.42	38.24	35.57	31.91	28.47	29.50	-2.0%	-2.7%	-10.8%	3.6%	-3.1%
Sweden	57.82	63.05	62.57	60.70	62.49	59.86	1.6%	-0.8%	3.0%	-4.2%	-0.7%
United Kingdom	115.38	109.59	96.56	113.09	116.23	113.74	-3.5%	4.0%	2.8%	-2.1%	2.8%
EUROPEAN UNION	**58.44**	**56.30**	**52.30**	**53.75**	**53.52**	**53.26**	**-2.2%**	**0.7%**	**-0.4%**	**-0.5%**	**0.3%**

Thanks to technological improvements and cost reduction, North Sea crude oil increased its market share on the European oil market…

In terms of crude oil, the European Union depended on external supplies for as much as 81% in 1996 (75% in 1985 and 85% in 1990), including requirements for maritime bunkers. This mainly concerned crude oil, as net imports of oil products were quite marginal in 1996. Of these external supplies, 52% came from OPEC, 24% from Norway, 15% from CIS and 9% from diverse sources. In 1996, Norway and CIS increased their deliveries by about 10%. From the mid-80's, OPEC has regained some of the share lost to new non-OPEC producers following the oil price shocks of the 80s. However, in recent years, technology and cost reduction advances in oil exploration and production, notably in the North Sea, have resulted in OPEC taking a lower than expected share of the growing demand for oil.

Reinforcement of the European gas transport network…

The external dependency of the European Union in terms of natural gas was 39% in 1996 (35% in 1985 and 42% in 1990). The shares of the three major suppliers are 41% for CIS, 31% for Norway and 25% for Algeria with only 3% from diverse sources (Libya, UAE and Australia). Norway, which benefited from the sales agreements for gas from Troll fields, has mainly supplied additional deliveries to the European Union in 1996, about 10 Mtoe. Several other important developments came to fruition in Europe in 1996:

- Greece received its first deliveries of Russian gas;
- Gas infrastructures were being developed in Northern Ireland, a process that will take several years to complete;
- Financing and leasing were secured for the UK's Interconnector pipeline, and construction began;
- Another important milestone for the European gas market was the completion of the Maghreb-Europe pipeline. The nearly 800 mile pipeline runs from Hassi R'Mel, the largest field in Algeria, to Seville in Spain with further expansion to Portugal, France and Germany. Commercial sales to Spain began in November 1996;
- Portugal has advanced the development of its new gas infrastructure, which is expected to be completed by the end of 1997;
- Linkages between Western and Eastern Europe also expanded in 1996. An important pipeline connecting Austria and Hungary was competed in 1996.

Less concern about security of supply…

Presently, there is generally little concern about **security of supply**. But more than three-quarters of world oil and gas reserves are located in potentially unstable areas from political and/or economic points of view. Furthermore, these areas will remain the dominant source of European Union supplies in the future. For this reason, it is crucial for the European Union to reinforce good producer-consumer relations, fostered by a process of dialogue and alignment of interests via investment and operational arrangements. Upstream investment possibilities for European companies in producer countries are now opening up, and the developments that producer country companies have been pursuing in the European Union's downstream sector in recent years are continuing. Such moves consolidate the mutual interest that both parties have in the successful performance of the oil and gas markets as a whole.

EUROPEAN UNION : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
								Annual % Change			
Primary Production	735.65	741.67	704.43	724.53	741.91	769.63	-0.9%	0.7%	2.4%	3.7%	1.5%
Solids	239.90	230.93	210.33	137.45	138.02	133.26	-2.6%	-10.1%	0.4%	-3.5%	-7.3%
Oil	151.03	144.70	117.46	156.59	159.20	159.07	-4.9%	7.5%	1.7%	-0.1%	5.2%
Natural gas	131.69	124.47	132.67	159.60	166.60	188.58	0.1%	4.7%	4.4%	13.2%	6.0%
Nuclear	147.38	173.33	181.44	198.84	205.37	213.65	4.2%	2.3%	3.3%	4.0%	2.8%
Hydro & Wind	24.41	26.80	22.33	25.84	25.30	25.23	-1.8%	3.7%	-2.1%	-0.2%	2.1%
Geothermal	1.79	1.97	2.22	2.50	2.51	2.74	4.4%	3.0%	0.7%	9.1%	3.6%
Other renewable energy sources	39.46	39.48	37.99	43.71	44.92	47.09	-0.8%	3.6%	2.8%	4.8%	3.6%
Net Imports	527.12	578.80	643.71	633.11	651.19	679.68	4.1%	-0.4%	2.9%	4.4%	0.9%
Solids	75.30	73.80	88.24	87.29	94.41	95.04	3.2%	-0.3%	8.1%	0.7%	1.2%
Oil	381.97	420.60	460.92	446.64	446.66	466.30	3.8%	-0.8%	0.0%	4.4%	0.2%
Crude oil	343.30	398.01	436.77	443.35	434.71	455.89	4.9%	0.4%	-1.9%	4.9%	0.7%
Oil products	38.67	22.59	24.15	3.30	11.94	10.41	-9.0%	-39.2%	262.3%	-12.8%	-13.1%
Natural gas	68.53	82.32	92.23	97.72	108.63	118.48	6.1%	1.5%	11.2%	9.1%	4.3%
Electricity	1.33	2.09	2.33	1.45	1.50	-0.14	12.0%	-11.1%	2.9%	-	-
Gross Inland Consumption	1240.53	1292.78	1315.25	1335.13	1366.23	1417.33	1.2%	0.4%	2.3%	3.7%	1.3%
Solids	317.83	305.56	302.34	243.82	237.77	236.97	-1.0%	-5.2%	-2.5%	-0.3%	-4.0%
Oil	510.63	536.55	544.58	565.77	575.51	588.22	1.3%	1.0%	1.7%	2.2%	1.3%
Natural gas	197.71	207.01	222.03	253.20	273.35	303.55	2.3%	3.3%	8.0%	11.0%	5.4%
Other (1)	214.37	243.67	246.31	272.34	279.59	288.58	2.8%	2.5%	2.7%	3.2%	2.7%
Electricity Generation in TWh	1917.01	2073.86	2155.63	2268.34	2328.15	2409.34	2.4%	1.3%	2.6%	3.5%	1.9%
Nuclear	574.92	681.90	720.06	791.81	810.12	850.05	4.6%	2.4%	2.3%	4.9%	2.8%
Hydro & wind (including pumping)	299.19	325.77	276.37	317.18	314.04	314.57	-1.6%	3.5%	-1.0%	0.2%	2.2%
Thermal	1042.90	1066.19	1159.20	1159.35	1203.99	1244.72	2.1%	0.0%	3.9%	3.4%	1.2%
Generation Capacity in GWe	480.95	510.56	522.98	531.19	538.82	549.22	1.7%	0.4%	1.4%	1.9%	0.8%
Nuclear	87.04	110.03	116.65	118.74	119.56	121.45	6.0%	0.4%	0.7%	1.6%	0.7%
Hydro & wind	103.48	108.69	111.73	115.63	117.69	119.03	1.5%	0.9%	1.8%	1.1%	1.1%
Thermal	290.43	291.84	294.59	296.81	301.57	308.74	0.3%	0.2%	1.6%	2.4%	0.8%
Average Load Factor in %	45.5	46.4	47.1	48.7	49.3	50.1	0.7%	0.9%	1.2%	1.5%	1.0%
Fuel Inputs for Thermal Power Generation	249.76	250.42	270.46	261.95	273.08	274.76	1.6%	-0.8%	4.2%	0.6%	0.3%
Solids	170.11	173.23	181.87	164.42	163.04	164.86	1.3%	-2.5%	-0.8%	1.1%	-1.6%
Oil	41.22	36.89	42.69	40.56	43.59	41.77	0.7%	-1.3%	7.5%	-4.2%	-0.4%
Gas	30.89	32.65	37.68	46.20	55.17	55.80	4.1%	5.2%	19.4%	1.1%	6.8%
Geothermal	1.70	1.84	1.88	2.14	2.15	2.35	2.0%	3.3%	0.5%	9.6%	3.9%
Biomass	5.83	5.82	6.35	8.64	9.14	9.98	1.7%	8.0%	5.7%	9.2%	7.8%
Average Thermal Efficiency in %	35.9	36.6	36.9	38.1	37.9	39.0	0.5%	0.8%	-0.4%	2.8%	0.9%
Non-Energy Uses	75.25	83.41	84.15	91.70	94.23	92.98	2.3%	2.2%	2.8%	-1.3%	1.7%
Total Final Energy Demand	825.01	858.00	865.10	881.16	898.97	943.80	1.0%	0.5%	2.0%	5.0%	1.5%
Solids	102.72	90.41	81.46	52.20	49.07	47.22	-4.5%	-10.5%	-6.0%	-3.8%	-8.7%
Oil	373.73	395.93	396.36	415.98	419.59	431.90	1.2%	1.2%	0.9%	2.9%	1.4%
Gas	164.02	173.26	181.26	194.92	206.70	234.44	2.0%	1.8%	6.0%	13.4%	4.4%
Electricity	136.99	149.92	156.71	165.16	169.32	173.83	2.7%	1.3%	2.5%	2.7%	1.7%
Heat	14.21	15.07	15.27	18.04	18.70	20.22	1.5%	4.2%	3.7%	8.1%	4.8%
Renewable energy sources	33.34	33.41	34.04	34.87	35.59	36.18	0.4%	0.6%	2.1%	1.6%	1.0%
CO_2 Emissions in Mt of CO_2 (2)	3003.2	3046.4	3086.2	2990.9	3045.0	3143.3	0.5%	-0.8%	1.8%	3.2%	0.3%
Indicators											
Population (Million)	358.79	361.40	364.50	370.97	372.05	373.09	0.3%	0.4%	0.3%	0.3%	0.4%
GDP (bil. ECU 1990)	4577.1	5036.2	5313.3	5546.6	5684.5	5779.5	3.0%	1.1%	2.5%	1.7%	1.4%
Gross Inl Cons./GDP (toe/1990 MECU)	271.0	256.7	247.5	240.7	240.3	245.2	-1.8%	-0.7%	-0.2%	2.0%	-0.2%
Gross Inl Cons./Capita (Kgoe/inhabitant)	3457.6	3577.1	3608.4	3599.0	3672.2	3798.9	0.9%	-0.1%	2.0%	3.5%	0.9%
Electricity Generated/Capita (kWh/inhabitant)	5343.0	5738.1	5914.1	6114.5	6257.6	6457.8	2.1%	0.8%	2.3%	3.2%	1.5%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	8.4	8.4	8.5	8.1	8.2	8.4	0.2%	-1.2%	1.5%	2.9%	-0.1%
Import Dependency %	41.6	43.7	47.7	46.3	46.5	46.7	2.8%	-0.8%	0.5%	0.6%	-0.3%

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

"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

EUROPEAN UNION : MAIN INDICATORS

	1985	1990	1994	1995	1996	90/85	94/90	95/94	96/95
						Annual % Change			
Gross Inland Consumption (Mtoe)	1240.5	1315.3	1335.1	1366.2	1417.3	1.2%	0.4%	2.3%	3.7%
Public Thermal Power Generation	364.0	418.7	425.2	440.8	454.8	2.8%	0.4%	3.7%	3.2%
Autoprod. Thermal Power Generation	33.1	33.1	35.6	37.7	33.6	0.0%	1.9%	5.7%	-10.9%
Energy Branch	60.4	63.9	67.4	67.8	70.0	1.1%	1.4%	0.6%	3.2%
Final Energy Consumption	824.9	864.8	880.8	898.6	943.4	0.9%	0.5%	2.0%	5.0%
Industry	269.8	269.7	252.6	257.4	266.4	0.0%	-1.6%	1.9%	3.5%
Transport	201.8	253.6	272.2	275.7	283.3	4.7%	1.8%	1.3%	2.8%
Tertiary-Domestic	353.3	341.5	356.0	365.5	393.8	-0.7%	1.0%	2.7%	7.7%
Energy Intensity (toe/1990 MECU)	271.0	247.5	240.7	240.3	245.2	-1.8%	-0.7%	-0.2%	2.0%
Public Thermal Power Generation	79.5	78.8	76.7	77.5	78.7	-0.2%	-0.7%	1.2%	1.5%
Autoprod. Thermal Power Generation	7.2	6.2	6.4	6.6	5.8	-3.0%	0.8%	3.1%	-12.3%
Industry	58.9	50.8	45.5	45.3	46.1	-2.9%	-2.7%	-0.6%	1.8%
Transport	44.1	47.7	49.1	48.5	49.0	1.6%	0.7%	-1.2%	1.1%
Tertiary-Domestic	77.2	64.3	64.2	64.3	68.1	-3.6%	0.0%	0.2%	6.0%
Energy per Capita (Kgoe/inhabitant)	3457	3608	3599	3672	3799	0.9%	-0.1%	2.0%	3.5%
Industry	752	740	681	692	714	-0.3%	-2.1%	1.6%	3.2%
Transport	563	696	734	741	759	4.3%	1.3%	1.0%	2.5%
Tertiary-Domestic	985	937	960	982	1055	-1.0%	0.6%	2.4%	7.4%
Electricity Share (%)									
Final Energy Consumption	16.6%	18.1%	18.8%	18.8%	18.4%	1.8%	0.9%	0.5%	-2.2%
Industry	23.2%	26.0%	27.5%	27.7%	26.9%	2.3%	1.4%	0.9%	-2.9%
Transport	1.7%	1.6%	1.7%	1.7%	1.7%	-1.2%	1.8%	0.5%	-0.2%
Tertiary-Domestic	20.1%	24.2%	25.6%	25.5%	24.7%	3.8%	1.4%	4.7%	-3.4%
Total Renewable Consumption (Mtoe)	65.5	62.3	71.8	72.5	74.8	-1.0%	3.6%	2.0%	4.2%
Hydro	24.4	22.3	25.5	24.9	24.8	-1.8%	3.5%	0.3%	-2.9%
Biomass	39.2	37.6	43.3	44.5	46.6	-0.8%	3.6%	3.0%	7.7%
Other renewable energy sources	1.9	2.4	3.0	3.1	3.4	5.2%	5.6%	3.0%	14.2%
Renewable Intensity (toe/1990MECU)	14.3	11.7	13.0	12.8	13.0	-3.9%	2.5%	-3.3%	0.0%
Renewable per capita (Kgoe/inhabitant)	182.4	170.9	193.7	194.9	200.6	-1.3%	3.2%	1.4%	3.6%
CO_2 Emissions (Mt of CO_2)	3003.2	3086.2	2990.9	3045.0	3143.3	0.5%	-0.8%	1.8%	3.2%
Public Thermal Power Generation	789.6	861.3	801.0	822.3	838.6	1.8%	-1.8%	2.7%	2.0%
Autoprod. Thermal Power Generation	107.6	102.4	104.8	108.8	94.7	-1.0%	0.6%	3.9%	-12.9%
Energy Branch	124.7	130.1	141.6	141.2	146.0	0.8%	2.2%	-0.3%	3.4%
Industry	624.9	578.2	514.7	517.1	529.8	-1.5%	-2.9%	0.5%	2.4%
Transport	585.3	737.8	792.7	803.2	825.4	4.7%	1.8%	1.3%	2.8%
Tertiary-Domestic	738.2	645.2	620.9	633.7	692.1	-2.7%	-1.0%	2.1%	9.2%
Carbon Intensity (tn of CO_2/toe)	2.4	2.3	2.2	2.2	2.2	-0.6%	-1.2%	-0.5%	-0.5%
Public Thermal Power Generation	3.6	3.6	3.5	3.5	3.5	-0.1%	-0.6%	-1.3%	-0.5%
Autoprod. Thermal Power Generation	3.2	3.1	2.9	2.9	2.8	-1.0%	-1.3%	-1.7%	-2.3%
Energy Branch	2.1	2.0	2.1	2.1	2.1	-0.3%	0.8%	-0.9%	0.2%
Industry	2.3	2.1	2.0	2.0	2.0	-1.5%	-1.3%	-1.4%	-1.0%
Transport	2.9	2.9	2.9	2.9	2.9	0.1%	0.0%	0.0%	0.0%
Tertiary-Domestic	2.1	1.9	1.7	1.7	1.8	-2.0%	-2.0%	-0.6%	1.4%
CO_2 per Capita (kg of CO_2/inhabitant)	8370	8467	8062	8184	8425	0.2%	-1.2%	1.5%	2.9%
Industry	1742	1586	1387	1390	1420	-1.9%	-3.3%	0.2%	2.2%
Transport	1631	2024	2137	2159	2212	4.4%	1.4%	1.0%	2.5%
Tertiary-Domestic	2057	1770	1674	1703	1855	-3.0%	-1.4%	1.8%	8.9%
CO_2 per unit of GDP (tn of CO_2/1990 MECU)	656	581	539	536	544	-2.4%	-1.8%	-0.7%	1.5%
Public Thermal Power Generation	173	162	144	145	145	-1.2%	-2.8%	0.2%	0.3%
Autoprod. Thermal Power Generation	24	19	19	19	16	-3.9%	-0.5%	1.4%	-14.4%
Energy Branch	27	24	26	25	25	-2.1%	1.1%	-2.8%	1.7%
Industry	137	109	93	91	92	-4.4%	-3.9%	-2.0%	0.8%
Transport	128	139	143	141	143	1.7%	0.7%	-1.1%	1.1%
Tertiary-Domestic	161	121	112	111	120	-5.5%	-2.0%	-0.4%	7.4%

AUSTRIA : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	8.43	8.92	8.75	8.72	9.11	8.58	0.7%	-0.1%	4.5%	-5.8%	-0.3%
Solids	0.63	0.56	0.64	0.34	0.30	0.26	0.6%	-14.8%	-10.5%	-14.6%	-14.0%
Oil	1.15	1.21	1.19	1.13	1.06	0.97	0.5%	-1.1%	-6.6%	-8.5%	-3.3%
Natural gas	1.01	1.09	1.11	1.15	1.26	1.27	1.9%	1.0%	9.4%	0.7%	2.3%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & Wind	2.66	3.08	2.71	3.07	3.19	2.94	0.4%	3.2%	3.8%	-7.7%	1.4%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Other renewable energy sources	2.99	2.99	3.10	3.02	3.30	3.14	0.8%	-0.7%	9.1%	-4.7%	0.2%
Net Imports	15.46	15.08	17.28	16.75	17.38	19.17	2.3%	-0.8%	3.7%	10.3%	1.7%
Solids	3.57	3.35	3.12	2.49	2.52	3.03	-2.7%	-5.5%	1.1%	20.3%	-0.5%
Oil	8.39	8.73	9.71	10.09	9.65	10.47	3.0%	1.0%	-4.3%	8.4%	1.3%
Crude oil	6.68	6.51	7.80	8.27	8.01	8.38	3.1%	1.5%	-3.1%	4.5%	1.2%
Oil products	1.71	2.22	1.91	1.82	1.64	2.09	2.2%	-1.2%	-9.8%	27.7%	1.6%
Natural gas	3.64	3.24	4.49	4.24	5.42	5.59	4.3%	-1.4%	27.7%	3.3%	3.7%
Electricity	-0.15	-0.23	-0.04	-0.07	-0.21	0.08	-23.2%	15.7%	200.1%	-	-
Gross Inland Consumption	23.67	24.17	25.69	25.97	26.68	27.59	1.7%	0.3%	2.7%	3.4%	1.2%
Solids	3.96	3.72	4.16	2.94	3.22	3.33	1.0%	-8.3%	9.3%	3.4%	-3.7%
Oil	9.61	10.19	10.52	11.16	10.86	11.32	1.8%	1.5%	-2.7%	4.2%	1.2%
Natural gas	4.60	4.43	5.24	5.84	6.33	6.79	2.6%	2.8%	8.3%	7.2%	4.4%
Other (1)	5.50	5.83	5.77	6.02	6.27	6.16	1.0%	1.1%	4.2%	-1.7%	1.1%
Electricity Generation in TWh	44.82	49.34	50.83	53.30	56.58	54.83	2.6%	1.2%	6.1%	-3.1%	1.3%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & wind (including pumping)	31.89	36.86	32.91	36.89	38.47	35.57	0.6%	2.9%	4.3%	-7.5%	1.3%
Thermal	12.93	12.48	17.92	16.41	18.11	19.25	6.7%	-2.2%	10.3%	6.3%	1.2%
Generation Capacity in GWe	15.25	16.74	16.69	16.03	17.44	17.52	1.8%	-1.0%	8.8%	0.5%	0.8%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & wind	10.17	10.76	10.95	10.34	11.30	11.38	1.5%	-1.4%	9.3%	0.6%	0.6%
Thermal	5.08	5.98	5.74	5.69	6.13	6.14	2.5%	-0.2%	7.8%	0.1%	1.1%
Average Load Factor in %	33.5	33.6	34.8	38.0	37.0	35.7	0.7%	2.2%	-2.4%	-3.5%	0.4%
Fuel Inputs for Thermal Power Generation	2.57	2.92	4.17	3.68	4.07	4.40	10.2%	-3.1%	10.7%	8.0%	0.9%
Solids	0.66	0.84	1.46	0.75	1.04	1.13	17.2%	-15.3%	38.4%	9.0%	-4.2%
Oil	0.33	0.41	0.45	0.55	0.58	0.58	6.1%	5.3%	6.1%	0.0%	4.5%
Gas	1.31	1.41	1.97	2.05	2.11	2.33	8.5%	1.0%	3.0%	10.2%	2.8%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Biomass	0.26	0.26	0.29	0.33	0.34	0.35	1.8%	3.4%	2.8%	4.7%	3.5%
Average Thermal Efficiency in %	43.3	36.8	37.0	38.4	38.2	37.7	-3.1%	0.9%	-0.3%	-1.5%	0.3%
Non-Energy Uses	1.52	1.48	1.57	1.51	1.23	1.66	0.5%	-1.0%	-18.7%	35.6%	1.0%
Total Final Energy Demand	19.15	19.19	19.96	20.61	21.57	21.78	0.8%	0.8%	4.6%	1.0%	1.5%
Solids	2.43	1.92	1.75	1.40	1.39	1.43	-6.4%	-5.3%	-0.8%	2.4%	-3.3%
Oil	7.43	7.83	8.12	8.57	8.82	8.87	1.8%	1.4%	2.9%	0.6%	1.5%
Gas	2.98	2.81	3.03	3.38	3.65	3.83	0.3%	2.8%	7.9%	5.1%	4.0%
Electricity	3.18	3.45	3.71	3.90	4.01	4.12	3.1%	1.3%	2.9%	2.8%	1.8%
Heat	0.44	0.48	0.57	0.69	0.77	0.77	5.3%	5.1%	10.9%	0.0%	5.2%
Renewable energy sources	2.70	2.70	2.79	2.66	2.93	2.76	0.7%	-1.2%	10.0%	-5.9%	-0.2%
CO_2 Emissions in Mt of CO_2 (2)	51.0	50.7	55.0	54.1	56.7	58.7	1.5%	-0.4%	4.9%	3.6%	1.1%
Indicators											
Population (Million)	7.58	7.62	7.73	8.03	8.05	8.06	0.4%	1.0%	0.2%	0.2%	0.7%
GDP (bil. ECU 1990)	107.3	115.2	125.6	135.7	138.5	140.7	3.2%	1.9%	2.1%	1.6%	1.9%
Gross Inl Cons./GDP (toe/1990 MECU)	220.5	209.7	204.6	191.4	192.7	196.1	-1.5%	-1.7%	0.7%	1.8%	-0.7%
Gross Inl Cons./Capita (Kgoe/inhabitant)	3122.8	3174.2	3324.2	3233.9	3315.7	3423.7	1.3%	-0.7%	2.5%	3.3%	0.5%
Electricity Generated/Capita (kWh/inhabitant)	5913.9	6478.8	6576.6	6637.8	7031.2	6802.6	2.1%	0.2%	5.9%	-3.3%	0.6%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	6.7	6.7	7.1	6.7	7.0	7.3	1.1%	-1.4%	4.7%	3.4%	0.4%
Import Dependency %	65.3	62.4	67.2	64.5	65.1	69.5	0.6%	-1.0%	0.9%	6.7%	0.5%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

BELGIUM : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	13.69	13.23	12.54	11.21	11.40	11.72	-1.7%	-2.8%	1.8%	2.8%	-1.1%
Solids	4.38	1.85	1.08	0.32	0.27	0.24	-24.4%	-26.4%	-15.4%	-12.1%	-22.4%
Oil	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Natural gas	0.03	0.01	0.01	0.00	0.00	0.00	-22.3%	-44.4%	-76.7%	700.2%	-25.0%
Nuclear	8.70	10.80	10.71	10.20	10.34	10.69	4.2%	-1.2%	1.3%	3.4%	0.0%
Hydro & Wind	0.02	0.03	0.02	0.03	0.03	0.02	-0.7%	6.7%	-2.3%	-28.5%	-1.6%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	24.6%	5.2%	20.8%	20.3%	10.1%
Other renewable energy sources	0.55	0.53	0.71	0.65	0.76	0.77	5.4%	-2.1%	17.3%	0.9%	1.4%
Net Imports	31.97	35.59	38.86	42.66	43.69	46.97	4.0%	2.4%	2.4%	7.5%	3.2%
Solids	5.57	6.75	9.49	8.24	9.34	7.96	11.3%	-3.5%	13.4%	-14.8%	-2.9%
Oil	19.12	21.88	21.47	24.30	23.58	26.77	2.3%	3.1%	-3.0%	13.5%	3.7%
Crude oil	20.35	24.97	26.12	27.77	25.67	30.79	5.1%	1.5%	-7.6%	19.9%	2.8%
Oil products	-1.23	-3.08	-4.65	-3.47	-2.10	-4.02	30.5%	-7.0%	-39.6%	91.8%	-2.4%
Natural gas	7.29	7.15	8.22	9.78	10.42	11.88	2.4%	4.4%	6.6%	14.0%	6.3%
Electricity	0.00	-0.18	-0.32	0.34	0.35	0.36	140.8%	-	2.2%	2.9%	-
Gross Inland Consumption	43.84	45.62	47.26	49.75	50.44	53.97	1.5%	1.3%	1.4%	7.0%	2.2%
Solids	9.90	8.77	10.24	8.89	8.55	8.17	0.7%	-3.5%	-3.8%	-4.4%	-3.7%
Oil	17.34	18.46	17.73	19.96	19.79	22.14	0.4%	3.0%	-0.8%	11.9%	3.8%
Natural gas	7.33	7.21	8.17	9.67	10.61	11.82	2.2%	4.3%	9.7%	11.4%	6.3%
Other (1)	9.27	11.18	11.12	11.23	11.49	11.85	3.7%	0.2%	2.3%	3.1%	1.1%
Electricity Generation in TWh	57.31	65.34	70.83	72.22	74.42	76.14	4.3%	0.5%	3.0%	2.3%	1.2%
Nuclear	34.59	43.09	42.71	40.62	41.35	43.33	4.3%	-1.3%	1.8%	4.8%	0.2%
Hydro & wind (including pumping)	1.35	1.17	0.90	1.19	1.24	1.21	-7.7%	7.2%	3.9%	-2.4%	4.9%
Thermal	21.37	21.07	27.21	30.41	31.83	31.60	5.0%	2.8%	4.7%	-0.7%	2.5%
Generation Capacity in GWe	14.17	14.03	14.14	14.63	14.92	14.85	0.0%	0.9%	2.0%	-0.4%	0.8%
Nuclear	5.48	5.50	5.50	5.53	5.63	5.69	0.1%	0.1%	1.9%	1.1%	0.6%
Hydro & wind	1.33	1.34	1.41	1.41	1.41	1.41	1.2%	0.0%	0.0%	0.0%	0.0%
Thermal	7.36	7.19	7.24	7.69	7.88	7.75	-0.3%	1.5%	2.4%	-1.6%	1.2%
Average Load Factor in %	46.2	53.2	57.2	56.4	57.0	58.5	4.4%	-0.4%	1.1%	2.8%	0.4%
Fuel Inputs for Thermal Power Generation	5.26	4.97	6.58	6.97	7.15	7.12	4.6%	1.5%	2.6%	-0.4%	1.3%
Solids	2.83	3.02	3.87	3.87	3.76	3.53	6.5%	0.0%	-2.9%	-6.1%	-1.5%
Oil	0.96	0.31	0.32	0.36	0.18	0.19	-19.9%	2.8%	-49.9%	6.2%	-8.3%
Gas	1.24	1.42	1.98	2.33	2.72	2.93	9.9%	4.1%	16.9%	7.5%	6.7%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Biomass	0.23	0.22	0.40	0.41	0.49	0.47	11.5%	0.6%	18.3%	-3.2%	2.7%
Average Thermal Efficiency in %	34.9	36.4	35.6	37.5	38.3	38.2	0.4%	1.3%	2.0%	-0.3%	1.2%
Non-Energy Uses	2.90	3.21	3.16	3.96	3.63	4.66	1.7%	5.8%	-8.3%	28.4%	6.7%
Total Final Energy Demand	29.21	30.89	30.84	33.41	34.16	36.43	1.1%	2.0%	2.3%	6.6%	2.8%
Solids	4.46	3.74	3.79	3.69	3.31	3.23	-3.2%	-0.6%	-10.4%	-2.2%	-2.6%
Oil	13.09	15.15	14.29	15.85	15.96	17.20	1.8%	2.6%	0.7%	7.8%	3.1%
Gas	6.96	6.82	7.25	7.71	8.52	9.43	0.8%	1.5%	10.5%	10.8%	4.5%
Electricity	4.16	4.66	4.99	5.71	5.89	6.01	3.7%	3.5%	3.0%	2.1%	3.2%
Heat	0.22	0.21	0.21	0.21	0.22	0.25	-0.6%	-0.2%	4.4%	12.1%	2.5%
Renewable energy sources	0.31	0.31	0.31	0.24	0.28	0.30	-0.3%	-6.1%	15.7%	8.3%	-0.5%
CO_2 Emissions in Mt of CO_2 (2)	98.8	101.7	104.5	110.5	111.0	116.7	1.1%	1.4%	0.5%	5.1%	1.9%
Indicators											
Population (Million)	9.86	9.90	9.97	10.12	10.14	10.16	0.2%	0.4%	0.2%	0.2%	0.3%
GDP (bil. ECU 1990)	133.0	144.6	154.4	160.6	163.9	166.3	3.0%	1.0%	2.1%	1.5%	1.2%
Gross Inl Cons./GDP (toe/1990 MECU)	329.8	315.4	306.1	309.8	307.7	324.5	-1.5%	0.3%	-0.7%	5.5%	1.0%
Gross Inl Cons./Capita (Kgoe/inhabitant)	4447.3	4607.5	4741.9	4918.1	4975.9	5314.2	1.3%	0.9%	1.2%	6.8%	1.9%
Electricity Generated/Capita (kWh/inhabitant)	5813.5	6598.6	7106.5	7139.7	7341.1	7496.1	4.1%	0.1%	2.8%	2.1%	0.9%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	10.0	10.3	10.5	10.9	11.0	11.5	0.9%	1.0%	0.3%	4.9%	1.5%
Import Dependency %	69.3	72.2	75.7	79.2	80.4	80.3	1.8%	1.2%	1.5%	-0.1%	1.0%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

DENMARK : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	4.85	7.88	9.94	14.94	15.46	17.52	15.4%	10.7%	3.5%	13.3%	9.9%
Solids	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Oil	2.92	4.78	6.06	9.23	9.31	10.30	15.7%	11.1%	0.9%	10.6%	9.2%
Natural gas	0.97	2.11	2.74	4.29	4.65	5.65	23.1%	11.9%	8.3%	21.4%	12.8%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & Wind	0.01	0.03	0.05	0.10	0.10	0.11	51.1%	16.4%	2.9%	2.7%	11.7%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.5%	-0.5%	0.0%	-31.9%	-6.5%
Other renewable energy sources	0.96	0.96	1.09	1.31	1.40	1.48	2.7%	4.7%	6.7%	5.3%	5.1%
Net Imports	15.53	11.17	9.08	6.23	7.92	6.03	-10.2%	-9.0%	27.1%	-23.8%	-6.6%
Solids	7.70	6.26	6.23	6.88	7.65	7.65	-4.1%	2.5%	11.2%	-0.1%	3.5%
Oil	8.19	5.28	3.16	1.26	1.83	1.41	-17.3%	-20.5%	44.7%	-22.9%	-12.6%
Crude oil	4.03	3.10	2.03	-0.36	0.80	0.34	-12.8%	-	-	-58.2%	-25.9%
Oil products	4.16	2.18	1.13	1.63	1.03	1.07	-23.0%	9.5%	-36.8%	4.7%	-0.8%
Natural gas	-0.40	-0.74	-0.93	-1.50	-1.49	-1.70	18.5%	12.7%	-0.4%	13.8%	10.6%
Electricity	0.04	0.36	0.61	-0.42	-0.07	-1.32	72.6%	-	-83.6%	1839.7%	-
Gross Inland Consumption	19.60	18.83	18.20	20.27	20.58	23.24	-1.5%	2.7%	1.5%	12.9%	4.2%
Solids	7.38	6.87	6.11	7.62	6.44	8.87	-3.7%	5.7%	-15.4%	37.7%	6.4%
Oil	10.65	9.21	8.55	8.96	9.58	10.43	-4.3%	1.2%	6.9%	8.9%	3.4%
Natural gas	0.57	1.39	1.79	2.69	3.12	3.67	25.8%	10.8%	16.0%	17.7%	12.8%
Other (1)	1.00	1.35	1.76	1.00	1.44	0.26	11.8%	-13.2%	44.1%	-82.0%	-27.3%
Electricity Generation in TWh	29.04	27.96	25.73	40.09	36.78	53.54	-2.4%	11.7%	-8.3%	45.6%	13.0%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & wind (including pumping)	0.08	0.33	0.64	1.17	1.20	1.24	51.1%	16.4%	2.9%	2.7%	11.7%
Thermal	28.96	27.63	25.10	38.92	35.58	52.31	-2.8%	11.6%	-8.6%	47.0%	13.0%
Generation Capacity in GWe	8.57	8.44	9.13	10.60	10.69	11.11	1.3%	3.8%	0.8%	3.9%	3.3%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & wind	0.06	0.21	0.35	0.54	0.63	0.80	43.5%	11.2%	16.1%	27.6%	14.6%
Thermal	8.52	8.24	8.78	10.06	10.06	10.31	0.6%	3.5%	0.0%	2.4%	2.7%
Average Load Factor in %	38.7	37.8	32.2	43.2	39.3	55.0	-3.6%	7.6%	-9.0%	40.1%	9.3%
Fuel Inputs for Thermal Power Generation	7.27	6.95	6.35	8.99	8.53	12.20	-2.7%	9.1%	-5.0%	43.0%	11.5%
Solids	6.49	6.13	5.55	7.28	6.05	8.55	-3.1%	7.0%	-16.9%	41.2%	7.5%
Oil	0.35	0.32	0.25	0.57	0.97	1.68	-6.1%	22.4%	71.2%	73.4%	37.1%
Gas	0.08	0.14	0.14	0.62	0.91	1.29	12.5%	46.0%	47.5%	41.1%	45.4%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Biomass	0.36	0.36	0.41	0.52	0.60	0.69	3.0%	5.9%	15.5%	14.8%	8.9%
Average Thermal Efficiency in %	34.3	34.2	34.0	37.2	35.9	36.9	-0.2%	2.3%	-3.7%	2.8%	1.4%
Non-Energy Uses	0.52	0.44	0.33	0.30	0.38	0.43	-8.7%	-2.7%	29.5%	13.8%	4.7%
Total Final Energy Demand	14.49	13.87	14.54	14.76	15.05	15.64	0.1%	0.4%	1.9%	3.9%	1.2%
Solids	0.77	0.42	0.46	0.42	0.39	0.37	-9.6%	-2.6%	-5.4%	-6.4%	-3.7%
Oil	9.46	7.87	7.59	7.49	7.48	7.68	-4.3%	-0.3%	-0.1%	2.8%	0.2%
Gas	0.51	0.94	1.13	1.54	1.67	1.84	17.5%	8.1%	8.5%	10.0%	8.5%
Electricity	2.18	2.41	2.52	2.67	2.69	2.77	2.9%	1.4%	0.8%	3.0%	1.6%
Heat	1.09	1.75	2.31	2.09	2.23	2.42	16.2%	-2.5%	6.8%	8.4%	0.8%
Renewable energy sources	0.48	0.48	0.54	0.57	0.59	0.57	2.4%	1.3%	3.7%	-4.0%	0.8%
CO_2 Emissions in Mt of CO_2 (2)	60.9	56.3	52.7	62.6	59.9	73.9	-2.8%	4.4%	-4.3%	23.4%	5.8%
Indicators											
Population (Million)	5.11	5.13	5.14	5.20	5.23	5.26	0.1%	0.3%	0.4%	0.6%	0.4%
GDP (bil. ECU 1990)	94.8	97.8	99.6	106.6	109.3	112.0	1.0%	1.7%	2.5%	2.5%	2.0%
Gross Inl Cons./GDP (toe/1990 MECU)	206.7	192.6	182.7	190.2	188.3	207.5	-2.4%	1.0%	-1.0%	10.2%	2.1%
Gross Inl Cons./Capita (Kgoe/inhabitant)	3833.8	3670.8	3541.7	3894.2	3936.2	4416.2	-1.6%	2.4%	1.1%	12.2%	3.7%
Electricity Generated/Capita (kWh/inhabitant)	5679.6	5450.8	5010.4	7702.0	7035.5	10176.1	-2.5%	11.3%	-8.7%	44.6%	12.5%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	11.9	11.0	10.2	12.0	11.5	14.0	-2.9%	4.1%	-4.7%	22.6%	5.4%
Import Dependency %	77.6	56.7	47.4	28.7	35.7	24.4	-9.4%	-11.8%	24.6%	-31.7%	-10.5%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

FINLAND : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	11.16	11.62	11.74	13.08	13.19	13.38	1.0%	2.8%	0.8%	1.5%	2.2%
Solids	0.76	1.01	1.46	2.16	2.06	2.25	13.8%	10.3%	-4.6%	9.0%	7.5%
Oil	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Natural gas	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Nuclear	4.97	5.09	5.01	5.01	4.96	5.02	0.2%	0.0%	-1.1%	1.4%	0.1%
Hydro & Wind	1.06	1.15	0.93	1.01	1.11	1.02	-2.5%	2.1%	9.7%	-8.2%	1.5%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Other renewable energy sources	4.37	4.37	4.34	4.90	5.06	5.09	-0.2%	3.1%	3.3%	0.6%	2.7%
Net Imports	16.10	15.89	18.03	20.45	15.41	17.23	2.3%	3.2%	-24.6%	11.8%	-0.8%
Solids	4.02	3.53	4.38	5.21	3.77	4.37	1.7%	4.4%	-27.6%	16.1%	0.0%
Oil	10.87	10.33	10.48	11.84	8.21	9.58	-0.7%	3.1%	-30.7%	16.7%	-1.5%
Crude oil	9.99	9.11	8.89	10.44	8.55	9.79	-2.3%	4.1%	-18.1%	14.6%	1.6%
Oil products	0.88	1.21	1.59	1.40	-0.34	-0.22	12.6%	-3.1%	-	-36.5%	-
Natural gas	0.80	1.40	2.26	2.84	2.84	2.97	23.1%	5.9%	-0.1%	4.5%	4.6%
Electricity	0.40	0.63	0.92	0.56	0.60	0.31	17.8%	-11.5%	6.6%	-47.5%	-16.3%
Gross Inland Consumption	26.79	28.35	28.46	30.72	28.89	30.93	1.2%	1.9%	-6.0%	7.1%	1.4%
Solids	4.98	5.06	5.07	6.50	5.99	7.31	0.4%	6.4%	-7.8%	22.0%	6.3%
Oil	10.22	10.64	9.94	9.89	8.33	9.20	-0.6%	-0.1%	-15.8%	10.5%	-1.3%
Natural gas	0.80	1.40	2.26	2.84	2.84	2.97	23.1%	5.9%	-0.1%	4.5%	4.6%
Other (1)	10.80	11.25	11.19	11.49	11.73	11.45	0.7%	0.6%	2.1%	-2.4%	0.4%
Electricity Generation in TWh	49.71	53.89	54.37	65.62	63.87	69.36	1.8%	4.8%	-2.7%	8.6%	4.1%
Nuclear	19.06	19.55	19.21	19.42	19.21	19.47	0.2%	0.3%	-1.1%	1.4%	0.2%
Hydro & wind (including pumping)	12.33	13.36	10.86	11.78	12.92	11.87	-2.5%	2.1%	9.7%	-8.2%	1.5%
Thermal	18.32	20.98	24.30	34.41	31.74	38.02	5.8%	9.1%	-7.8%	19.8%	7.7%
Generation Capacity in GWe	11.32	11.90	13.22	14.15	14.43	14.57	3.2%	1.7%	2.0%	0.9%	1.6%
Nuclear	2.30	2.35	2.36	2.36	2.31	2.31	0.5%	0.0%	-2.1%	0.0%	-0.4%
Hydro & wind	2.51	2.60	2.62	2.74	2.78	2.79	0.9%	1.1%	1.7%	0.3%	1.1%
Thermal	6.51	6.95	8.24	9.05	9.34	9.47	4.8%	2.4%	3.2%	1.4%	2.3%
Average Load Factor in %	50.1	51.7	46.9	52.9	50.5	54.3	-1.3%	3.1%	-4.6%	7.6%	2.5%
Fuel Inputs for Thermal Power Generation	4.41	5.06	5.41	7.35	6.91	8.19	4.1%	8.0%	-5.9%	18.6%	7.2%
Solids	2.76	3.01	3.01	4.54	3.88	5.19	1.8%	10.8%	-14.5%	33.7%	9.5%
Oil	0.17	0.34	0.29	0.29	0.26	0.41	11.6%	-0.4%	-11.4%	58.0%	5.5%
Gas	0.41	0.63	1.02	1.38	1.58	1.71	19.9%	8.0%	14.4%	8.3%	9.1%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Biomass	1.07	1.07	1.09	1.13	1.19	0.89	0.3%	1.0%	5.1%	-25.4%	-3.3%
Average Thermal Efficiency in %	35.7	35.7	38.6	40.3	39.5	39.9	1.6%	1.0%	-1.9%	1.0%	0.5%
Non-Energy Uses	1.32	1.93	1.80	2.29	0.91	0.97	6.4%	6.2%	-60.4%	7.0%	-9.8%
Total Final Energy Demand	18.50	20.06	20.90	22.08	21.99	22.14	2.5%	1.4%	-0.4%	0.7%	1.0%
Solids	1.27	1.16	1.17	1.14	1.22	1.01	-1.7%	-0.5%	7.1%	-17.7%	-2.4%
Oil	7.33	8.01	8.06	7.73	7.73	7.33	1.9%	-1.0%	0.0%	-5.2%	-1.6%
Gas	0.61	1.00	1.51	1.75	1.51	1.60	19.6%	3.8%	-13.6%	6.1%	1.0%
Electricity	4.17	4.74	5.07	5.59	5.62	5.72	4.0%	2.5%	0.4%	1.9%	2.0%
Heat	1.87	1.91	1.91	2.18	2.13	2.75	0.5%	3.3%	-2.4%	29.3%	6.2%
Renewable energy sources	3.25	3.25	3.18	3.68	3.79	3.73	-0.4%	3.7%	2.9%	-1.4%	2.7%
CO_2 Emissions in Mt of CO_2 (2)	46.8	50.1	51.6	58.9	56.2	60.0	2.0%	3.4%	-4.6%	6.8%	2.5%
Indicators											
Population (Million)	4.90	4.95	4.99	5.09	5.11	5.12	0.3%	0.5%	0.4%	0.3%	0.5%
GDP (bil. ECU 1990)	89.9	100.5	106.2	98.3	103.3	106.7	3.4%	-1.9%	5.1%	3.3%	0.1%
Gross Inl Cons./GDP (toe/1990 MECU)	298.2	282.2	268.1	312.4	279.7	290.0	-2.1%	3.9%	-10.5%	3.7%	1.3%
Gross Inl Cons./Capita (Kgoe/inhabitant)	5465.4	5730.7	5708.2	6036.9	5655.8	6036.3	0.9%	1.4%	-6.3%	6.7%	0.9%
Electricity Generated/Capita (kWh/inhabitant)	10139.7	10893.9	10903.0	12896.8	12505.1	13534.7	1.5%	4.3%	-3.0%	8.2%	3.7%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	9.5	10.1	10.3	11.6	11.0	11.7	1.6%	2.8%	-4.9%	6.4%	2.1%
Import Dependency %	59.1	55.1	62.1	65.7	52.7	55.0	1.0%	1.4%	-19.7%	4.3%	-2.0%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

FRANCE : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	90.29	100.60	104.42	118.31	121.87	124.80	3.0%	3.2%	3.0%	2.4%	3.0%
Solids	10.45	8.40	7.63	5.44	5.36	4.89	-6.1%	-8.1%	-1.5%	-8.8%	-7.1%
Oil	3.36	3.44	3.49	3.35	3.02	2.63	0.8%	-1.0%	-9.8%	-13.1%	-4.6%
Natural gas	4.54	2.61	2.42	2.89	2.79	2.41	-11.8%	4.5%	-3.3%	-13.8%	-0.1%
Nuclear	57.27	70.18	79.13	89.85	93.99	97.85	6.7%	3.2%	4.6%	4.1%	3.6%
Hydro & Wind	5.38	6.64	4.64	6.82	6.32	5.65	-2.9%	10.1%	-7.4%	-10.5%	3.4%
Geothermal	0.08	0.12	0.12	0.13	0.13	0.15	9.2%	0.1%	5.2%	17.0%	3.6%
Other renewable energy sources	9.21	9.21	6.99	9.83	10.26	11.22	-5.4%	8.9%	4.3%	9.4%	8.2%
Net Imports	111.73	110.13	119.75	109.60	115.31	124.17	1.4%	-2.2%	5.2%	7.7%	0.6%
Solids	12.55	7.81	13.00	8.07	9.01	10.57	0.7%	-11.2%	11.6%	17.4%	-3.4%
Oil	81.08	84.52	86.55	81.36	85.43	89.89	1.3%	-1.5%	5.0%	5.2%	0.6%
Crude oil	75.98	74.73	76.00	76.59	78.83	84.14	0.0%	0.2%	2.9%	6.7%	1.7%
Oil products	5.10	9.79	10.55	4.77	6.60	5.76	15.7%	-18.0%	38.4%	-12.8%	-9.6%
Natural gas	20.11	20.98	24.10	25.59	26.88	29.62	3.7%	1.5%	5.0%	10.2%	3.5%
Electricity	-2.01	-3.18	-3.91	-5.43	-6.01	-5.92	14.2%	8.6%	10.6%	-1.5%	7.2%
Gross Inland Consumption	202.43	209.06	219.22	225.25	234.18	248.00	1.6%	0.7%	4.0%	5.9%	2.1%
Solids	24.40	18.27	19.96	14.36	15.29	16.14	-3.9%	-7.9%	6.4%	5.6%	-3.5%
Oil	83.90	84.47	87.67	82.50	85.24	90.22	0.9%	-1.5%	3.3%	5.8%	0.5%
Natural gas	24.19	23.34	24.61	27.19	28.96	32.69	0.3%	2.5%	6.5%	12.9%	4.8%
Other (1)	69.93	82.98	86.98	101.20	104.69	108.96	4.5%	3.9%	3.5%	4.1%	3.8%
Electricity Generation in TWh	344.24	391.86	420.08	477.61	494.62	512.30	4.1%	3.3%	3.6%	3.6%	3.4%
Nuclear	224.06	275.47	314.02	359.92	377.16	397.27	7.0%	3.5%	4.8%	5.3%	4.0%
Hydro & wind (including pumping)	64.25	78.77	57.91	83.08	78.01	70.76	-2.1%	9.4%	-6.1%	-9.3%	3.4%
Thermal	55.92	37.62	48.14	34.62	39.45	44.27	-3.0%	-7.9%	14.0%	12.2%	-1.4%
Generation Capacity in GWe	86.56	100.62	103.41	107.23	107.61	109.45	3.6%	0.9%	0.4%	1.7%	0.9%
Nuclear	37.49	52.43	55.75	58.52	58.52	59.97	8.3%	1.2%	0.0%	2.5%	1.2%
Hydro & wind	21.83	24.65	24.99	25.23	25.23	25.32	2.7%	0.2%	0.0%	0.3%	0.2%
Thermal	27.24	23.54	22.67	23.48	23.87	24.16	-3.6%	0.9%	1.6%	1.2%	1.1%
Average Load Factor in %	45.4	44.5	46.4	50.8	52.5	53.4	0.4%	2.3%	3.2%	1.8%	2.4%
Fuel Inputs for Thermal Power Generation	13.17	9.01	11.45	7.58	8.26	8.89	-2.8%	-9.8%	8.9%	7.7%	-4.1%
Solids	9.32	5.85	7.37	4.76	5.43	5.80	-4.6%	-10.4%	14.2%	6.7%	-3.9%
Oil	1.61	1.03	1.84	0.56	0.61	0.59	2.8%	-25.6%	7.3%	-2.4%	-17.3%
Gas	1.53	1.41	1.42	1.36	1.22	1.28	-1.5%	-1.2%	-10.3%	5.5%	-1.7%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Biomass	0.72	0.72	0.81	0.91	1.00	1.22	2.6%	2.7%	10.8%	21.8%	7.0%
Average Thermal Efficiency in %	36.5	35.9	36.2	39.3	41.1	42.8	-0.2%	2.1%	4.6%	4.2%	2.9%
Non-Energy Uses	11.91	12.63	13.08	15.48	16.21	16.67	1.9%	4.3%	4.7%	2.9%	4.1%
Total Final Energy Demand	129.79	131.33	135.09	137.81	141.73	149.72	0.8%	0.5%	2.8%	5.6%	1.7%
Solids	10.89	9.36	9.05	6.49	6.90	7.30	-3.6%	-8.0%	6.4%	5.7%	-3.5%
Oil	65.80	66.63	67.57	67.30	68.78	71.66	0.5%	-0.1%	2.2%	4.2%	1.0%
Gas	22.70	22.51	23.69	26.17	27.10	29.92	0.9%	2.5%	3.6%	10.4%	4.0%
Electricity	21.75	24.09	25.96	28.70	29.46	30.57	3.6%	2.5%	2.6%	3.8%	2.8%
Heat	0.08	0.12	0.12	0.13	0.13	0.15	9.2%	0.1%	5.2%	17.0%	3.6%
Renewable energy sources	8.57	8.62	8.69	9.04	9.36	10.13	0.3%	1.0%	3.6%	8.1%	2.6%
CO_2 Emissions in Mt of CO_2 (2)	360.0	338.5	352.4	334.0	345.4	364.0	-0.4%	-1.3%	3.4%	5.4%	0.5%
Indicators											
Population (Million)	55.28	56.12	56.74	57.90	58.14	58.37	0.5%	0.5%	0.4%	0.4%	0.5%
GDP (bil. ECU 1990)	811.0	885.0	940.8	968.9	988.2	1000.2	3.0%	0.7%	2.0%	1.2%	1.0%
Gross Inl Cons./GDP (toe/1990 MECU)	249.6	236.2	233.0	232.5	237.0	248.0	-1.4%	-0.1%	1.9%	4.6%	1.0%
Gross Inl Cons./Capita (Kgoe/inhabitant)	3661.5	3725.3	3863.9	3890.3	4027.9	4248.5	1.1%	0.2%	3.5%	5.5%	1.6%
Electricity Generated/Capita (kWh/inhabitant)	6226.7	6982.7	7404.2	8248.9	8507.5	8776.1	3.5%	2.7%	3.1%	3.2%	2.9%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	6.5	6.0	6.2	5.8	5.9	6.2	-0.9%	-1.8%	3.0%	5.0%	0.1%
Import Dependency %	54.6	52.1	54.0	48.2	48.7	49.5	-0.2%	-2.8%	1.1%	1.7%	-1.4%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

GERMANY : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	209.84	204.08	186.65	141.36	142.84	142.36	-2.3%	-6.7%	1.0%	-0.3%	-4.4%
Solids	148.79	139.02	125.49	80.91	78.80	74.90	-3.3%	-10.4%	-2.6%	-4.9%	-8.2%
Oil	4.40	5.13	4.25	3.20	3.21	3.16	-0.7%	-6.8%	0.4%	-1.7%	-4.8%
Natural gas	16.12	15.13	13.53	14.27	14.81	16.12	-3.4%	1.3%	3.8%	8.8%	3.0%
Nuclear	34.87	38.89	37.67	36.84	39.75	41.73	1.6%	-0.6%	7.9%	5.0%	1.7%
Hydro & Wind	1.35	1.59	1.39	1.71	1.85	1.93	0.5%	5.5%	7.7%	4.4%	5.7%
Geothermal	0.01	0.01	0.01	0.01	0.01	0.01	0.2%	5.4%	0.0%	11.1%	5.4%
Other renewable energy sources	4.30	4.31	4.31	4.41	4.41	4.52	0.0%	0.6%	-0.1%	2.6%	0.8%
Net Imports	153.29	164.37	165.26	192.95	195.15	207.78	1.5%	3.9%	1.1%	6.5%	3.9%
Solids	0.78	2.93	3.26	10.70	10.99	12.41	33.1%	34.7%	2.7%	12.9%	25.0%
Oil	117.93	123.56	120.19	132.42	130.81	135.77	0.4%	2.5%	-1.2%	3.8%	2.1%
Crude oil	83.68	91.08	88.53	106.19	101.17	103.04	1.1%	4.7%	-4.7%	1.8%	2.6%
Oil products	34.24	32.47	31.66	26.23	29.64	32.73	-1.6%	-4.6%	13.0%	10.4%	0.6%
Natural gas	34.36	37.71	41.75	49.63	52.93	60.06	4.0%	4.4%	6.7%	13.5%	6.2%
Electricity	0.23	0.18	0.07	0.20	0.41	-0.45	-21.6%	31.2%	106.4%	-	-
Gross Inland Consumption	359.39	363.97	354.70	333.92	338.59	350.13	-0.3%	-1.5%	1.4%	3.4%	-0.2%
Solids	149.66	141.05	132.71	96.48	92.17	92.02	-2.4%	-7.7%	-4.5%	-0.2%	-5.9%
Oil	119.66	124.74	123.58	133.08	133.57	136.85	0.6%	1.9%	0.4%	2.5%	1.7%
Natural gas	49.31	53.21	54.97	61.19	66.42	73.53	2.2%	2.7%	8.6%	10.7%	5.0%
Other (1)	40.76	44.97	43.44	43.18	46.42	47.74	1.3%	-0.2%	7.5%	2.8%	1.6%
Electricity Generation in TWh	520.90	547.96	548.62	527.95	536.15	555.24	1.0%	-1.0%	1.6%	3.6%	0.2%
Nuclear	138.62	156.79	152.44	151.18	154.06	161.58	1.9%	-0.2%	1.9%	4.9%	1.0%
Hydro & wind (including pumping)	17.82	21.02	18.56	23.88	25.92	27.08	0.8%	6.5%	8.5%	4.5%	6.5%
Thermal	364.46	370.15	377.61	352.89	356.16	366.58	0.7%	-1.7%	0.9%	2.9%	-0.5%
Generation Capacity in GWe	114.67	119.41	121.17	114.78	115.28	115.07	1.1%	-1.3%	0.4%	-0.2%	-0.9%
Nuclear	17.92	23.32	24.24	22.71	22.71	22.91	6.2%	-1.6%	0.0%	0.9%	-0.9%
Hydro & wind	8.54	8.70	8.76	9.45	9.95	10.66	0.5%	1.9%	5.3%	7.1%	3.3%
Thermal	88.21	87.39	88.18	82.62	82.62	81.50	0.0%	-1.6%	0.0%	-1.4%	-1.3%
Average Load Factor in %	51.9	52.4	51.7	52.5	53.1	55.1	-0.1%	0.4%	1.1%	3.7%	1.1%
Fuel Inputs for Thermal Power Generation	90.31	90.26	90.72	84.60	86.29	81.88	0.1%	-1.7%	2.0%	-5.1%	-1.7%
Solids	77.36	75.60	75.16	71.51	70.31	71.76	-0.6%	-1.2%	-1.7%	2.1%	-0.8%
Oil	3.39	3.55	3.07	2.46	2.07	1.68	-2.0%	-5.3%	-15.8%	-19.2%	-9.6%
Gas	8.37	9.92	11.24	8.91	12.19	7.14	6.1%	-5.6%	36.8%	-41.4%	-7.3%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Biomass	1.19	1.19	1.24	1.71	1.71	1.30	0.8%	8.3%	0.2%	-24.2%	0.7%
Average Thermal Efficiency in %	34.7	35.3	35.8	35.9	35.5	38.5	0.6%	0.1%	-1.1%	8.5%	1.2%
Non-Energy Uses	20.40	20.71	21.72	22.24	22.81	22.89	1.3%	0.6%	2.5%	0.4%	0.9%
Total Final Energy Demand	237.65	240.35	230.20	216.96	221.65	236.34	-0.6%	-1.5%	2.2%	6.6%	0.4%
Solids	49.90	44.28	38.39	16.26	14.98	14.14	-5.1%	-19.3%	-7.8%	-5.7%	-15.3%
Oil	95.58	99.64	96.36	104.00	104.23	106.69	0.2%	1.9%	0.2%	2.4%	1.7%
Gas	44.15	46.15	45.76	47.74	52.80	65.36	0.7%	1.1%	10.6%	23.8%	6.1%
Electricity	37.19	39.33	39.13	38.24	38.91	39.41	1.0%	-0.6%	1.7%	1.3%	0.1%
Heat	7.71	7.83	7.49	8.01	8.01	8.01	-0.6%	1.7%	0.0%	0.0%	1.1%
Renewable enrgy sources	3.12	3.12	3.07	2.71	2.70	2.73	-0.3%	-3.1%	-0.2%	1.1%	-1.9%
CO_2 Emissions in Mt of CO_2 (2)	1008.6	998.0	957.1	854.8	866.2	888.8	-1.0%	-2.8%	1.3%	2.6%	-1.2%
Indicators											
Population (Million)	77.67	78.11	79.36	81.42	81.66	81.90	0.4%	0.6%	0.3%	0.3%	0.5%
GDP (bil. ECU 1990)	1140.8	1233.0	1297.4	1387.8	1413.6	1432.7	2.6%	1.7%	1.9%	1.4%	1.7%
Gross Inl Cons./GDP (toe/1990 MECU)	315.0	295.2	273.4	240.6	239.5	244.4	-2.8%	-3.1%	-0.5%	2.0%	-1.9%
Gross Inl Cons./Capita (Kgoe/inhabitant)	4627.1	4659.9	4469.3	4101.1	4146.2	4275.3	-0.7%	-2.1%	1.1%	3.1%	-0.7%
Electricity Generated/Capita (kWh/inhabitant)	6706.5	7015.5	6912.6	6484.2	6565.5	6779.7	0.6%	-1.6%	1.3%	3.3%	-0.3%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	13.0	12.8	12.1	10.5	10.6	10.9	-1.5%	-3.4%	1.0%	2.3%	-1.7%
Import Dependency %	42.2	44.8	46.3	57.4	57.3	59.0	1.8%	5.6%	-0.2%	3.0%	4.1%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

GREECE : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	7.34	8.63	9.15	9.15	9.71	10.14	4.5%	0.0%	6.1%	4.5%	1.7%
Solids	4.84	6.29	7.08	7.36	7.91	8.20	7.9%	1.0%	7.5%	3.7%	2.5%
Oil	1.32	1.12	0.83	0.53	0.46	0.51	-8.8%	-10.5%	-14.1%	12.2%	-7.7%
Natural gas	0.07	0.13	0.14	0.05	0.04	0.05	14.0%	-23.3%	-7.8%	5.5%	-16.6%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & Wind	0.24	0.20	0.15	0.23	0.31	0.38	-8.8%	10.5%	35.2%	23.1%	16.3%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	14.9%	12.5%	-33.5%	0.0%	1.1%
Other renewable energy sources	0.86	0.88	0.95	0.98	0.98	1.00	1.9%	0.7%	0.8%	1.9%	0.9%
Net Imports	11.81	13.62	15.37	15.80	18.21	18.83	5.4%	0.7%	15.2%	3.4%	3.4%
Solids	1.23	0.86	0.99	0.98	0.92	1.17	-4.3%	-0.2%	-5.8%	26.2%	2.8%
Oil	10.52	12.74	14.32	14.78	17.21	17.54	6.4%	0.8%	16.4%	1.9%	3.4%
Crude oil	10.54	14.39	14.71	14.45	16.95	18.32	6.9%	-0.4%	17.3%	8.1%	3.7%
Oil products	-0.02	-1.65	-0.39	0.33	0.26	-0.78	83.4%	-	-21.8%	-	12.5%
Natural gas	0.00	0.00	0.00	0.00	0.00	0.01	-	-	-	-	-
Electricity	0.06	0.03	0.06	0.03	0.07	0.12	-0.7%	-14.4%	108.6%	69.4%	11.3%
Gross Inland Consumption	18.34	20.16	22.24	23.61	24.14	25.41	3.9%	1.5%	2.2%	5.3%	2.2%
Solids	6.08	7.42	8.09	8.48	8.78	8.95	5.9%	1.2%	3.6%	1.9%	1.7%
Oil	11.01	11.50	12.85	13.85	13.95	14.91	3.1%	1.9%	0.8%	6.9%	2.5%
Natural gas	0.07	0.13	0.14	0.05	0.04	0.05	14.0%	-23.3%	-7.8%	12.3%	-15.7%
Other (1)	1.17	1.11	1.17	1.24	1.36	1.50	-0.1%	1.5%	9.9%	10.1%	4.3%
Electricity Generation in TWh	27.74	33.40	34.99	40.62	41.54	42.55	4.8%	3.8%	2.3%	2.4%	3.3%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & wind (including pumping)	2.80	2.60	2.00	2.88	3.82	4.54	-6.6%	9.6%	32.5%	19.0%	14.7%
Thermal	24.93	30.79	33.00	37.74	37.73	38.01	5.8%	3.4%	0.0%	0.7%	2.4%
Generation Capacity in GWe	7.13	8.12	8.51	8.92	8.94	9.13	3.6%	1.2%	0.2%	2.0%	1.2%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & wind	2.03	2.15	2.41	2.55	2.55	2.55	3.5%	1.4%	0.0%	0.0%	0.9%
Thermal	5.10	5.97	6.10	6.37	6.39	6.58	3.7%	1.1%	0.3%	2.9%	1.3%
Average Load Factor in %	44.4	46.9	46.9	52.0	53.0	53.2	1.1%	2.6%	2.1%	0.4%	2.1%
Fuel Inputs for Thermal Power Generation	6.44	7.72	8.72	9.48	9.88	10.01	6.2%	2.1%	4.2%	1.3%	2.3%
Solids	4.81	6.23	6.89	7.48	7.79	7.97	7.5%	2.1%	4.2%	2.4%	2.5%
Oil	1.63	1.47	1.80	1.99	2.08	2.02	1.9%	2.5%	4.5%	-2.6%	2.0%
Gas	0.00	0.02	0.03	0.01	0.01	0.02	-	-16.9%	-6.1%	17.9%	-10.1%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Biomass	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Average Thermal Efficiency in %	33.3	34.3	32.5	34.2	32.8	32.7	-0.4%	1.3%	-4.1%	-0.6%	0.1%
Non-Energy Uses	0.54	0.52	0.64	0.36	0.44	0.45	3.2%	-13.4%	23.5%	2.5%	-5.5%
Total Final Energy Demand	12.52	13.72	14.54	15.40	15.82	16.88	3.0%	1.4%	2.7%	6.7%	2.5%
Solids	1.28	1.20	1.07	1.09	1.08	1.08	-3.5%	0.6%	-0.8%	-0.6%	0.1%
Oil	8.29	9.29	10.05	10.49	10.80	11.72	3.9%	1.1%	2.9%	8.5%	2.6%
Gas	0.01	0.01	0.01	0.01	0.01	0.01	11.2%	-2.6%	7.7%	0.0%	-0.5%
Electricity	2.05	2.31	2.45	2.81	2.93	3.06	3.6%	3.5%	4.2%	4.3%	3.8%
Heat	0.00	0.00	0.00	0.00	0.00	0.00	14.9%	12.5%	-33.5%	0.0%	1.1%
Renewable energy sources	0.89	0.91	0.95	0.98	0.99	1.01	1.4%	0.7%	0.7%	2.0%	0.9%
CO_2 Emissions in Mt of CO_2 (2)	56.7	65.5	70.9	75.4	77.9	81.7	4.6%	1.5%	3.3%	4.9%	2.4%
Indicators											
Population (Million)	9.93	10.04	10.16	10.43	10.45	10.48	0.5%	0.6%	0.3%	0.2%	0.5%
GDP (bil. ECU 1990)	59.5	62.8	65.3	67.8	69.0	70.8	1.9%	1.0%	1.8%	2.6%	1.4%
Gross Inl Cons./GDP (toe/1990 MECU)	308.4	321.0	340.9	348.2	349.6	358.8	2.0%	0.5%	0.4%	2.6%	0.9%
Gross Inl Cons./Capita (Kgoe/inhabitant)	1845.9	2009.0	2189.3	2264.4	2309.1	2425.8	3.5%	0.8%	2.0%	5.1%	1.7%
Electricity Generated/Capita (kWh/inhabitant)	2791.8	3327.6	3444.2	3895.5	3973.9	4061.6	4.3%	3.1%	2.0%	2.2%	2.8%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	5.7	6.5	7.0	7.2	7.5	7.8	4.1%	0.9%	3.0%	4.7%	1.9%
Import Dependency %	60.7	61.3	62.1	58.7	65.8	66.0	0.4%	-1.4%	12.0%	0.4%	1.0%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

IRELAND : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	2.86	3.31	3.50	3.63	4.26	3.48	4.1%	0.9%	17.3%	-18.3%	-0.1%
Solids	0.76	1.53	1.43	1.19	1.78	1.12	13.4%	-4.5%	49.6%	-37.1%	-4.0%
Oil	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Natural gas	1.94	1.63	1.89	2.19	2.25	2.17	-0.5%	3.7%	2.5%	-3.6%	2.3%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & Wind	0.07	0.07	0.06	0.08	0.06	0.06	-3.4%	7.7%	-22.3%	1.0%	0.9%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	0.0%	0.0%	-
Other renewable energy sources	0.08	0.08	0.11	0.16	0.16	0.12	5.2%	10.8%	-0.8%	-23.7%	2.2%
Net Imports	5.32	6.26	7.08	7.05	7.63	8.33	5.9%	-0.1%	8.3%	9.1%	2.7%
Solids	1.26	2.29	2.08	1.54	1.83	1.77	10.5%	-7.2%	18.8%	-3.3%	-2.7%
Oil	4.06	3.97	5.00	5.51	5.72	6.09	4.3%	2.4%	3.9%	6.4%	3.3%
Crude oil	1.25	1.38	2.02	2.33	2.27	2.18	10.0%	3.6%	-2.3%	-4.2%	1.3%
Oil products	2.81	2.59	2.99	3.18	3.45	3.91	1.2%	1.6%	8.4%	13.4%	4.6%
Natural gas	0.00	0.00	0.00	0.00	0.08	0.48	-	-	3622.8%	469.9%	-
Electricity	0.00	0.00	0.00	0.00	0.00	-0.01	-	-	-	760.0%	-
Gross Inland Consumption	8.83	9.52	10.19	10.97	11.06	11.65	2.9%	1.9%	0.8%	5.3%	2.3%
Solids	2.58	3.69	3.53	2.95	2.90	2.97	6.5%	-4.4%	-1.9%	2.4%	-2.9%
Oil	4.15	4.05	4.59	5.58	5.61	5.86	2.1%	5.0%	0.5%	4.5%	4.1%
Natural gas	1.95	1.63	1.89	2.19	2.33	2.65	-0.5%	3.7%	6.4%	13.6%	5.8%
Other (1)	0.15	0.16	0.17	0.24	0.22	0.18	1.6%	9.7%	-8.4%	-21.3%	0.7%
Electricity Generation in TWh	12.09	13.23	14.51	17.10	17.86	19.18	3.7%	4.2%	4.4%	7.4%	4.8%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & wind (including pumping)	1.18	1.20	0.98	1.22	0.98	1.00	-3.6%	5.5%	-19.1%	1.2%	0.2%
Thermal	10.91	12.02	13.53	15.89	16.87	18.18	4.4%	4.1%	6.2%	7.8%	5.0%
Generation Capacity in GWe	3.19	3.81	3.82	3.91	4.39	4.42	3.7%	0.6%	12.3%	0.5%	2.4%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & wind	0.51	0.51	0.52	0.52	0.52	0.53	0.4%	0.2%	-0.2%	1.9%	0.4%
Thermal	2.68	3.30	3.30	3.39	3.87	3.88	4.2%	0.7%	14.3%	0.3%	2.7%
Average Load Factor in %	43.2	39.6	43.4	49.9	46.4	49.6	0.1%	3.6%	-7.0%	6.9%	2.3%
Fuel Inputs for Thermal Power Generation	2.63	2.82	2.95	3.63	3.92	4.22	2.4%	5.3%	8.1%	7.8%	6.1%
Solids	0.82	1.83	1.78	1.98	2.15	2.21	16.8%	2.8%	8.8%	2.6%	3.7%
Oil	0.54	0.25	0.34	0.64	0.61	0.62	-8.8%	17.4%	-4.5%	1.0%	10.6%
Gas	1.27	0.75	0.84	1.01	1.15	1.40	-7.9%	4.6%	14.8%	21.1%	8.8%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Biomass	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Average Thermal Efficiency in %	35.7	36.6	39.4	37.7	37.0	37.0	2.0%	-1.1%	-1.7%	0.0%	-1.0%
Non-Energy Uses	0.53	0.58	0.66	0.68	0.61	0.60	4.5%	0.6%	-9.7%	-0.9%	-1.4%
Total Final Energy Demand	6.22	6.71	7.17	7.63	7.75	8.09	2.9%	1.5%	1.6%	4.4%	2.0%
Solids	1.77	1.87	1.68	0.96	0.88	0.85	-1.0%	-13.1%	-8.0%	-3.2%	-10.7%
Oil	3.24	3.43	3.79	4.58	4.70	4.96	3.2%	4.8%	2.7%	5.4%	4.6%
Gas	0.29	0.41	0.57	0.71	0.73	0.80	14.9%	5.4%	2.9%	10.3%	5.8%
Electricity	0.84	0.92	1.02	1.22	1.28	1.36	4.0%	4.5%	4.9%	6.8%	4.9%
Heat	0.00	0.00	0.00	0.00	0.00	0.00	-	-	0.0%	0.0%	-
Renewable energy sources	0.08	0.08	0.11	0.16	0.16	0.11	5.2%	10.7%	-0.9%	-29.7%	0.8%
CO_2 Emissions in Mt of CO_2 (2)	26.1	29.2	30.2	32.2	33.3	34.9	3.0%	1.6%	3.3%	4.8%	2.4%
Indicators											
Population (Million)	3.54	3.53	3.51	3.59	3.60	3.63	-0.2%	0.6%	0.4%	0.7%	0.6%
GDP (bil. ECU 1990)	27.4	31.2	35.9	42.9	47.7	51.8	5.5%	4.6%	11.1%	8.6%	6.3%
Gross Inl Cons./GDP (toe/1990 MECU)	322.4	304.9	284.2	255.7	232.0	225.0	-2.5%	-2.6%	-9.3%	-3.0%	-3.8%
Gross Inl Cons./Capita (Kgoe/inhabitant)	2494.6	2697.6	2906.7	3058.6	3071.4	3213.5	3.1%	1.3%	0.4%	4.6%	1.7%
Electricity Generated/Capita (kWh/inhabitant)	3414.1	3745.9	4139.5	4769.2	4958.2	5288.8	3.9%	3.6%	4.0%	6.7%	4.2%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	7.4	8.3	8.6	9.0	9.2	9.6	3.2%	1.0%	2.9%	4.1%	1.9%
Import Dependency %	60.1	65.6	69.4	64.0	68.3	70.5	2.9%	-2.0%	6.6%	3.3%	0.3%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

ITALY : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	24.94	27.43	27.41	31.34	30.78	31.63	1.9%	3.4%	-1.8%	2.8%	2.4%
Solids	0.33	0.29	0.34	0.07	0.10	0.07	0.3%	-33.1%	42.3%	-22.1%	-22.2%
Oil	2.41	4.86	4.70	4.93	5.29	5.52	14.3%	1.2%	7.4%	4.3%	2.7%
Natural gas	11.54	13.50	14.03	16.55	16.35	16.36	4.0%	4.2%	-1.2%	0.1%	2.6%
Nuclear	1.98	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & Wind	3.53	3.50	2.72	3.84	3.25	3.62	-5.1%	9.0%	-15.4%	11.3%	4.9%
Geothermal	1.70	1.84	2.07	2.31	2.32	2.52	4.1%	2.8%	0.5%	8.6%	3.3%
Other renewable energy sources	3.44	3.44	3.55	3.65	3.48	3.54	0.6%	0.7%	-4.6%	1.8%	0.0%
Net Imports	114.41	120.25	131.96	125.82	134.69	134.45	2.9%	-1.2%	7.0%	-0.2%	0.3%
Solids	14.77	13.24	13.79	10.85	12.99	11.45	-1.4%	-5.8%	19.7%	-11.9%	-3.1%
Oil	81.57	84.81	89.88	87.53	89.95	89.36	2.0%	-0.7%	2.8%	-0.7%	-0.1%
Crude oil	75.20	78.25	84.28	85.45	82.83	82.43	2.3%	0.3%	-3.1%	-0.5%	-0.4%
Oil products	6.36	6.56	5.60	2.09	7.13	6.93	-2.5%	-21.9%	241.4%	-2.8%	3.6%
Natural gas	16.04	19.51	25.31	24.20	28.53	30.43	9.6%	-1.1%	17.9%	6.7%	3.1%
Electricity	2.04	2.69	2.98	3.23	3.22	3.21	7.9%	2.1%	-0.5%	-0.1%	1.3%
Gross Inland Consumption	136.05	147.03	154.79	154.11	162.67	162.44	2.6%	-0.1%	5.6%	-0.1%	0.8%
Solids	15.16	13.92	14.64	11.39	12.33	11.28	-0.7%	-6.1%	8.2%	-8.5%	-4.3%
Oil	81.01	88.08	89.81	89.15	93.43	92.20	2.1%	-0.2%	4.8%	-1.3%	0.4%
Natural gas	27.20	33.57	39.02	40.54	44.65	46.07	7.5%	1.0%	10.2%	3.2%	2.8%
Other (1)	12.69	11.47	11.32	13.03	12.27	12.90	-2.3%	3.6%	-5.8%	5.1%	2.2%
Electricity Generation in TWh	185.71	203.52	216.85	231.77	241.44	244.38	3.1%	1.7%	4.2%	1.2%	2.0%
Nuclear	7.02	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & wind (including pumping)	44.59	43.54	35.07	47.73	41.91	47.10	-4.7%	8.0%	-12.2%	12.4%	5.0%
Thermal	134.10	159.99	181.78	184.04	199.53	197.28	6.3%	0.3%	8.4%	-1.1%	1.4%
Generation Capacity in GWe	55.51	55.62	56.56	64.16	65.91	68.14	0.4%	3.2%	2.7%	3.4%	3.2%
Nuclear	1.15	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & wind	17.82	17.94	18.77	19.77	19.87	19.91	1.0%	1.3%	0.5%	0.2%	1.0%
Thermal	36.54	37.68	37.79	44.39	46.04	48.23	0.7%	4.1%	3.7%	4.8%	4.1%
Average Load Factor in %	38.2	41.8	43.8	41.2	41.8	40.9	2.8%	-1.5%	1.4%	-2.1%	-1.1%
Fuel Inputs for Thermal Power Generation	30.07	35.38	39.77	39.36	42.89	42.28	5.8%	-0.3%	9.0%	-1.4%	1.0%
Solids	5.94	6.68	7.07	4.37	5.34	4.89	3.6%	-11.4%	22.3%	-8.5%	-6.0%
Oil	16.20	19.14	21.53	23.77	25.01	24.15	5.8%	2.5%	5.2%	-3.4%	1.9%
Gas	5.92	7.41	8.90	8.72	10.16	10.60	8.5%	-0.5%	16.5%	4.4%	3.0%
Geothermal	1.70	1.84	1.87	2.10	2.11	2.31	2.0%	2.9%	0.5%	9.5%	3.6%
Biomass	0.31	0.31	0.40	0.41	0.27	0.33	5.2%	0.6%	-32.6%	20.5%	-3.1%
Average Thermal Efficiency in %	38.4	38.9	39.3	40.2	40.0	40.1	0.5%	0.6%	-0.5%	0.3%	0.3%
Non-Energy Uses	8.41	10.14	9.84	12.91	13.88	13.51	3.2%	7.0%	7.5%	-2.7%	5.4%
Total Final Energy Demand	96.51	104.99	110.62	112.02	116.84	117.50	2.8%	0.3%	4.3%	0.6%	1.0%
Solids	5.12	3.86	4.28	4.31	4.14	3.72	-3.6%	0.2%	-3.9%	-10.0%	-2.3%
Oil	52.58	55.37	54.69	52.36	54.12	53.92	0.8%	-1.1%	3.4%	-0.4%	-0.2%
Gas	20.74	25.59	29.68	31.84	34.51	35.57	7.4%	1.8%	8.4%	3.1%	3.1%
Electricity	14.93	17.03	18.41	19.86	20.44	20.66	4.3%	1.9%	2.9%	1.0%	1.9%
Heat	0.00	0.00	0.20	0.21	0.21	0.21	-	1.5%	0.0%	0.0%	1.0%
Renewable energy sources	3.13	3.13	3.35	3.45	3.41	3.42	1.4%	0.7%	-1.0%	0.1%	0.3%
CO_2 Emissions in Mt of CO_2 (2)	337.6	367.4	388.6	380.4	403.2	399.1	2.9%	-0.5%	6.0%	-1.0%	0.4%
Indicators											
Population (Million)	56.59	56.63	56.72	57.20	57.30	57.40	0.0%	0.2%	0.2%	0.2%	0.2%
GDP (bil. ECU 1990)	744.0	819.3	861.2	884.6	910.5	916.8	3.0%	0.7%	2.9%	0.7%	1.0%
Gross Inl Cons./GDP (toe/1990 MECU)	182.9	179.5	179.7	174.2	178.7	177.2	-0.3%	-0.8%	2.5%	-0.8%	-0.2%
Gross Inl Cons./Capita (Kgoe/inhabitant)	2404.0	2596.4	2729.1	2694.1	2838.9	2830.2	2.6%	-0.3%	5.4%	-0.3%	0.6%
Electricity Generated/Capita (kWh/inhabitant)	3281.4	3594.0	3823.3	4051.5	4213.5	4257.7	3.1%	1.5%	4.0%	1.0%	1.8%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	6.0	6.5	6.9	6.6	7.0	7.0	2.8%	-0.7%	5.8%	-1.2%	0.2%
Import Dependency %	82.0	80.1	83.8	80.4	81.6	81.6	0.4%	-1.0%	1.4%	0.0%	-0.4%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

LUXEMBOURG : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	0.05	0.05	0.05	0.05	0.05	0.04	-1.2%	2.1%	-7.9%	-14.3%	-2.6%
Solids	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Oil	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Natural gas	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & Wind	0.01	0.01	0.01	0.01	0.01	0.01	-2.2%	14.8%	-28.8%	-28.6%	-2.1%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Other renewable energy sources	0.04	0.04	0.04	0.04	0.04	0.03	-1.0%	-0.2%	-2.7%	-11.7%	-2.6%
Net Imports	3.10	3.09	3.52	3.71	3.26	3.38	2.5%	1.3%	-12.1%	3.7%	-0.7%
Solids	1.42	1.10	1.13	0.90	0.51	0.49	-4.5%	-5.4%	-43.2%	-5.5%	-13.1%
Oil	1.07	1.32	1.62	1.93	1.76	1.86	8.6%	4.5%	-9.0%	5.9%	2.3%
Crude oil	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Oil products	1.07	1.32	1.62	1.93	1.76	1.86	8.6%	4.5%	-9.0%	5.9%	2.3%
Natural gas	0.30	0.35	0.43	0.49	0.56	0.61	7.2%	3.2%	14.1%	9.7%	6.0%
Electricity	0.30	0.32	0.34	0.38	0.43	0.42	2.0%	3.3%	12.3%	-1.9%	3.9%
Gross Inland Consumption	3.13	3.16	3.55	3.75	3.34	3.40	2.5%	1.4%	-11.2%	2.0%	-0.7%
Solids	1.42	1.10	1.13	0.90	0.51	0.49	-4.5%	-5.4%	-43.2%	-5.5%	-13.1%
Oil	1.06	1.34	1.61	1.93	1.79	1.84	8.8%	4.6%	-7.3%	3.1%	2.3%
Natural gas	0.30	0.35	0.43	0.49	0.56	0.61	7.2%	3.2%	14.1%	9.7%	6.0%
Other (1)	0.35	0.37	0.38	0.43	0.48	0.46	1.6%	3.2%	9.9%	-3.1%	3.2%
Electricity Generation in TWh	0.94	1.33	1.38	1.19	1.24	1.31	8.0%	-3.6%	4.3%	5.3%	-0.9%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & wind (including pumping)	0.50	0.81	0.82	0.69	0.83	0.88	10.4%	-4.3%	20.2%	5.9%	1.1%
Thermal	0.44	0.52	0.56	0.50	0.41	0.43	5.0%	-2.7%	-17.5%	4.1%	-4.2%
Generation Capacity in GWe	1.24	1.24	1.24	1.24	1.26	1.26	0.0%	0.0%	1.5%	0.6%	0.3%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & wind	1.13	1.13	1.13	1.13	1.14	1.16	0.0%	0.0%	0.7%	2.0%	0.5%
Thermal	0.11	0.11	0.11	0.11	0.12	0.10	0.0%	-0.9%	10.4%	-13.7%	-1.4%
Average Load Factor in %	8.6	12.3	12.7	11.0	11.3	11.8	8.0%	-3.6%	2.7%	4.7%	-1.2%
Fuel Inputs for Thermal Power Generation	0.15	0.17	0.20	0.18	0.13	0.12	5.4%	-2.6%	-25.9%	-11.1%	-8.3%
Solids	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Oil	0.00	0.02	0.01	0.02	0.00	0.00	7.0%	26.6%	-	-	-
Gas	0.10	0.13	0.16	0.13	0.11	0.10	9.3%	-4.9%	-20.4%	-7.8%	-8.1%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Biomass	0.03	0.03	0.03	0.03	0.02	0.02	-1.5%	-0.4%	-4.3%	-25.5%	-5.7%
Average Thermal Efficiency in %	25.2	25.9	24.6	24.6	27.3	32.0	-0.4%	-0.1%	11.3%	17.0%	4.5%
Non-Energy Uses	0.02	0.02	0.02	0.01	0.02	0.02	2.9%	-14.4%	89.6%	-3.9%	-0.3%
Total Final Energy Demand	2.97	2.99	3.32	3.56	3.15	3.24	2.2%	1.7%	-11.5%	2.9%	-0.4%
Solids	0.99	0.74	0.75	0.63	0.37	0.36	-5.4%	-4.4%	-41.6%	-3.0%	-11.7%
Oil	1.02	1.30	1.58	1.91	1.75	1.82	9.0%	4.9%	-8.2%	4.0%	2.4%
Gas	0.61	0.60	0.62	0.60	0.58	0.62	0.2%	-0.7%	-3.2%	6.7%	0.1%
Electricity	0.33	0.34	0.35	0.40	0.43	0.42	1.7%	3.2%	6.8%	-1.6%	3.0%
Heat	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Renewable energy sources	0.02	0.02	0.02	0.02	0.02	0.02	-0.2%	0.0%	0.0%	0.0%	0.0%
CO_2 Emissions in Mt of CO_2 (2)	10.0	9.6	10.6	10.7	8.7	8.9	1.2%	0.2%	-18.8%	2.0%	-2.9%
Indicators											
Population (Million)	0.37	0.37	0.38	0.40	0.41	0.42	0.8%	1.4%	1.5%	1.4%	1.4%
GDP (bil. ECU 1990)	6.7	7.7	8.1	9.6	9.9	10.1	3.9%	4.1%	3.2%	2.6%	3.7%
Gross Inl Cons./GDP (toe/1990 MECU)	465.3	411.0	435.8	393.1	338.4	336.3	-1.3%	-2.5%	-13.9%	-0.6%	-4.2%
Gross Inl Cons./Capita (Kgoe/inhabitant)	8548.5	8466.8	9300.5	9300.2	8140.5	8184.2	1.7%	0.0%	-12.5%	0.5%	-2.1%
Electricity Generated/Capita (kWh/inhabitant)	2560.2	3572.9	3610.7	2946.8	3028.5	3144.7	7.1%	-5.0%	2.8%	3.8%	-2.3%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	27.3	25.8	27.8	26.6	21.2	21.4	0.4%	-1.1%	-20.0%	0.6%	-4.3%
Import Dependency %	99.0	97.8	99.0	98.7	97.7	99.3	0.0%	-0.1%	-1.0%	1.7%	0.1%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

NETHERLANDS : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	65.47	55.58	60.39	66.25	66.02	73.83	-1.6%	2.3%	-0.3%	11.8%	3.4%
Solids	0.07	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Oil	4.09	4.25	4.03	4.38	3.52	3.14	-0.3%	2.1%	-19.7%	-10.6%	-4.0%
Natural gas	59.52	49.59	54.61	59.88	60.46	68.34	-1.7%	2.3%	1.0%	13.0%	3.8%
Nuclear	0.98	0.92	0.88	1.02	1.04	1.04	-2.1%	3.8%	1.3%	0.1%	2.8%
Hydro & Wind	0.00	0.00	0.01	0.03	0.03	0.04	114.7%	28.2%	10.0%	27.5%	24.9%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Other renewable energy sources	0.81	0.81	0.86	0.94	0.97	1.26	1.1%	2.2%	4.0%	29.3%	6.6%
Net Imports	4.02	20.31	17.35	17.17	16.33	14.02	34.0%	-0.3%	-4.9%	-14.1%	-3.5%
Solids	6.60	8.21	9.48	8.91	8.89	8.88	7.5%	-1.5%	-0.3%	-0.1%	-1.1%
Oil	24.19	30.72	30.88	33.85	32.83	35.12	5.0%	2.3%	-3.0%	7.0%	2.2%
Crude oil	38.30	50.79	47.96	55.60	59.27	61.55	4.6%	3.8%	6.6%	3.8%	4.2%
Oil products	-14.12	-20.07	-17.08	-21.75	-26.44	-26.43	3.9%	6.2%	21.6%	-0.1%	7.5%
Natural gas	-27.21	-19.12	-23.80	-26.51	-26.37	-30.89	-2.6%	2.7%	-0.5%	17.1%	4.4%
Electricity	0.44	0.50	0.79	0.91	0.98	0.91	12.4%	3.5%	7.9%	-7.1%	2.4%
Gross Inland Consumption	61.54	64.85	66.88	70.70	73.37	76.21	1.7%	1.4%	3.8%	3.9%	2.2%
Solids	6.59	8.18	9.12	8.85	9.06	9.11	6.7%	-0.7%	2.5%	0.5%	0.0%
Oil	20.40	23.98	24.41	25.59	27.20	26.38	3.7%	1.2%	6.3%	-3.0%	1.3%
Natural gas	32.32	30.45	30.81	33.36	34.09	37.46	-1.0%	2.0%	2.2%	9.9%	3.3%
Other (1)	2.23	2.24	2.54	2.90	3.02	3.25	2.6%	3.4%	4.3%	7.5%	4.2%
Electricity Generation in TWh	62.92	69.60	71.82	79.66	81.06	85.31	2.7%	2.6%	1.7%	5.2%	2.9%
Nuclear	3.90	3.67	3.50	3.97	4.02	4.16	-2.1%	3.2%	1.3%	3.5%	2.9%
Hydro & wind (including pumping)	0.00	0.02	0.14	0.37	0.41	0.52	114.7%	28.2%	10.0%	27.5%	24.9%
Thermal	59.02	65.91	68.18	75.33	76.63	80.63	2.9%	2.5%	1.7%	5.2%	2.8%
Generation Capacity in GWe	17.05	17.49	17.56	18.35	18.99	20.40	0.6%	1.1%	3.5%	7.4%	2.5%
Nuclear	0.51	0.51	0.51	0.51	0.51	0.51	0.0%	-0.2%	0.0%	0.0%	-0.2%
Hydro & wind	0.00	0.02	0.09	0.19	0.29	0.34	-	21.2%	51.5%	14.3%	24.6%
Thermal	16.54	16.96	16.96	17.65	18.20	19.55	0.5%	1.0%	3.1%	7.5%	2.4%
Average Load Factor in %	42.1	45.4	46.7	49.6	48.7	47.7	2.1%	1.5%	-1.7%	-2.0%	0.4%
Fuel Inputs for Thermal Power Generation	12.85	14.08	14.53	16.03	16.78	17.96	2.5%	2.5%	4.7%	7.0%	3.6%
Solids	3.17	4.98	5.70	5.40	5.90	5.94	12.5%	-1.4%	9.3%	0.8%	0.7%
Oil	0.69	0.78	0.70	0.75	0.82	0.82	0.4%	1.8%	9.1%	-0.4%	2.6%
Gas	8.56	7.89	7.65	9.32	9.47	10.32	-2.2%	5.1%	1.5%	9.1%	5.1%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Biomass	0.43	0.43	0.48	0.56	0.60	0.88	2.3%	3.6%	7.1%	47.1%	10.4%
Average Thermal Efficiency in %	39.5	40.3	40.3	40.4	39.3	38.6	0.4%	0.0%	-2.8%	-1.7%	-0.7%
Non-Energy Uses	7.65	8.76	9.26	8.67	9.29	7.68	3.9%	-1.6%	7.2%	-17.3%	-3.1%
Total Final Energy Demand	42.58	42.15	43.08	45.83	47.46	51.46	0.2%	1.6%	3.6%	8.4%	3.0%
Solids	2.03	1.71	1.68	1.17	1.40	1.39	-3.7%	-8.5%	19.2%	-0.7%	-3.1%
Oil	12.07	13.16	13.19	14.51	14.65	15.52	1.8%	2.4%	1.0%	6.0%	2.7%
Gas	22.57	20.74	21.24	21.78	22.52	25.06	-1.2%	0.6%	3.4%	11.3%	2.8%
Electricity	5.28	5.88	6.32	6.99	7.14	7.41	3.7%	2.5%	2.2%	3.7%	2.7%
Heat	0.25	0.27	0.27	1.00	1.38	1.70	1.3%	38.8%	37.6%	23.1%	35.9%
Renewable energy sources	0.38	0.38	0.37	0.38	0.38	0.38	-0.4%	0.4%	-0.6%	1.3%	0.4%
CO_2 Emissions in Mt of CO_2 (2)	141.2	148.6	153.0	160.5	166.8	177.7	1.6%	1.2%	3.9%	6.5%	2.5%
Indicators											
Population (Million)	14.49	14.76	14.95	15.38	15.42	15.50	0.6%	0.7%	0.3%	0.5%	0.6%
GDP (bil. ECU 1990)	191.7	205.0	223.4	242.8	248.0	255.0	3.1%	2.1%	2.1%	2.8%	2.2%
Gross Inl Cons./GDP (toe/1990 MECU)	321.0	316.4	299.4	291.1	295.8	298.8	-1.4%	-0.7%	1.6%	1.0%	0.0%
Gross Inl Cons./Capita (Kgoe/inhabitant)	4246.8	4393.9	4473.3	4596.0	4757.4	4917.1	1.0%	0.7%	3.5%	3.4%	1.6%
Electricity Generated/Capita (kWh/inhabitant)	4342.1	4715.3	4805.7	5178.7	5255.6	5504.5	2.0%	1.9%	1.5%	4.7%	2.3%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	9.7	10.1	10.2	10.4	10.8	11.5	1.0%	0.5%	3.7%	6.0%	1.9%
Import Dependency %	5.7	26.9	22.3	21.0	19.3	16.0	31.3%	-1.5%	-8.0%	-17.1%	-5.4%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

PORTUGAL : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	3.20	3.32	3.09	3.40	3.15	3.98	-0.7%	2.4%	-7.3%	26.2%	4.3%
Solids	0.10	0.09	0.12	0.06	0.00	0.00	3.4%	-15.0%	-	-	-
Oil	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Natural gas	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & Wind	0.93	1.05	0.79	0.92	0.72	1.27	-3.2%	3.9%	-21.7%	76.8%	8.3%
Geothermal	0.00	0.00	0.00	0.04	0.04	0.04	#DIV/0!	84.7%	0.4%	12.6%	53.6%
Other renewable energy sources	2.17	2.18	2.18	2.38	2.39	2.66	0.1%	2.2%	0.5%	11.2%	3.4%
Net Imports	9.64	11.65	15.16	16.02	17.80	16.55	9.5%	1.4%	11.1%	-7.0%	1.5%
Solids	0.94	1.80	2.79	3.22	3.80	3.39	24.4%	3.7%	17.9%	-10.8%	3.3%
Oil	8.51	9.65	12.37	12.73	13.93	13.07	7.8%	0.7%	9.4%	-6.1%	0.9%
Crude oil	7.19	8.60	11.36	13.91	13.55	12.12	9.6%	5.2%	-2.6%	-10.6%	1.1%
Oil products	1.31	1.05	1.01	-1.18	0.38	0.95	-5.2%	-	-	152.1%	-0.9%
Natural gas	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Electricity	0.19	0.21	0.00	0.08	0.08	0.10	-56.0%	121.3%	2.9%	21.6%	76.3%
Gross Inland Consumption	12.36	14.78	17.17	19.16	20.09	20.29	6.8%	2.8%	4.8%	1.0%	2.8%
Solids	0.66	1.97	2.58	3.31	3.49	3.46	31.2%	6.5%	5.4%	-0.9%	5.0%
Oil	8.40	9.38	11.61	12.43	13.36	12.76	6.7%	1.7%	7.5%	-4.6%	1.6%
Natural gas	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Other (1)	3.29	3.43	2.98	3.41	3.23	4.07	-2.0%	3.5%	-5.4%	26.1%	5.4%
Electricity Generation in TWh	19.10	22.47	28.49	31.37	33.26	34.51	8.3%	2.4%	6.0%	3.8%	3.2%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & wind (including pumping)	10.85	12.29	9.30	10.72	8.47	14.88	-3.0%	3.6%	-21.0%	75.7%	8.1%
Thermal	8.26	10.19	19.19	20.66	24.79	19.64	18.4%	1.9%	20.0%	-20.8%	0.4%
Generation Capacity in GWe	6.01	6.92	7.39	8.81	9.30	9.38	4.2%	4.5%	5.6%	0.9%	4.1%
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Hydro & wind	3.06	3.29	3.34	4.27	4.42	4.45	1.8%	6.3%	3.5%	0.7%	4.9%
Thermal	2.95	3.63	4.05	4.54	4.88	4.93	6.5%	2.9%	7.5%	1.1%	3.3%
Average Load Factor in %	36.3	37.1	44.0	40.7	40.8	42.0	3.9%	-2.0%	0.4%	2.9%	-0.8%
Fuel Inputs for Thermal Power Generation	1.86	2.26	4.27	4.47	5.50	4.28	18.1%	1.2%	23.0%	-22.3%	0.0%
Solids	0.22	1.32	2.03	2.58	2.94	2.75	56.0%	6.2%	14.1%	-6.4%	5.2%
Oil	1.51	0.81	2.10	1.68	2.36	1.30	6.9%	-5.5%	40.4%	-44.7%	-7.7%
Gas	0.02	0.02	0.02	0.04	0.02	0.03	4.3%	19.4%	-54.3%	78.4%	8.8%
Geothermal	0.00	0.00	0.00	0.04	0.04	0.04	-	84.7%	0.4%	12.6%	53.6%
Biomass	0.11	0.11	0.11	0.14	0.15	0.15	0.0%	5.0%	5.9%	0.2%	4.3%
Average Thermal Efficiency in %	38.2	38.7	38.7	39.7	38.7	39.5	0.2%	0.7%	-2.4%	1.9%	0.4%
Non-Energy Uses	1.01	1.92	2.10	1.86	1.87	1.79	15.8%	-3.0%	0.6%	-4.2%	-2.6%
Total Final Energy Demand	9.54	10.60	11.53	13.33	13.45	14.55	3.9%	3.7%	0.9%	8.1%	4.0%
Solids	0.43	0.64	0.62	0.62	0.55	0.60	7.5%	0.0%	-11.6%	9.9%	-0.4%
Oil	5.42	5.99	6.69	8.03	8.10	8.73	4.3%	4.7%	0.8%	7.8%	4.5%
Gas	0.09	0.10	0.10	0.09	0.10	0.09	1.7%	-4.4%	13.3%	-7.1%	-2.1%
Electricity	1.50	1.79	2.02	2.32	2.42	2.56	6.2%	3.4%	4.6%	5.6%	4.0%
Heat	0.03	0.03	0.03	0.04	0.04	0.05	-4.9%	8.4%	3.2%	40.5%	12.3%
Renewable energy sources	2.06	2.06	2.07	2.24	2.25	2.51	0.1%	2.1%	0.1%	11.9%	3.3%
CO_2 Emissions in Mt of CO_2 (2)	25.1	29.9	39.1	44.4	48.0	45.6	9.2%	3.2%	8.2%	-5.0%	2.6%
Indicators											
Population (Million)	10.01	9.97	9.90	9.90	9.92	9.93	-0.2%	0.0%	0.1%	0.1%	0.1%
GDP (bil. ECU 1990)	41.6	49.6	54.4	57.7	59.2	60.9	5.5%	1.5%	2.5%	3.0%	1.9%
Gross Inl Cons./GDP (toe/1990 MECU)	296.7	298.0	315.5	332.0	339.5	332.9	1.2%	1.3%	2.3%	-1.9%	0.9%
Gross Inl Cons./Capita (Kgoe/inhabitant)	1234.2	1482.5	1735.0	1935.2	2025.5	2043.7	7.0%	2.8%	4.7%	0.9%	2.8%
Electricity Generated/Capita (kWh/inhabitant)	1908.3	2255.7	2879.4	3168.4	3353.7	3476.5	8.6%	2.4%	5.8%	3.7%	3.2%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	2.5	3.0	3.9	4.5	4.8	4.6	9.5%	3.2%	8.1%	-5.1%	2.6%
Import Dependency %	75.2	76.5	85.3	81.6	86.6	79.6	2.6%	-1.1%	6.1%	-8.0%	-1.1%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

SPAIN : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	30.24	33.39	33.41	32.27	31.44	32.20	2.0%	-0.9%	-2.6%	2.4%	-0.6%
Solids	13.94	11.20	11.68	10.55	10.17	10.00	-3.5%	-2.5%	-3.6%	-1.7%	-2.6%
Oil	2.17	1.47	0.79	0.94	0.78	0.51	-18.2%	4.4%	-17.4%	-34.4%	-7.1%
Natural gas	0.23	0.81	1.27	0.18	0.38	0.43	40.9%	-38.6%	110.1%	12.2%	-16.7%
Nuclear	7.38	13.02	13.70	14.27	14.30	13.99	13.2%	1.0%	0.3%	-2.2%	0.4%
Hydro & Wind	2.69	3.04	2.19	2.42	2.01	3.42	-4.1%	2.6%	-17.0%	70.2%	7.8%
Geothermal	0.00	0.00	0.00	0.01	0.01	0.01	22.9%	28.3%	0.0%	0.0%	18.1%
Other	3.84	3.84	3.77	3.90	3.79	3.84	-0.4%	0.8%	-2.9%	1.4%	0.3%
Net Imports	46.37	53.40	59.85	68.40	75.41	73.93	5.2%	3.4%	10.2%	-2.0%	3.6%
Solids	5.23	5.30	7.04	7.58	9.15	7.78	6.1%	1.9%	20.7%	-14.9%	1.7%
Oil	39.10	45.63	49.16	54.18	58.36	57.75	4.7%	2.5%	7.7%	-1.0%	2.7%
Crude oil	43.95	49.88	53.25	54.45	55.36	54.78	3.9%	0.6%	1.7%	-1.0%	0.5%
Oil products	-4.85	-4.25	-4.09	-0.27	3.00	2.97	-3.4%	-49.2%	-	-1.2%	-
Natural gas	2.14	2.59	3.69	6.49	7.52	8.31	11.5%	15.2%	15.9%	10.6%	14.5%
Electricity	-0.09	-0.11	-0.04	0.16	0.39	0.09	-17.1%	-	141.8%	-76.4%	-
Gross Inland Consumption	73.91	83.28	89.08	97.40	102.28	100.27	3.8%	2.3%	5.0%	-2.0%	2.0%
Solids	19.48	15.72	18.94	18.92	19.52	16.37	-0.6%	0.0%	3.2%	-16.1%	-2.4%
Oil	38.27	44.41	45.54	51.43	54.55	53.91	3.5%	3.1%	6.1%	-1.2%	2.9%
natural gas	2.35	3.35	4.97	6.30	7.72	8.64	16.1%	6.1%	22.6%	11.9%	9.7%
Other (1)	13.81	19.79	19.63	20.76	20.49	21.35	7.3%	1.4%	-1.3%	4.2%	1.4%
Electricity Generation in TWh	127.34	139.68	151.71	161.47	167.04	173.73	3.6%	1.6%	3.4%	4.0%	2.3%
Nuclear	28.04	50.46	54.26	55.30	55.45	56.32	14.1%	0.5%	0.3%	1.6%	0.6%
Hydro & wind (including pumping)	33.03	36.36	26.18	29.18	24.83	40.87	-4.5%	2.7%	-14.9%	64.6%	7.7%
Thermal	66.27	52.86	71.28	76.99	86.76	76.55	1.5%	1.9%	12.7%	-11.8%	1.2%
Generation Capacity in GWe	39.61	42.79	43.42	44.49	45.85	46.83	1.9%	0.6%	3.1%	2.1%	1.3%
Nuclear	5.55	7.47	6.97	7.02	7.07	7.09	4.7%	0.2%	0.7%	0.3%	0.3%
Hydro & wind	14.53	15.32	16.24	16.53	16.90	17.00	2.2%	0.4%	2.2%	0.6%	0.8%
Thermal	19.53	20.00	20.21	20.94	21.88	22.73	0.7%	0.9%	4.5%	3.9%	2.0%
Average Load Factor in %	36.7	37.2	39.9	41.4	41.6	42.4	1.7%	1.0%	0.4%	1.8%	1.0%
Fuel Inputs for Thermal Power Generation	15.51	12.79	16.51	17.69	19.28	17.53	1.3%	1.7%	9.0%	-9.1%	1.0%
Solids	12.72	10.44	13.76	14.05	13.59	13.11	1.6%	0.5%	-3.3%	-3.5%	-0.8%
Oil	1.97	1.87	2.17	2.39	3.65	2.72	1.9%	2.5%	52.7%	-25.6%	3.8%
Gas	0.76	0.43	0.49	0.73	1.51	1.13	-8.5%	10.7%	106.9%	-25.1%	15.1%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Biomass	0.06	0.06	0.09	0.52	0.53	0.56	9.5%	53.2%	3.2%	5.4%	34.8%
Average Thermal Efficiency in %	36.8	35.5	37.1	37.4	38.7	37.6	0.2%	0.2%	3.4%	-2.9%	0.2%
Non-Energy Uses	4.87	5.94	5.85	6.18	7.14	5.90	3.7%	1.4%	15.5%	-17.4%	0.1%
Total Final Energy Demand	47.52	53.47	56.53	62.86	63.81	65.99	3.5%	2.7%	1.5%	3.4%	2.6%
Solids	4.25	3.45	3.52	2.59	2.23	1.97	-3.7%	-7.5%	-13.6%	-11.7%	-9.2%
Oil	28.10	32.67	33.60	39.50	39.84	40.72	3.6%	4.1%	0.9%	2.2%	3.3%
Gas	2.55	3.75	4.90	5.61	6.32	7.29	13.9%	3.4%	12.7%	15.3%	6.8%
Electricity	8.84	9.82	10.82	11.78	12.12	12.66	4.1%	2.1%	2.9%	4.5%	2.7%
Heat	0.00	0.00	0.00	0.01	0.05	0.07	22.9%	28.3%	592.3%	61.4%	76.5%
Other renewable energy sources	3.78	3.78	3.68	3.39	3.26	3.28	-0.5%	-2.0%	-3.9%	0.6%	-1.9%
CO_2 Emissions in Mt of CO_2 (2)	176.8	181.4	202.0	221.2	226.7	224.7	2.7%	2.3%	2.5%	-0.9%	1.8%
Indicators											
Population (Million)	38.41	38.69	38.84	39.15	39.21	39.27	0.2%	0.2%	0.2%	0.2%	0.2%
GDP (bil. ECU 1990)	313.7	359.1	389.7	405.9	416.6	426.1	4.4%	1.0%	2.6%	2.3%	1.5%
Gross Inl Cons./GDP (toe/1990 MECU)	235.6	231.9	228.6	240.0	245.5	235.3	-0.6%	1.2%	2.3%	-4.1%	0.5%
Gross Inl Cons./Capita (Kgoe/inhabitant)	1924.4	2152.3	2293.6	2487.9	2608.6	2553.4	3.6%	2.1%	4.9%	-2.1%	1.8%
Electricity Generated/Capita (kWh/inhabitant)	3315.5	3607.5	3906.1	4124.5	4260.1	4424.1	3.3%	1.4%	3.3%	3.8%	2.1%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	4.6	4.7	5.2	5.7	5.8	5.7	2.5%	2.1%	2.3%	-1.0%	1.6%
Import Dependency %	60.6	61.8	64.4	68.1	71.5	70.5	1.2%	1.4%	5.0%	-1.4%	1.5%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

SWEDEN : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	26.73	29.51	29.61	30.80	31.14	30.97	2.1%	1.0%	1.1%	-0.5%	0.8%
Solids	0.10	0.15	0.27	0.27	0.31	0.36	21.8%	-0.1%	17.8%	15.5%	5.2%
Oil	0.01	0.00	0.00	0.00	0.00	0.00	-17.8%	13.7%	-19.8%	-	-
Natural gas	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Nuclear	15.26	18.09	17.76	18.87	18.04	18.90	3.1%	1.5%	-4.4%	4.8%	1.0%
Hydro & Wind	6.11	6.01	6.23	5.09	5.86	4.44	0.4%	-5.0%	15.3%	-24.4%	-5.5%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Other renewable energy sources	5.26	5.26	5.33	6.57	6.91	7.27	0.3%	5.3%	5.3%	5.2%	5.3%
Net Imports	20.03	18.39	17.82	19.67	19.11	21.09	-2.3%	2.5%	-2.8%	10.4%	2.9%
Solids	3.08	2.48	2.33	2.47	2.66	2.38	-5.4%	1.5%	7.4%	-10.6%	0.3%
Oil	17.01	15.81	15.11	16.53	15.93	17.46	-2.3%	2.3%	-3.7%	9.6%	2.4%
Crude oil	14.06	14.65	16.93	17.84	17.81	18.99	3.8%	1.3%	-0.1%	6.6%	1.9%
Oil products	2.95	1.16	-1.82	-1.30	-1.89	-1.52	-	-8.0%	44.8%	-19.2%	-2.9%
Natural gas	0.07	0.32	0.53	0.64	0.68	0.73	47.8%	4.9%	5.5%	7.8%	5.5%
Electricity	-0.13	-0.22	-0.15	0.02	-0.14	0.53	3.2%	-	-	-	-
Gross Inland Consumption	46.94	49.11	46.94	48.99	49.92	51.45	0.0%	1.1%	1.9%	3.1%	1.5%
Solids	2.80	2.88	2.73	2.90	2.90	3.14	-0.5%	1.5%	0.2%	8.1%	2.3%
Oil	17.58	16.79	14.50	14.91	15.67	16.45	-3.8%	0.7%	5.1%	5.0%	2.1%
Natural gas	0.07	0.32	0.53	0.64	0.68	0.73	47.8%	4.9%	5.5%	7.8%	5.5%
Other (1)	26.49	29.13	29.18	30.55	30.67	31.14	2.0%	1.2%	0.4%	1.5%	1.1%
Electricity Generation in TWh	137.13	146.21	146.48	143.01	148.32	139.66	1.3%	-0.6%	3.7%	-5.8%	-0.8%
Nuclear	58.55	69.41	68.17	73.14	69.92	73.26	3.1%	1.8%	-4.4%	4.8%	1.2%
Hydro & wind (including pumping)	71.59	70.47	73.03	59.51	68.25	51.67	0.4%	-5.0%	14.7%	-24.3%	-5.6%
Thermal	6.98	6.33	5.28	10.36	10.15	14.73	-5.4%	18.3%	-2.0%	45.1%	18.6%
Generation Capacity in GWe	33.18	33.17	34.19	33.19	33.62	33.76	0.6%	-0.7%	1.3%	0.4%	-0.2%
Nuclear	9.46	9.70	9.97	10.04	10.06	10.06	1.1%	0.2%	0.1%	0.0%	0.1%
Hydro & wind	15.70	16.12	16.34	15.80	16.22	16.28	0.8%	-0.8%	2.7%	0.4%	-0.1%
Thermal	8.02	7.35	7.88	7.35	7.35	7.42	-0.4%	-1.7%	0.0%	1.0%	-1.0%
Average Load Factor in %	47.2	50.3	48.9	49.2	50.4	47.2	0.7%	0.1%	2.4%	-6.2%	-0.6%
Fuel Inputs for Thermal Power Generation	2.93	2.31	1.78	3.29	3.31	5.09	-9.5%	16.6%	0.8%	53.6%	19.1%
Solids	0.89	0.91	0.63	0.74	0.69	0.96	-6.6%	4.3%	-6.6%	38.6%	7.3%
Oil	1.15	0.48	0.23	0.78	0.67	1.38	-27.8%	36.5%	-15.1%	107.5%	35.2%
Gas	0.13	0.16	0.25	0.41	0.39	0.42	14.9%	13.0%	-4.9%	8.6%	9.1%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Biomass	0.76	0.76	0.67	1.35	1.56	2.32	-2.5%	19.0%	15.8%	48.4%	22.9%
Average Thermal Efficiency in %	20.5	23.5	25.5	27.1	26.3	24.9	4.5%	1.5%	-2.7%	-5.5%	-0.4%
Non-Energy Uses	1.51	1.90	1.87	1.61	1.96	2.06	4.4%	-3.6%	21.8%	5.1%	1.7%
Total Final Energy Demand	31.16	31.42	30.43	33.19	33.64	34.07	-0.5%	2.2%	1.4%	1.3%	1.9%
Solids	1.14	1.18	1.22	1.26	1.32	1.16	1.4%	0.8%	4.5%	-11.7%	-0.8%
Oil	13.13	13.15	12.00	12.31	12.35	12.68	-1.8%	0.7%	0.3%	2.7%	0.9%
Gas	0.33	0.47	0.59	0.61	0.58	0.67	11.9%	0.9%	-4.4%	16.1%	2.3%
Electricity	9.77	10.32	10.35	10.53	10.71	10.83	1.2%	0.4%	1.7%	1.1%	0.8%
Heat	2.51	2.02	1.71	3.47	3.54	3.84	-7.4%	19.4%	2.0%	8.5%	14.5%
Renewable energy sources	4.28	4.28	4.57	5.01	5.15	4.89	1.3%	2.3%	2.7%	-5.0%	1.1%
CO_2 Emissions in Mt of CO_2 (2)	58.0	55.3	50.6	54.1	53.6	58.4	-2.7%	1.7%	-0.9%	8.8%	2.4%
Indicators											
Population (Million)	8.35	8.44	8.56	8.78	8.83	8.84	0.5%	0.6%	0.5%	0.2%	0.5%
GDP (bil. ECU 1990)	162.3	175.1	181.7	179.0	186.1	188.4	2.3%	-0.4%	3.9%	1.3%	0.6%
Gross Inl Cons./GDP (toe/1990 MECU)	289.2	280.4	258.3	273.7	268.3	273.1	-2.2%	1.5%	-2.0%	1.8%	0.9%
Gross Inl Cons./Capita (Kgoe/inhabitant)	5621.6	5821.5	5484.8	5579.7	5655.4	5819.8	-0.5%	0.4%	1.4%	2.9%	1.0%
Electricity Generated/Capita (kWh/inhabitant)	16421.4	17331.0	17114.7	16287.1	16803.3	15796.9	0.8%	-1.2%	3.2%	-6.0%	-1.3%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	6.9	6.6	5.9	6.2	6.1	6.6	-3.2%	1.0%	-1.4%	8.7%	1.8%
Import Dependency %	42.2	36.9	37.4	39.3	37.5	40.1	-2.4%	1.2%	-4.6%	7.0%	1.2%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

UNITED KINGDOM : SUMMARY ENERGY BALANCE

Mtoe	1985	1988	1990	1994	1995	1996	90/85	94/90	95/94	96/95	96/90
							Annual % Change				
Primary Production	236.57	234.12	203.80	240.04	251.51	264.99	-2.9%	4.2%	4.8%	5.4%	4.5%
Solids	54.74	60.51	53.11	28.78	30.96	30.97	-0.6%	-14.2%	7.6%	0.0%	-8.6%
Oil	129.20	118.44	92.12	128.89	132.55	132.33	-6.5%	8.8%	2.8%	-0.2%	6.2%
Natural gas	35.72	37.85	40.92	58.15	63.60	75.80	2.8%	9.2%	9.4%	19.2%	10.8%
Nuclear	15.98	16.34	16.57	22.77	22.95	24.42	0.7%	8.3%	0.8%	6.4%	6.7%
Hydro & Wind	0.35	0.40	0.44	0.47	0.45	0.33	4.4%	1.7%	-3.8%	-26.4%	-4.5%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.0%	17.2%	0.0%	0.0%	11.2%
Other renewable energy sources	0.58	0.58	0.64	0.98	1.00	1.15	2.2%	11.0%	2.6%	14.2%	10.1%
Net Imports	-31.65	-20.39	7.34	-29.16	-36.11	-32.28	-	-	23.8%	-10.6%	-
Solids	6.59	7.90	9.12	9.24	10.38	11.76	6.7%	0.3%	12.3%	13.2%	4.3%
Oil	-49.62	-38.33	-8.99	-41.67	-48.53	-45.84	-28.9%	46.7%	16.5%	-5.5%	31.2%
Crude oil	-47.91	-29.43	-3.11	-29.58	-36.36	-30.95	-42.1%	75.6%	23.0%	-14.9%	46.7%
Oil products	-1.71	-8.90	-5.88	-12.10	-12.17	-14.89	28.0%	19.8%	0.6%	22.4%	16.8%
Natural gas	11.39	8.93	6.18	1.82	0.64	0.38	-11.5%	-26.3%	-65.0%	-40.9%	-37.3%
Electricity	0.00	1.10	1.03	1.45	1.40	1.43	-	9.0%	-3.4%	2.2%	5.7%
Gross Inland Consumption	203.70	210.88	210.86	220.56	220.00	232.33	0.7%	1.1%	-0.3%	5.6%	1.6%
Solids	62.77	66.93	63.31	49.32	46.61	45.35	0.2%	-6.1%	-5.5%	-2.7%	-5.4%
Oil	77.38	79.32	81.66	85.36	82.59	83.75	1.1%	1.1%	-3.2%	1.4%	0.4%
Natural gas	46.64	46.21	47.20	60.21	65.00	75.89	0.2%	6.3%	8.0%	16.8%	8.2%
Other (1)	16.91	18.42	18.68	25.67	25.81	27.33	2.0%	8.3%	0.5%	5.9%	6.5%
Electricity Generation in TWh	298.04	308.08	318.92	325.34	333.99	347.31	1.4%	0.5%	2.7%	4.0%	1.4%
Nuclear	61.08	63.44	65.74	88.27	88.95	94.65	1.5%	7.6%	0.8%	6.4%	6.3%
Hydro & wind (including pumping)	6.93	6.97	7.06	6.90	6.78	5.40	0.4%	-0.6%	-1.7%	-20.3%	-4.4%
Thermal	230.03	237.67	246.12	230.18	238.26	247.25	1.4%	-1.7%	3.5%	3.8%	0.1%
Generation Capacity in GWe	67.43	69.63	73.02	69.09	70.11	73.36	1.6%	-1.4%	1.5%	4.6%	0.1%
Nuclear	7.07	7.69	11.35	12.04	12.76	12.92	9.9%	1.5%	6.0%	1.2%	2.2%
Hydro & wind	4.19	4.16	4.18	4.39	4.40	4.46	0.0%	1.2%	0.4%	1.3%	1.1%
Thermal	56.17	57.78	57.49	52.66	52.95	55.99	0.5%	-2.2%	0.5%	5.7%	-0.4%
Average Load Factor in %	50.5	50.5	49.9	53.8	54.4	54.0	-0.2%	1.9%	1.2%	-0.6%	1.4%
Fuel Inputs for Thermal Power Generation	54.33	53.72	57.05	48.67	50.16	50.59	1.0%	-3.9%	3.1%	0.9%	-2.0%
Solids	42.13	46.40	47.58	35.11	34.15	31.06	2.5%	-7.3%	-2.7%	-9.1%	-6.9%
Oil	10.72	6.11	7.59	3.74	3.73	3.63	-6.7%	-16.2%	-0.3%	-2.5%	-11.6%
Gas	1.20	0.92	1.57	9.18	11.62	15.10	5.5%	55.6%	26.6%	30.0%	45.9%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Biomass	0.29	0.29	0.31	0.64	0.66	0.80	1.5%	19.9%	3.7%	20.6%	17.2%
Average Thermal Efficiency in %	36.4	38.0	37.1	40.7	40.8	42.0	0.4%	2.3%	0.4%	2.9%	2.1%
Non-Energy Uses	12.14	13.22	12.26	13.65	13.85	13.65	0.2%	2.7%	1.5%	-1.4%	1.8%
Total Final Energy Demand	127.20	136.25	136.37	141.69	140.90	149.98	1.4%	1.0%	-0.6%	6.4%	1.6%
Solids	15.99	14.89	12.04	10.18	8.90	8.62	-5.5%	-4.1%	-12.6%	-3.1%	-5.4%
Oil	51.17	56.46	58.78	61.35	60.28	62.40	2.8%	1.1%	-1.7%	3.5%	1.0%
Gas	38.92	41.35	41.17	45.38	46.10	52.33	1.1%	2.5%	1.6%	13.5%	4.1%
Electricity	20.81	22.82	23.60	24.44	25.27	26.28	2.5%	0.9%	3.4%	4.0%	1.8%
Heat	0.01	0.44	0.45	0.00	0.00	0.00	104.0%	-79.3%	0.0%	0.0%	-65.1%
Renewable energy sources	0.29	0.29	0.34	0.34	0.34	0.35	2.8%	0.3%	0.6%	1.7%	0.6%
CO_2 Emissions in Mt of CO_2 (2)	544.2	563.0	566.9	537.0	531.3	550.2	0.8%	-1.3%	-1.1%	3.5%	-0.5%
Indicators											
Population (Million)	56.69	57.16	57.56	58.39	58.61	58.80	0.3%	0.4%	0.4%	0.3%	0.4%
GDP (bil. ECU 1990)	653.4	750.2	769.6	798.9	820.9	839.9	3.3%	0.9%	2.8%	2.3%	1.5%
Gross Inl Cons./GDP (toe/1990 MECU)	311.7	281.1	274.0	276.1	268.0	276.6	-2.5%	0.2%	-2.9%	3.2%	0.2%
Gross Inl Cons./Capita (Kgoe/inhabitant)	3593.5	3689.4	3663.2	3777.0	3753.9	3951.1	0.4%	0.8%	-0.6%	5.3%	1.3%
Electricity Generated/Capita (kWh/inhabitant)	5257.7	5389.9	5540.5	5571.4	5698.9	5906.4	1.1%	0.1%	2.3%	3.6%	1.1%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	9.6	9.8	9.8	9.2	9.1	9.4	0.5%	-1.7%	-1.4%	3.2%	-0.9%
Import Dependency %	-15.4	-9.6	3.4	-13.1	-16.2	-13.7	-	-	24.1%	-15.3%	-

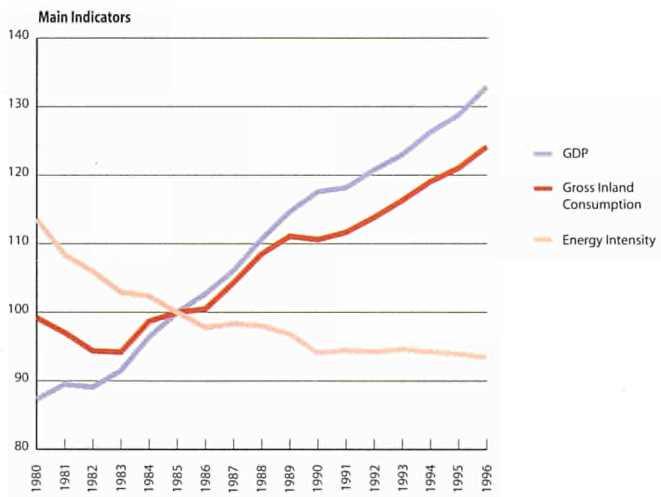
(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
"(2) Given on an indicative basis; calculated using common emission factors accross all countries in the world"

PART III OTHER OECD COUNTRIES

Other OECD countries: Major trends (1985-1996)

- The annual GDP growth of over 3% during the 80's, slowed down to about 2% in the period 90-95 and rebounded in 1996
- The final energy demand has demonstrated accelerating growth rate since 1980
- Since 1980, oil and gas contributions to final energy demand has remained stable
- Transport contributed to 39% of final energy demand under the pressure of NAFTA region
- Electricity contribution, largely differentiated by region, almost stabilised since 1992
- Gross inland energy consumption pushed by the OECD Pacific region
- Non-fossil fuels, driven by nuclear, covered 40% of incremental gross inland consumption since 1980
- Indigenous energy production, pushed by solid fuels, increased more rapidly than gross inland consumption
- In the Unites States, electricity capacity grew by only 1% per year on average since 1985
- Solid fuels still increased their share in thermal power stations
- NAFTA refinery capacity well adapted to the regional markets, unlike the Japanese
- Energy intensity improved again since 1994 at a limited rate of -0.4% per year on average
- Energy consumption per capita peaked in the United States, at twice the Japanese level
- United States presented by far the lowest energy prices in OECD
- CO_2 emissions that increased by 1.7% per year since 1990, accelerated in 1996
- Transport and power generation sectors were responsible for about 64% of CO2 emissions
- The region remained a net importer of hydrocarbons but a net exporter of solid fuels

"Other OECD countries" is a global heading for: the NAFTA region regrouping the USA, Canada and Mexico; the EFTA region comprising Norway, Switzerland and Iceland; the OECD Pacific region covering Australia, Japan and New Zealand; and Turkey. The new members (the Czech Republic, Hungary, Poland and South Korea) are still considered in their original region to respect the coherence of the analysis. Each of these groups is rather diverse from a sociological, political and macro-economical point of view. Globally speaking, the **population** of the other OECD countries reached 614 million inhabitants in 1996, after a rather stable increase of 1.1% per year over the period 1980-96. Turkey and Mexico have the fastest growing populations, at about two times the average rate.



The annual GDP growth of over 3% during the 80's, slowed down to about 2% in the period 90-95 and rebounded in 1996...

The global GDP increased by about 3% during the eighties, to fall under 2% on average between 1990 and 1995 and to rebound above 3% in 1996. The economic activity of the NAFTA region is largely dominated by the United States contributing up to 87% of GDP of the region in 1996, with only 9% by Canada and 4% by Mexico. In 1995, Mexico experienced a drop in GDP by 6% as a result of a severe financial crisis that caused alarm in most of the international financing organisations. Given the size of its economy, population and energy needs, Japan dominated the OECD Pacific region. In 1996, Japan accounted for 85% of the population and contributed to 89% of the GDP of this region. Japanese GDP growth, historically above 4% on average during the 80's, was marked by a severe slowdown after 1992.

ENERGY OUTLOOK

The final energy demand has demonstrated an accelerating growth rate since 1980...

The **final energy demand**, deeply influenced by the NAFTA region absorbing 78% of that consumption in 1996 (82% in 1980), demonstrated an accelerating growth rate since 1980 with the exception of the OECD Pacific region where the highest increase occurred during the second part of the 80's. Between 1990 and 1993, a general slowdown was observed in all regions as a result

REGIONAL GDP EVOLUTION

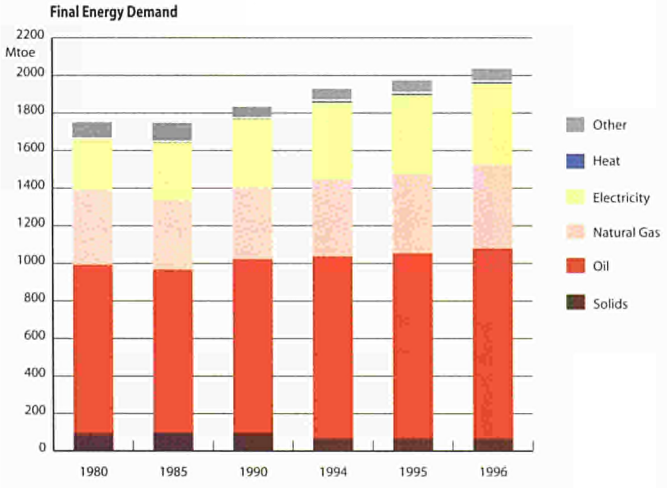
Billions 1990 ECU	1980	1985	1990	1993	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
EFTA	221.8	244.7	275.0	281.0	287.4	292.6	298.2	2.0%	2.4%	1.1%	1.8%	1.9%
NAFTA	3881.8	4383.9	5015.6	5225.7	5424.2	5532.1	5683.9	2.5%	2.7%	2.0%	2.0%	2.7%
OECD Pacific	1774.5	2092.3	2598.4	2733.4	2764.2	2812.4	2920.3	3.3%	4.4%	1.6%	1.7%	3.8%
Turkey	71.2	90.3	118.4	136.8	129.3	138.6	148.3	4.9%	5.6%	2.2%	7.2%	7.0%
Total	5949.3	6811.2	8007.4	8376.8	8605.2	8775.7	9050.7	2.7%	3.3%	1.8%	2.0%	3.1%

of the weakness of the economy in the OECD region. The 1994 relaunch induced a growth of final energy consumption by 2.1% in 1994, 2.3% in 1995 and 3.2% in 1996. But, in 1996, final energy demand increase has been boosted by the cold weather in the Western Hemisphere.

Between 1980 and 1993 final consumption remained apparently stable in the United States but this is due only to the fact that until 1988 energy consumption by industrial electricity autoproducers was totally accounted at the level of industrial energy consumption. Afterwards this consumption has been progressively identified and allocated to electricity production to be totally accounted at this level in 1992. This means that final energy demand in the United States was largely (from 60 to 80 Mtoe) overestimated before 1993 and as a consequence the growth rate of final energy demand was underestimated mainly during the 80's.

Since 1980, oil and gas contributions to final energy demand has remained stable...

The final energy demand is largely dominated by hydrocarbons. Since 1980, oil products and gas contributions decreased slowly: from 52% to 50% for oil and from 23% to 22% for gas. The share of oil products in total final demand remained stable in the United States which absorbed more than 65% of oil consumption. But some significant reductions were observed mainly in Canada (from 50% in 1980 to 38% in 1996), Norway (from 46% to 38%) and Japan (from 63% to 56%). Gas share remained stable in the NAFTA region at about 26% despite liberalisation of the gas market in the United States. This contrasts with the evolution in the OECD Pacific region where the gas market is still under development. Gas share in this region reached only 9% of total final demand in 1996 (6% in 1980). Electricity consumption grew by about 3% per year on average since 1980, the growth rate being more sustained in the OECD Pacific region (+3.5% on average) than in the NAFTA region (+2.8%) or the EFTA region (+2.0%). Thus more than 55% of the incremental demand of energy was covered by electricity alone. This trend was common to all regions. Solid fuels and biomass covered the rest of the con-



FINAL ENERGY DEMAND BY REGION

Mtoe	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
EFTA	33.0	35.7	36.9	37.8	38.6	39.6	1.6%	0.6%	0.7%	1.9%	2.8%
NAFTA	1432.5	1405.8	1433.1	1499.5	1529.1	1580.3	-0.4%	0.4%	1.1%	2.0%	3.3%
OECD Pacific	255.5	273.0	321.0	347.7	357.6	365.8	1.3%	3.3%	2.0%	2.8%	2.3%
Turkey	25.7	29.5	37.3	39.5	43.9	45.7	2.8%	4.8%	1.4%	11.1%	4.2%
Total	1746.7	1744.0	1828.2	1924.5	1969.1	2031.5	0.0%	0.9%	1.3%	2.3%	3.2%

sumption but their contributions remained quite marginal, declining from 10% in 1980 to only 6% in 1996. As they are mainly consumed in the United States by industrial electricity autoproducers, the modification of statistical allocations pushed their apparent consumption to lower levels after 1993.

Transport contributed to 39% of final energy demand under the pressure of the NAFTA region...

Industry, including US electricity autoproducers before 1992, made the major contribution to the final energy demand in 1980 with a 34% share. Its contribution dropped progressively to 27% in 1996, a sign of mutation towards less energy-consuming activities. But sustained economic activity combined with low energy prices resulted in an increase in energy consumption by 2% in 1995 and 2.7% in 1996. In the same period, transport that contributed for 33% in 1980 climbed up to 39% in 1996, easily becoming the major energy-consuming sector. This was mainly under the pressure of the NAFTA region where transport represented 41% of total final demand in 1996 against 33% in OECD Pacific and only 29% in the EFTA region. The very high level of motorization reached in the NAFTA region reinforced by more long distance travel than in the other regions is to blame. As a consequence the contribution of transport to oil consumption by final consumer was close to 75%. The tertiary-domestic sector contributed quite constantly between 32% and 34 % of the total over the whole period. Highest contribution occurred in EFTA region for climatic reasons (45% of final consumption in 1995) and the lowest in the OECD Pacific region (33% of final consumption) in relation with limited-size of households.

Electricity contribution, largely differentiated by region, almost stabilised since 1992...

The electricity share in final consumption reached 21% in 1992 from 15% in 1980 but has remained almost stable since then. EFTA demonstrated a larger contribution of electricity with about 34%, followed by the OECD Pacific region with 25% and finally the NAFTA region with only 20% in relation to the low contribution of electricity in Mexico, a mere 12%. Contributions per sector are comparable in the two main regions: NAFTA and OECD Pacific. Electricity share in industry increased from 19% in 1980 to 30% in 1995 as a result of automatization, development of electro-technologies and an industrial production more oriented to high-added value products. In EFTA, electricity covered more than 50% of industrial energy needs, benefiting from large low cost hydropower. In the tertiary-domestic sector, pushed by very high living standards, electricity contribution increased from 27% to 38% to reach even 44% in the EFTA region where electrical heating for households was largely developed.

Gross inland energy consumption pushed by the OECD Pacific region...

Gross inland energy consumption showed a steady annual increase of about 2% since 1985 after the stagnation observed during the first part of the 80's. This growth, however, was not equally spread over all primary fuels and regions. The lowest growth occurred in the EFTA region, only 1.1% per year over the period 1985-1996, even stabilising since 1994. The NAFTA region followed closely with a gain of 1.2% per year on average, but an annual average growth of 2.2% in Mexico that can still be associated to developing countries. In the OECD Pacific, where industrial development continued to increase sharply during the 80's accompanied by improving living standards, the increase reached 3.0% per year over the same period to finally absorb about 28% of the incremental demand of the whole region. Finally Turkey, a country still under major development, increased its consumption by about 70% since 1985.

Non-fossil fuels, driven by nuclear, covered 40% of incremental gross inland consumption since 1980...

Solid fuel demand that increased by about 3.0% in the first part of the 80's, continued to grow by 1.4% per year on average since then but jumped by 4.0% in 1996. Its consumption represented about 20% of total gross inland consumption since 1980. Coal consumption is concentrated in the United States, which accounted for about three-quarters of the regional total since 1980. With its substantial supplies of coal reserves, the United States has

GROSS INLAND CONSUMPTION BY REGION

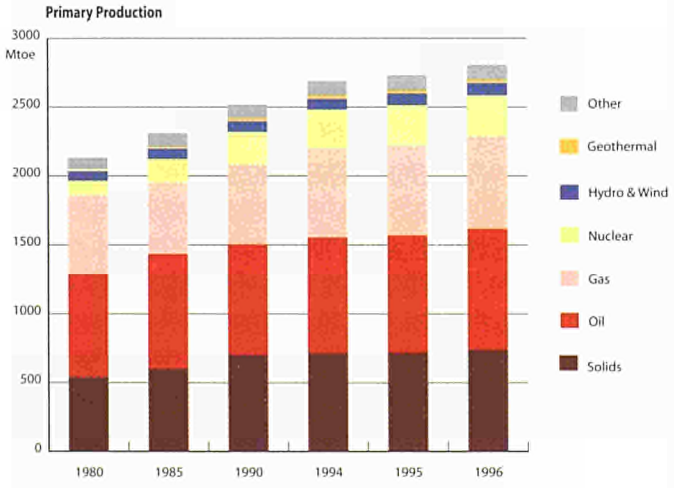
Mtoe	1980	1985	1990	1993	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
EFTA	41.1	45.1	48.6	50.5	51.1	50.9	51.0	1.9%	1.5%	1.3%	-0.4%	0.4%
NAFTA	2103.6	2086.3	2259.9	2374.2	2424.2	2454.6	2512.5	-0.2%	1.6%	1.8%	1.3%	2.4%
OECD Pacific	426.1	452.4	540.1	568.3	590.7	607.0	627.3	1.2%	3.6%	2.3%	2.8%	3.3%
Turkey	31.3	38.9	52.5	58.1	56.8	62.2	65.5	4.4%	6.2%	2.0%	9.5%	5.3%
Total	2602.1	2622.7	2901.0	3051.2	3122.7	3174.7	3256.3	0.2%	2.0%	1.9%	1.7%	2.6%

come to rely heavily on coal for electricity generation and will continue to do so in the near future. Although there was a drop in demand for oil and gas between 1980 and 1985, the use of both energy sources have increased steadily since then. Oil grew on average by 1.6% per year since 1985 to contribute 42% of total consumption in 1996 (49% in 1980) under the pressure of OECD Pacific region (+2.7% per year on average) and Turkey (+5.2%). Since 1985 annual growth of gas consumption reached 2.3% on average with a peak of 4.2% in the OECD Pacific where gas uses increased both for final energy uses and power generation. In the United States, which absorbed about 30% of total world consumption in 1996, gas consumption grew by 1.8% per year on average since 1980 but slowed down by 1% in 1996. Non-fossil fuels grew continuously to reach 16% of total consumption in 1995 against 10% in 1980. These fuels covered about 40% of incremental demand since 1980. Nuclear contributed most to this increase (298 Mtoe in 1996 versus 105 Mtoe in 1980), the other sources (hydro and biomass) showing moderate rates of increase.

Indigenous energy production, pushed by solid fuels, increased more rapidly than gross inland consumption...

Indigenous **energy production**, showing significant improvement in the three main regions, increased more rapidly than gross inland consumption. Oil contributed 875 Mtoe for 31% of energy produced in the whole region. In absolute terms, the production of oil declined in the NAFTA region since 1985, even if the 1996 production returned to the level reached in 1990. In fact, the United States production has been reduced by 16% between 1985 and 1990 as a consequence of numerous closing of limited size independent producers whose profitability was challenged by low oil prices. After 1990 the reduction of production in the United States (-32 Mtoe) was largely compensated by Canada (+47 Mtoe or an increase by more than 50% since 1990), and by Mexico (+10 Mtoe). In the EFTA region, the major evolution occurred in Norway where oil production grew by about 14% each year since 1985, to become the eighth world producer. Production in the OECD Pacific region, mainly located in Australia, remained marginal.

Natural gas production was reduced between 1980 and 1985 by 1.9% per year on average and since then increased continuously to reach a peak of 671 Mtoe in 1996. 81% of the incremental production come from the NAFTA region, equally distributed between United States and Canada. Norwegian gas production also continued to grow with a spectacular jump of 30% in 1996. Solid fuel production grew on average by 2% per year since 1980. Additional contribution came mainly from the United States (+100 Mtoe since 1980), Australia (+78 Mtoe) and Canada (+21 Mtoe). After a relative stagnation between 1990 and 1995, the United States, second world producer, increased again by 3% in 1996. Nuclear energy accounted for 11% of total production in 1996 against 5% in 1980. Nuclear was mainly developed in the United States and Japan during the 80's showing a 8.5% annual increase of its contribution. Since 1990 its use has continued to increase at 7% par year in Japan but only by 2.9% per year in the NAFTA region sustained by Canadian growth. Renewable energy, 7.5% of the primary energy production in 1980, did not significantly improve its share, reaching only 8.0% in 1996. Hydro and wind grew very slowly since 1985, despite the impressive development of wind energy in the Unites States, especially in California. The contribution of geothermal energy was multiplied by three during the 80's and has remained rather constant since



PRIMARY ENERGY PRODUCTION BY REGION

Mtoe	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
EFTA	63.6	83.4	131.2	183.1	194.7	220.0	5.6%	9.5%	8.7%	6.4%	13.0%
NAFTA	1910.0	2005.5	2117.5	2206.6	2215.4	2258.1	1.0%	1.1%	1.0%	0.4%	1.9%
OECD Pacific	134.8	201.9	244.9	276.6	298.2	305.1	8.4%	3.9%	3.1%	7.8%	2.3%
Turkey	17.2	21.7	25.7	26.0	26.1	26.8	4.7%	3.5%	0.3%	0.6%	2.5%
Total	2125.7	2312.6	2519.3	2692.2	2734.5	2810.0	1.7%	1.7%	1.7%	1.6%	2.8%

then. Other sources, mainly biomass, made a constant contribution of about 100 Mtoe since 1985. Biomass production was mainly located in the United States and used to supply electricity producers.

In the Unites States, electricity capacity grew by only 1% per year on average since 1985…

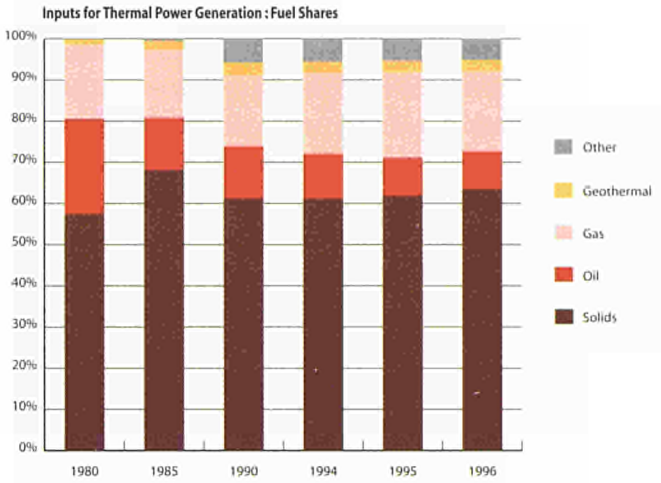
Electricity generation grew at an annual average of 2.9% since 1980. Thermal power stations covered 63% of the production in 1996 (68% in 1980) with nuclear and hydro accounting respectively for 19 and 18% of total production. These shares have remained in fact stable since 1990, nuclear becoming more important than hydro in the late 80's. Since 1980 thermal units have covered the incremental production for 54%, nuclear for 36% and hydro for only 10%. The installed capacity reached 1279 GWe in 1996 compared to 917 GWe in 1980. Since 1980 nuclear capacity was multiplied by two. Hydro capacity continued its expansion by 2% per year although thermal power increased by 4.7% per year on average. The growth of electricity capacity in not consistent though the whole region. The fastest increase occurred in Turkey with about 10% per year on average since 1980. OECD Pacific, dominated by Japan, grew at 3.0% per year and NAFTA at only 2.7% with two extremes: Mexico at 4.2% since 1985 and the Unites States at only 1%.

Solid fuels still increased their share in thermal power stations...

Solid fuels remain the main energy source for thermal power stations (64% of thermal input in 1996 versus 57% in 1980) as a result of the preference of US electricity producers. The contribution of oil (9% in 1995) that declined a first time during the oil crisis in 1983, to the advantage of biomass and geothermal energy, dropped again in 1995 after some signs of recovery in the beginning of the 90's, due this time to environmental pressure. The development of gas use has indeed been important since 1985. Gas consumption increased by 70% in the NAFTA region to reach 126 Mtoe despite a decline by 8% in 1996 due to price competition in favour of solid fuels. Since 1990 it increased by only 17% in the OECD Pacific region due to non-competitive prices of LNG imported gas on the Japanese electricity market. For this reason, contribution of oil products in Japan was still higher than that of gas. For OECD as a whole, the share of gas in firing thermal power stations reached about 20% in 1996, against 17% in 1990, making it the second energy source far behind solid fuels.

NAFTA refinery capacity well adapted to the regional markets, unlike the Japanese...

The **refinery capacity** remained globally stable in the whole region after 1985. About 24% of world capacity was located in the

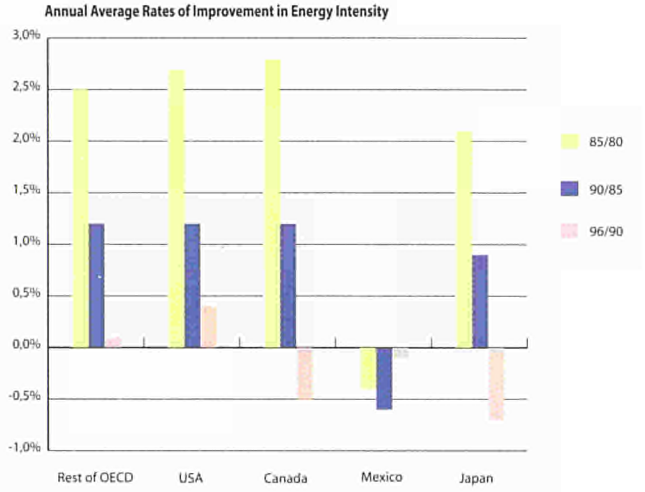


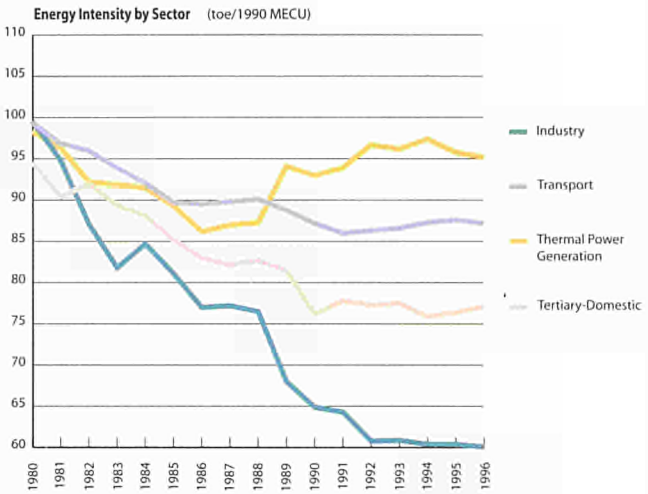
NAFTA region, principally in the United States, but this capacity was just sufficient to cover the region's needs. Regional utilisation rates increased regularly from 78% in 1985, to 86% in 1990 and 91% in 1996. This guaranteed sufficient profitability for the regional refineries so as to finance the additional investment required to adapt the production to a demand increasingly oriented through light products (transportation fuels and petrochemical feedstock) and environmental friendly products. On the other hand, Japanese refinery capacity, about 6% of world capacity, was not yet adapted to the moving structure of the market even if its utilisation rate increased from 63% in 1985 to 84% in 1996. As a consequence of this inadequate production, the region remained a net importer of oil products for about 15% of its global consumption.

COMPETITIVENESS

Energy intensity improved again since 1994 at a limited rate of -0.4% per year on average...

The **energy intensity** of the region as a whole improved significantly (-1.9% per year on average) during the 80's, remained stable between 1990 and 1993 due to the economic slow-down, and improved again after but at a limited rate of -0.4% per year on average. Since 1990, however this results from contrasted regional evolutions. In fact the limited but regular decrease of 2.5% these last six years observed in the United States was largely offset by the growth observed in Canada (+2.8%) and Japan (+4.0) although Mexico remained stable. Depressed economic climate in the early 90's involved lower utilisation rate of industrial capacities and limited gross fixed capital formation inducing increasing specific energy consumption per unit of production and less investment in rational uses of energy. This evolution continued in





Japan in 1994 and 1995 due to the weak economic climate. It is remarkable to observe that sustained economic activity in 1996 (+3.1% of GDP) occurred in all the various regions, despite unfavourable climatic conditions in the Western Hemisphere.

By sector, the energy intensity of industry has been continuously improving since 1980, gaining about 40% even if it stabilised since 1994 as a result of the increasing trend in Japan. The tertiary-domestic sector also improved its energy intensity by about 20% during the 80's despite the improvement of living standards and the development of new appliances such as air conditioning. But since then it has fluctuated around the 1990 level, continuing improvement in the United States being compensated by lesser performance in Canada (+3% between 1990 and 1996) and Japan (+8%). Even the transport sector gained about 12% during the 80's but since then energy intensity flatted. On the contrary, the energy intensity of power generation pushed by the increasing contribution of electricity to final energy demand has grown since 1985 by about 7% even if 1995 and 1996 were also characterised by an improvement.

Energy consumption per capita peaked in the United States, at twice the Japanese level...

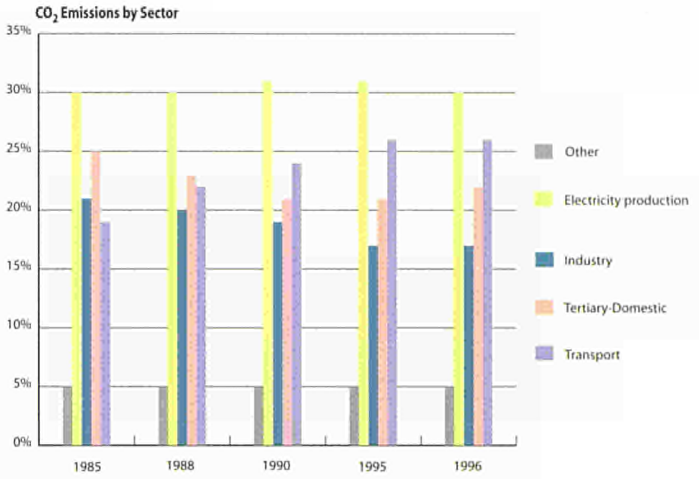
The **gross inland consumption per capita**, increased slowly by 0.8% since 1985 to reach an average value of 5.3 toe/inhabitant in 1996 but presented large discrepancies between regions and countries. In fact, absolute values varied from 1.0 toe/inhabitant in Turkey, to 4.3 in the OECD Pacific and EFTA regions, and finally 6.4 toe/inhabitant in the NAFTA region with a peak of 7.9 toe/inhabitant in the United States, the highest per capita consumption in the world. The energy consumption per inhabitant was twice that in the United States than in Japan, respectively the first and the second industrialised country in the world in terms of GDP. Although the consumption per capita remained stable in the NAFTA region since 1980, it increased in all the others since 1980: by 50% in Turkey, 34% in the OECD Pacific region and 13% in the EFTA region. This was a consequence of increasing living standards and also industrial development in Turkey.

ENERGY INTENSITY BY REGION

toe/1990 MECU	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
EFTA	185.5	184.4	176.5	177.7	173.8	171.2	-0.1%	-0.9%	0.2%	-2.2%	-1.5%
NAFTA	541.9	475.9	450.6	446.9	443.7	442.0	-2.6%	-1.1%	-0.2%	-0.7%	-0.4%
OECD Pacific	240.1	216.2	207.9	213.7	215.8	214.8	-2.1%	-0.8%	0.7%	1.0%	-0.5%
Turkey	439.6	430.4	443.5	439.2	448.8	441.7	-0.4%	0.6%	-0.2%	2.2%	-1.6%
Total	437.4	385.1	362.3	362.9	361.8	359.8	-2.5%	-1.2%	0.0%	-0.3%	-0.5%

United States presented, by far, the lowest energy prices in OECD...

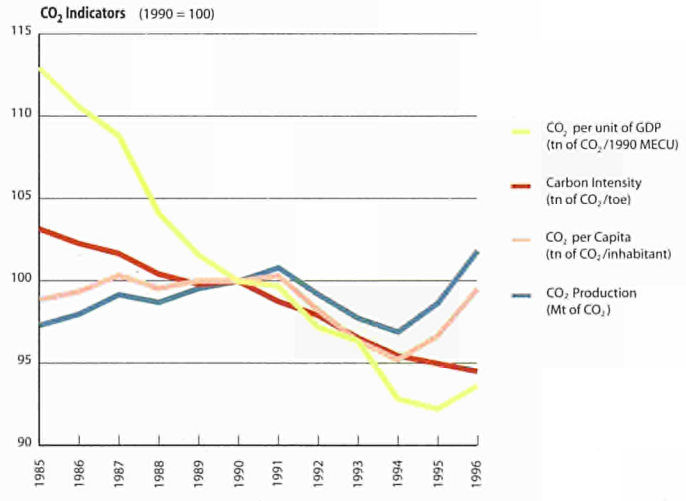
If energy efficiency is a major factor in competitiveness, energy prices are even more important, at the exclusion of any consideration on labour costs, fiscal system and regulation. Comparing the energy prices within the main competitors inside OECD, the United States, Japan and the European Union, it is clear that the US prices are the lowest, followed by the European and the Japanese. In 1996, prices of industrial heavy fuel oil ranged from 86 Ecu90/toe in the United States, to 100 Ecu90/toe in Japan and 127 Ecu90/toe for the European average. For natural gas deliveries to industry the respective prices are 84 Ecu90/toe in US, 114 Ecu90/toe in EU and 234 Ecu90/toe in Japan. Finally, for electricity the prices are 30 Ecu90/MWh in US, 46 Ecu90/MWh in European Union and 87 Ecu90/Mwh in Japan. As a first approximation, it can be considered that US prices reflect low prices observed on liberalised and competitive markets, especially for gas and electricity. Additionally, tax levels are also considerably lower in US.



ENVIRONMENT

CO_2 emissions that increased by 1.7% per year since 1990, accelerated in 1996...

In general terms CO_2 emissions have increased continuously since 1985 under the main pressure of the OECD Pacific (+33% since 1985) and the NAFTA region (+17% since 1985). Since 1990 CO_2 emissions for the region as a whole have grown by a little more than 10% despite a continuous decline of the carbon intensity fuel mix due to the increasing contribution of non-fossil fuels and the switch from solids fuels and oil products to natural gas. It must be stressed that CO_2 emissions by unit of GDP, generally slowing down in other parts of the world, were only declining by 0.5% per year in this region since 1990 with even an increasing trend in Japan. The level of CO_2 emissions per capita reflects the living standards and the industrialisation levels as well as the efforts to reduce energy intensity. The scope was very large inside the region with 2515 kg of CO_2/capita in Turkey, 3521 in Mexico, 8627 in Japan, 15852 in Canada and 20257 in the United States.



Transport and power generation were responsible for about 64% of CO_2 emissions...

Since 1990 the main contributor to CO_2 emissions has been power generation. Its share in total emissions grew from 27% in 1980 to 33% in 1996. This last year, the large increase of solid fuel consumption by US electricity producers induced a jump of about 5% of sectorial CO_2 emissions. The second contributor remained largely the transport sector with a share of about 31% in 1996 against 27% in 1980, but growth rate was increasing continuously since 1990. The emissions from the tertiary and domestic sector (14% of total emissions in 1996 against 16% in 1980) remained almost constant after 1980, fluctuating with climatic conditions. Finally, CO_2 emissions from industry, even if they increased slowly in 1995 and 1996, have been reduced by about 22% since 1980, their share in total CO_2 emissions being reduced from 20% in 1980 to only 13% in 1996.

GLOBAL MARKETS

The region remained a net importer of hydrocarbons but a net exporter of solid fuels...

The region is a net importer of energy. Although its import dependency index dropped down to 11% in 1985, it increased since then to reach 16% in 1994, with a slow-down in 1995-96 to 14.5%. The region mainly imported crude oil and oil products, covering almost the totality of their imports. Although the NAFTA region diversified its suppliers between Latin America (117 Mtoe), Middle East (83 Mtoe), Africa (80 Mtoe) and North Sea (53 Mtoe), the OECD Pacific region relied almost exclusively on the Middle East (217 Mtoe). Japan also imported large volumes of LNG. On the contrary the region remained a net coal exporter, the main volume being exported outside the region by Australia, the United States and Canada.

The situation differs between regions and country. Inside the NAFTA region, the United States were the only net importer of oil (454 Mtoe in 1996), the two others being net exporters (Mexico with 77 Mtoe and Canada with 37 Mtoe). NAFTA countries are self-sufficient in natural gas even if significant exports took place between Canada and the United States. Import dependency of the NAFTA region remained limited to about 11% the same level as in 1980. On the contrary, the OECD Pacific region depended on energy imports for 52% in 1996 (70% in 1980) and Japan peaked at 81% being totally dependant on import for all fossil fuels consumed in the country. At the same time, Australia, one of the largest world solids producers, exported about 50% of its total primary energy production. Finally the EFTA region under the lead of Norway became a larger net exporter of energy. In 1996, about 85% of both crude oil and natural gas in the region were exported, mainly to the European Union.

OTHER OECD COUNTRIES: SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	2125.7	2312.6	2519.3	2692.2	2734.5	2810.0	1.7%	1.7%	1.7%	1.6%	2.8%
Solids	541.2	605.6	705.0	715.7	722.3	741.5	2.3%	3.1%	0.4%	0.9%	2.7%
Oil	746.8	828.5	799.4	837.9	846.4	875.2	2.1%	-0.7%	1.2%	1.0%	3.4%
Natural gas	572.7	519.7	577.2	646.0	649.1	671.0	-1.9%	2.1%	2.9%	0.5%	3.4%
Nuclear	105.0	169.8	238.4	282.7	296.2	298.0	10.1%	7.0%	4.4%	4.8%	0.6%
Hydro & Wind	68.6	75.8	77.6	78.6	86.4	89.8	2.0%	0.5%	0.3%	10.0%	3.9%
Geothermal	7.8	13.0	22.9	24.6	23.4	24.7	10.9%	11.9%	1.8%	-4.6%	5.5%
Other renewable energy sources	83.6	100.3	98.7	106.8	110.6	109.8	3.7%	-0.3%	2.0%	3.6%	-0.7%
Net Imports	544.4	304.8	469.9	503.8	463.1	476.8	-11.0%	9.0%	1.8%	-8.1%	2.9%
Solids	-35.2	-53.5	-70.0	-58.8	-70.1	-70.6	8.7%	5.5%	-4.3%	19.2%	0.7%
Oil	580.9	347.8	519.0	538.9	510.3	525.6	-9.8%	8.3%	0.9%	-5.3%	3.0%
Crude oil	501.0	271.7	429.9	481.6	462.7	458.4	-11.5%	9.6%	2.9%	-3.9%	-0.9%
Oil products	79.9	76.1	89.1	57.2	47.6	67.2	-1.0%	3.2%	-10.5%	-16.8%	41.1%
Natural gas	-0.6	11.0	22.5	24.8	24.1	21.1	-	15.3%	2.5%	-2.8%	-12.6%
Electricity	-0.6	-0.6	-1.6	-1.1	-1.2	0.7	-1.8%	23.0%	-9.2%	9.5%	-
Gross Inland Consumption	2602.1	2622.7	2901.0	3122.7	3174.7	3256.3	0.2%	2.0%	1.9%	1.7%	2.6%
Solids	496.2	572.5	612.6	637.1	645.3	670.9	2.9%	1.4%	1.0%	1.3%	4.0%
Oil	1268.7	1154.9	1267.2	1330.7	1327.7	1369.4	-1.9%	1.9%	1.2%	-0.2%	3.1%
Natural gas	572.9	537.0	585.1	663.2	686.1	693.0	-1.3%	1.7%	3.2%	3.4%	1.0%
Other (1)	264.4	358.3	436.1	491.6	515.6	523.0	6.3%	4.0%	3.0%	4.9%	1.4%
Electricity Generation in Twh	3716.2	4184.7	5061.9	5575.4	5737.9	5861.6	2.4%	3.9%	2.4%	2.9%	2.2%
Nuclear	401.2	649.4	913.3	1084.5	1136.2	1143.2	10.1%	7.1%	4.4%	4.8%	0.6%
Hydro & wind	797.8	880.3	901.5	912.1	1003.2	1041.8	2.0%	0.5%	0.3%	10.0%	3.8%
Thermal	2517.2	2655.0	3247.0	3578.8	3598.4	3676.6	1.1%	4.1%	2.5%	0.5%	2.2%
Generation Capacity in GWe	916.8	1083.2	1163.9	1247.2	1263.9	1279.0	3.4%	1.4%	1.7%	1.3%	1.2%
Nuclear	80.0	120.3	148.5	160.4	160.4	163.1	8.5%	4.3%	2.0%	0.0%	1.6%
Hydro & wind	204.3	232.7	255.4	277.1	280.8	281.0	2.6%	1.9%	2.1%	1.4%	0.1%
Thermal	632.6	730.2	760.0	809.7	822.6	835.0	2.9%	0.8%	1.6%	1.6%	1.5%
Average Load Factor in %	46.3	44.1	49.6	51.0	51.8	52.3	-1.0%	2.4%	0.7%	1.6%	0.9%
Fuel Inputs for Thermal Power Generation	591.8	620.7	766.1	861.7	863.0	884.8	1.0%	4.3%	3.0%	0.2%	2.5%
Solids	339.8	422.6	468.9	526.3	533.8	562.2	4.5%	2.1%	2.9%	1.4%	5.3%
Oil	136.6	78.6	97.4	94.6	79.2	81.2	-10.5%	4.4%	-0.7%	-16.2%	2.4%
Gas	107.4	103.7	133.4	169.1	180.7	172.2	-0.7%	5.2%	6.1%	6.9%	-4.7%
Geothermal	7.3	12.4	22.0	23.5	22.3	23.5	11.3%	12.2%	1.7%	-7.7%	0.0%
Biomass	0.7	3.4	44.3	48.2	46.9	45.7	37.5%	67.2%	2.1%	-2.6%	-2.6%
Average Thermal Efficiency in %	36.6	36.8	36.4	35.7	35.8	35.7	0.1%	-0.2%	-0.5%	0.4%	-0.3%
Non-Energy Uses	147.8	140.6	176.9	189.6	190.4	201.2	-1.0%	4.7%	1.8%	0.4%	5.6%
Total Final Energy Demand	1746.7	1744.0	1828.2	1924.5	1969.1	2031.5	0.0%	0.9%	1.3%	2.3%	3.2%
Solids	93.7	98.7	97.7	67.0	68.0	65.6	1.0%	-0.2%	-9.0%	1.5%	-3.5%
Oil	900.6	869.8	925.9	971.4	986.8	1014.5	-0.7%	1.3%	1.2%	1.6%	2.8%
Gas	398.4	367.9	380.6	411.0	422.4	447.2	-1.6%	0.7%	1.9%	2.8%	5.9%
Electricity	269.2	307.5	366.0	407.5	419.2	430.6	2.7%	3.5%	2.7%	2.9%	2.7%
Heat	1.8	3.2	3.6	9.3	9.8	10.2	12.3%	2.6%	26.6%	5.3%	3.9%
Renewable energy sources	82.9	96.9	54.5	58.4	63.0	63.3	3.2%	-10.9%	1.7%	7.9%	0.4%
CO_2 Emissions in Mt of CO_2	6539.4	6529.4	7098.7	7502.6	7594.5	7844.2	0.0%	1.7%	1.4%	1.2%	3.3%
Indicators											
Population (Million)	511.75	543.39	575.32	601.49	608.12	614.35	1.2%	1.1%	1.1%	1.1%	1.0%
GDP (index 1985=100)	87.3	100.0	117.6	126.3	128.8	132.9	2.7%	3.3%	1.8%	2.0%	3.1%
Gross Inl Cons./GDP (toe/1990 MECU)	437.4	385.1	362.3	362.9	361.8	359.8	-2.5%	-1.2%	0.0%	-0.3%	-0.5%
Gross Inl Cons./Capita (toe/inhabitant)	5.08	4.83	5.04	5.19	5.22	5.30	-1.0%	0.9%	0.7%	0.6%	1.5%
Electricity Generated/Capita (kWh/inhabitant)	7262	7701	8798	9269	9435	9541	1.2%	2.7%	1.3%	1.8%	1.1%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	12.8	12.0	12.3	12.5	12.5	12.8	-1.2%	0.5%	0.3%	0.1%	2.2%
Import Dependency %	20.6	11.5	16.0	15.9	14.4	14.5	-11.0%	6.8%	-0.1%	-9.6%	0.5%

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

OTHER OECD COUNTRIES : MAIN INDICATORS

	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Gross Inland Consumption (Mtoe)	2602.1	2622.7	2901.0	3122.7	3174.7	3256.3	0.2%	2.0%	1.9%	1.7%	2.6%
Public Thermal Power Generation	568.3	594.4	659.9	698.9	697.3	717.6	0.9%	2.1%	1.4%	-0.2%	2.9%
Autoprod. Thermal Power Generation	16.3	13.9	84.4	139.7	143.8	144.0	-3.1%	43.4%	13.4%	2.9%	0.2%
Energy Branch	154.8	159.2	185.7	192.4	193.7	199.8	0.6%	3.1%	0.9%	0.7%	3.1%
Final Energy Consumption	1746.7	1744.0	1828.2	1924.5	1969.1	2031.5	0.0%	0.9%	1.3%	2.3%	3.2%
Industry	592.7	552.7	519.6	519.6	530.0	544.2	-1.4%	-1.2%	0.0%	2.0%	2.7%
Transport	591.3	611.0	698.6	751.6	769.0	789.6	0.7%	2.7%	1.8%	2.3%	2.7%
Tertiary-Domestic	562.7	580.3	610.1	653.4	670.1	697.6	0.6%	1.0%	1.7%	2.6%	4.1%
Energy Intensity (toe/1990 MECU)	437.4	385.1	362.3	362.9	361.8	359.8	-2.5%	-1.2%	0.0%	-0.3%	-0.5%
Public Thermal Power Generation	95.5	87.3	82.4	81.2	79.5	79.3	-1.8%	-1.1%	-0.4%	-2.2%	-0.2%
Autoprod. Thermal Power Generation	2.7	2.0	10.5	16.2	16.4	15.9	-5.7%	38.9%	11.4%	0.9%	-2.9%
Industry	99.6	81.1	64.9	60.4	60.4	60.1	-4.0%	-4.4%	-1.8%	0.0%	-0.4%
Transport	99.4	89.7	87.2	87.3	87.6	87.2	-2.0%	-0.6%	0.0%	0.3%	-0.4%
Tertiary-Domestic	94.6	85.2	76.2	75.9	76.4	77.1	-2.1%	-2.2%	-0.1%	0.6%	0.9%
Energy per capita (Kgoe/inhabitant)	5085	4826	5043	5192	5221	5300	-1.0%	0.9%	0.7%	0.6%	1.5%
Industry	1158	1017	903	864	872	886	-2.6%	-2.3%	-1.1%	0.9%	1.6%
Transport	1156	1124	1214	1249	1264	1285	-0.5%	1.5%	0.7%	1.2%	1.6%
Tertiary-Domestic	1100	1068	1061	1086	1102	1136	-0.6%	-0.1%	0.6%	1.4%	3.0%
Electricity Share (%)											
Final Energy Consumption	15.4%	17.6%	20.0%	21.2%	21.3%	21.2%	2.7%	2.6%	1.4%	0.5%	-0.4%
Industry	19.5%	22.0%	26.9%	30.4%	30.3%	30.2%	2.4%	4.1%	3.0%	-0.1%	-0.5%
Transport	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	1.7%	1.1%	0.0%	-1.1%	-2.1%
Tertiary-Domestic	26.9%	31.6%	36.6%	37.7%	38.1%	37.7%	3.3%	3.0%	0.8%	3.4%	0.0%
Total Renewable Consumption (Mtoe)	160.0	189.0	199.2	209.9	220.5	224.3	3.4%	1.1%	1.3%	5.0%	1.7%
Hydro	68.6	75.7	77.3	78.1	85.9	89.2	2.0%	0.4%	0.3%	10.1%	3.8%
Biomass	83.6	100.3	98.7	106.8	110.6	109.8	3.7%	-0.3%	2.0%	3.6%	-0.7%
Other renewable energy sources	7.8	13.1	23.3	25.1	23.9	25.3	11.0%	12.2%	1.9%	-4.5%	5.6%
Renewable intensity (toe/1990Mecu)	26.9	27.8	24.9	24.4	25.1	24.8	0.6%	-2.2%	-0.5%	3.0%	-1.4%
Renewable per capita (Kgoe/inhabitant)	312.6	347.9	346.3	349.0	362.6	365.1	2.2%	-0.1%	0.2%	3.9%	0.7%
CO_2 Emissions (Mt of CO_2)	6539.4	6529.4	7098.7	7502.6	7594.5	7844.2	0.0%	1.7%	1.4%	1.2%	3.3%
Public Thermal Power Generation	1708.0	1870.1	2092.8	2208.0	2188.7	2302.9	1.8%	2.3%	1.3%	-0.9%	5.2%
Autoprod. Thermal Power Generation	51.2	37.6	117.1	282.5	296.2	301.4	-6.0%	25.5%	24.6%	4.9%	1.7%
Energy Branch	378.2	381.7	436.0	437.8	438.5	453.8	0.2%	2.7%	0.1%	0.1%	3.5%
Industry	1295.9	1135.2	1077.7	981.4	988.7	1011.6	-2.6%	-1.0%	-2.3%	0.8%	2.3%
Transport	1799.2	1860.3	2124.7	2278.5	2332.1	2398.0	0.7%	2.7%	1.8%	2.4%	2.8%
Tertiary-Domestic	1038.6	986.5	979.4	1017.3	1036.0	1085.5	-1.0%	-0.1%	1.0%	1.8%	4.8%
Carbon Intensity (tn of CO_2/toe)	2.5	2.5	2.4	2.4	2.4	2.4	-0.2%	-0.3%	-0.5%	-0.4%	0.7%
Public Power Generation	2.3	2.2	2.1	2.1	2.0	2.1	-0.8%	-0.8%	-0.7%	-2.6%	2.7%
Public Thermal Power Generation	3.0	3.1	3.2	3.2	3.1	3.2	0.9%	0.2%	-0.1%	-0.7%	2.2%
Autoprod. Power Generation	2.4	2.0	1.2	1.8	1.9	1.9	-3.9%	-9.4%	10.6%	2.1%	1.5%
Autoprod. Thermal Power Generation	3.1	2.7	1.4	2.0	2.1	2.1	-3.0%	-12.5%	9.9%	1.9%	1.6%
Energy Branch	2.4	2.4	2.3	2.3	2.3	2.3	-0.4%	-0.4%	-0.8%	-0.5%	0.4%
Industry	2.2	2.1	2.1	1.9	1.9	1.9	-1.2%	0.2%	-2.3%	-1.2%	-0.4%
Transport	3.0	3.0	3.0	3.0	3.0	3.0	0.0%	0.0%	-0.1%	0.0%	0.1%
Tertiary-Domestic	1.8	1.7	1.6	1.6	1.5	1.6	-1.6%	-1.1%	-0.8%	-0.7%	0.6%
CO_2 per capita (kg of CO_2/inhabitant)	12778	12016	12339	12473	12489	12768	-1.2%	0.5%	0.3%	0.1%	2.2%
Industry	2532	2089	1873	1632	1626	1647	-3.8%	-2.2%	-3.4%	-0.3%	1.3%
Transport	3516	3423	3693	3788	3835	3903	-0.5%	1.5%	0.6%	1.2%	1.8%
Tertiary-Domestic	2030	1815	1702	1691	1704	1767	-2.2%	-1.3%	-0.2%	0.7%	3.7%
CO_2 per unit of GDP (tn of CO_2/1990 MECU)	1099	959	887	872	865	867	-2.7%	-1.6%	-0.4%	-0.7%	0.1%
Public Thermal Power Generation	287	275	261	257	249	254	-0.9%	-1.0%	-0.5%	-2.8%	2.0%
Autoprod. Thermal Power Generation	9	6	15	33	34	33	-8.5%	21.5%	22.4%	2.8%	-1.3%
Energy Branch	64	56	54	51	50	50	-2.5%	-0.6%	-1.7%	-1.8%	0.4%
Industry	218	167	135	114	113	112	-5.2%	-4.2%	-4.1%	-1.2%	-0.8%
Transport	302	273	265	265	266	265	-2.0%	-0.6%	-0.1%	0.4%	-0.3%
Tertiary-Domestic	175	145	122	118	118	120	-3.7%	-3.3%	-0.8%	-0.1%	1.6%

NAFTA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	1910.0	2005.5	2117.5	2206.6	2215.4	2258.1	1.0%	1.1%	1.0%	0.4%	1.9%
Solids	470.2	502.5	580.2	579.2	576.7	593.5	1.3%	2.9%	0.0%	-0.4%	2.9%
Oil	697.2	757.1	680.1	673.0	669.8	679.8	1.7%	-2.1%	-0.3%	-0.5%	1.5%
Natural gas	539.7	480.0	530.1	589.8	590.0	602.3	-2.3%	2.0%	2.7%	0.0%	2.1%
Nuclear	79.8	122.3	179.5	206.2	213.8	212.7	8.9%	8.0%	3.5%	3.7%	-0.5%
Hydro & Wind	47.0	52.8	51.3	53.1	58.6	63.9	2.3%	-0.6%	0.8%	10.4%	9.0%
Geothermal	5.4	9.9	18.2	19.8	17.7	18.5	13.0%	12.9%	2.2%	-10.7%	4.2%
Other renewable energy sources	70.7	80.9	78.2	85.5	88.9	87.5	2.8%	-0.7%	2.3%	3.9%	-1.5%
Net Imports	246.0	68.9	215.7	280.0	249.8	274.1	-22.5%	25.6%	6.7%	-10.8%	9.7%
Solids	-56.0	-64.9	-76.3	-54.2	-65.3	-66.2	3.0%	3.3%	-8.2%	20.4%	1.4%
Oil	301.1	134.8	291.0	334.6	315.7	339.8	-14.8%	16.6%	3.5%	-5.6%	7.6%
Crude oil	265.3	108.3	269.1	323.6	317.6	330.2	-16.4%	20.0%	4.7%	-1.9%	4.0%
Oil products	35.9	26.5	21.9	11.0	-1.9	9.7	-5.9%	-3.7%	-15.9%	-	-
Natural gas	0.9	-1.0	1.0	-0.3	-0.7	0.4	-	-	-	110.8%	-
Electricity	0.0	0.0	0.0	0.0	0.1	0.0	39.9%	-20.9%	-	-	-
Gross Inland Consumption	2103.6	2086.3	2259.9	2424.2	2454.6	2512.5	-0.2%	1.6%	1.8%	1.3%	2.4%
Solids	399.9	454.5	484.3	503.0	506.1	526.1	2.6%	1.3%	1.0%	0.6%	3.9%
Oil	959.3	880.5	931.6	974.5	967.3	1000.0	-1.7%	1.1%	1.1%	-0.7%	3.4%
Natural gas	541.5	485.2	516.8	582.0	602.1	603.8	-2.2%	1.3%	3.0%	3.5%	0.3%
Other (1)	202.9	266.0	327.2	364.7	379.1	382.6	5.6%	4.2%	2.7%	4.0%	0.9%
Electricity Generation in Twh	2867.6	3173.8	3786.2	4156.2	4273.0	4385.1	2.1%	3.6%	2.4%	2.8%	2.6%
Nuclear	304.2	467.2	687.4	791.0	820.1	815.9	9.0%	8.0%	3.6%	3.7%	-0.5%
Hydro & wind	546.8	613.9	596.4	617.0	681.2	742.8	2.3%	-0.6%	0.8%	10.4%	9.0%
Thermal	2016.5	2092.7	2502.3	2748.2	2771.7	2826.5	0.7%	3.6%	2.4%	0.9%	2.0%
Generation Capacity in GWe	701.6	823.3	866.0	914.1	923.5	932.4	3.3%	1.0%	1.4%	1.0%	1.0%
Nuclear	62.4	92.7	113.9	116.8	116.8	118.1	8.3%	4.2%	0.7%	0.0%	1.1%
Hydro & wind	130.5	147.3	159.6	172.1	173.9	174.6	2.5%	1.6%	1.9%	1.0%	0.4%
Thermal	508.7	583.3	592.5	625.1	632.8	639.7	2.8%	0.3%	1.3%	1.2%	1.1%
Average Load Factor in %	46.7	44.0	49.9	51.9	52.8	53.7	-1.2%	2.6%	1.0%	1.8%	1.6%
Fuel Inputs for Thermal Power Generation	476.2	498.1	608.6	687.9	690.2	702.6	0.9%	4.1%	3.1%	0.3%	1.8%
Solids	307.1	374.1	408.9	455.8	460.3	482.4	4.0%	1.8%	2.7%	1.0%	4.8%
Oil	73.5	39.3	46.9	43.3	34.2	35.9	-11.8%	3.6%	-1.9%	-21.1%	5.0%
Gas	89.9	74.1	94.7	125.8	136.6	125.8	-3.8%	5.0%	7.4%	8.5%	-7.9%
Geothermal	5.4	9.9	18.2	19.8	17.7	18.5	13.0%	12.9%	2.2%	-12.9%	-6.9%
Biomass	0.3	0.7	40.0	43.1	41.4	40.1	15.6%	124.6%	1.9%	-4.0%	-3.2%
Average Thermal Efficiency in %	36.4	36.1	35.3	34.3	34.5	34.6	-0.2%	-0.4%	-0.7%	0.5%	0.2%
Non-Energy Uses	112.6	105.3	130.5	139.4	136.5	146.7	-1.3%	4.4%	1.7%	-2.1%	7.4%
Total Final Energy Demand	1432.5	1405.8	1433.1	1499.5	1529.1	1580.3	-0.4%	0.4%	1.1%	2.0%	3.3%
Solids	62.0	63.2	61.1	33.0	33.0	31.9	0.4%	-0.7%	-14.3%	0.0%	-3.4%
Oil	711.5	680.8	706.0	736.4	743.0	763.7	-0.9%	0.7%	1.1%	0.9%	2.8%
Gas	382.5	347.4	354.6	379.0	388.4	411.0	-1.9%	0.4%	1.7%	2.5%	5.8%
Electricity	205.2	232.0	270.9	301.5	310.2	319.0	2.5%	3.2%	2.7%	2.9%	2.8%
Heat	1.0	2.2	2.2	7.5	7.8	8.1	16.3%	-0.2%	36.2%	4.5%	3.9%
Renewable energy sources	70.3	80.2	38.2	42.1	46.7	46.5	2.7%	-13.8%	2.4%	11.1%	-0.4%
CO_2 Emissions in Mt of CO_2	5364.0	5303.7	5650.1	5937.5	5998.6	6194.3	-0.2%	1.3%	1.2%	1.0%	3.3%
Indicators											
Population (Million)	321.97	342.35	363.85	382.95	387.56	392.10	1.2%	1.2%	1.3%	1.2%	1.2%
GDP (index 1985=100)	88.5	100.0	114.4	123.7	126.2	129.7	2.5%	2.7%	2.0%	2.0%	2.7%
Gross Inl Cons./GDP (toe/1990 MECU)	541.9	475.9	450.6	446.9	443.7	442.0	-2.6%	-1.1%	-0.2%	-0.7%	-0.4%
Gross Inl Cons./Capita (toe/inhabitant)	6.53	6.09	6.21	6.33	6.33	6.41	-1.4%	0.4%	0.5%	0.1%	1.2%
Electricity Generated/Capita (kWh/inhabitant)	8906	9271	10406	10853	11025	11184	0.8%	2.3%	1.1%	1.6%	1.4%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	16.7	15.5	15.5	15.5	15.5	15.8	-1.4%	0.0%	0.0%	-0.2%	2.1%
Import Dependency %	11.5	3.3	9.4	11.4	10.1	10.8	-22.2%	23.5%	4.9%	-11.9%	7.3%

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

NAFTA : MAIN INDICATORS

	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Gross Inland Consumption (Mtoe)	2103.6	2086.3	2259.9	2424.2	2454.6	2512.5	-0.2%	1.6%	1.8%	1.3%	2.4%
Public Thermal Power Generation	469.8	486.9	525.7	551.6	553.2	565.6	0.7%	1.5%	1.2%	0.3%	2.3%
Autoprod. Thermal Power Generation	1.0	1.3	65.0	116.9	119.6	118.8	5.7%	118.1%	15.8%	2.4%	-0.7%
Energy Branch	130.6	132.1	154.2	155.9	157.0	162.6	0.2%	3.1%	0.3%	0.7%	3.6%
Final Energy Consumption	1432.5	1405.8	1433.1	1499.5	1529.1	1580.3	-0.4%	0.4%	1.1%	2.0%	3.3%
Industry	465.6	423.3	378.6	376.1	383.3	395.1	-1.9%	-2.2%	-0.2%	1.9%	3.1%
Transport	502.2	515.5	577.7	617.3	629.3	644.8	0.5%	2.3%	1.7%	1.9%	2.5%
Tertiary-Domestic	464.7	467.0	476.7	506.1	516.6	540.4	0.1%	0.4%	1.5%	2.1%	4.6%
Energy Intensity (toe/1990 MECU)	541.9	475.9	450.6	446.9	443.7	442.0	-2.6%	-1.1%	-0.2%	-0.7%	-0.4%
Public Thermal Power Generation	121.0	111.1	104.8	101.7	100.0	99.5	-1.7%	-1.2%	-0.8%	-1.7%	-0.5%
Autoprod. Thermal Power Generation	0.3	0.3	13.0	21.5	21.6	20.9	3.2%	112.3%	13.6%	0.4%	-3.3%
Industry	119.9	96.6	75.5	69.3	69.3	69.5	-4.2%	-4.8%	-2.1%	-0.1%	0.3%
Transport	129.4	117.6	115.2	113.8	113.7	113.4	-1.9%	-0.4%	-0.3%	0.0%	-0.3%
Tertiary-Domestic	119.7	106.5	95.1	93.3	93.4	95.1	-2.3%	-2.3%	-0.5%	0.1%	1.8%
Energy per capita (Kgoe/inhabitant)	6533	6094	6211	6330	6333	6408	-1.4%	0.4%	0.5%	0.1%	1.2%
Industry	1446	1236	1040	982	989	1008	-3.1%	-3.4%	-1.4%	0.7%	1.9%
Transport	1560	1506	1588	1612	1624	1644	-0.7%	1.1%	0.4%	0.7%	1.3%
Tertiary-Domestic	1443	1364	1310	1321	1333	1378	-1.1%	-0.8%	0.2%	0.9%	3.4%
Electricity Share (%)											
Final Energy Consumption	14.3%	16.5%	18.9%	20.1%	20.3%	20.2%	2.9%	2.8%	1.6%	0.9%	-0.5%
Industry	16.8%	19.7%	24.7%	29.1%	29.0%	28.8%	3.2%	4.6%	4.2%	-0.2%	-0.8%
Transport	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	4.2%	-0.1%	-0.5%	-0.5%	-1.8%
Tertiary-Domestic	27.2%	31.7%	37.1%	37.8%	38.4%	37.9%	3.1%	3.2%	0.5%	3.2%	0.1%
Total Renewable Consumption (Mtoe)	123.1	143.6	147.7	158.4	165.2	169.9	3.1%	0.6%	1.8%	4.3%	2.8%
Hydro	47.0	52.8	51.0	52.7	58.2	63.5	2.3%	-0.7%	0.8%	10.5%	9.1%
Biomass	70.7	80.9	78.2	85.5	88.9	87.5	2.8%	-0.7%	2.3%	3.9%	-1.5%
Other renewable energy sources	5.4	9.9	18.4	20.2	18.1	18.8	13.0%	13.2%	2.3%	-10.6%	4.3%
Renewable intensity (toe/1990Mecu)	31.7	32.8	29.4	29.2	29.9	29.9	0.7%	-2.1%	-0.2%	2.2%	0.1%
Renewable per capita (Kgoe/inhabitant)	382.3	419.6	405.8	413.7	426.2	433.3	1.9%	-0.7%	0.5%	3.0%	1.7%
CO_2 Emissions (Mt of CO_2)	5364.0	5303.7	5650.1	5937.5	5998.6	6194.3	-0.2%	1.3%	1.2%	1.0%	3.3%
Public Thermal Power Generation	1433.2	1592.0	1752.6	1833.1	1823.4	1915.2	2.1%	1.9%	1.1%	-0.5%	5.0%
Autoprod. Thermal Power Generation	2.1	2.6	63.8	219.4	230.2	231.8	4.7%	89.2%	36.2%	5.0%	0.7%
Energy Branch	315.8	314.0	360.9	352.8	353.4	368.0	-0.1%	2.8%	-0.6%	0.2%	4.1%
Industry	1007.4	850.4	782.3	688.0	689.6	710.8	-3.3%	-1.7%	-3.2%	0.2%	3.1%
Transport	1530.7	1572.4	1760.7	1873.8	1910.8	1961.1	0.5%	2.3%	1.6%	2.0%	2.6%
Tertiary-Domestic	850.2	787.8	755.1	780.1	785.3	829.9	-1.5%	-0.8%	0.8%	0.7%	5.7%
Carbon Intensity (tn of CO2/toe)	2.5	2.5	2.5	2.4	2.4	2.5	-0.1%	-0.3%	-0.5%	-0.2%	0.9%
Public Power Generation	2.4	2.4	2.3	2.2	2.2	2.3	-0.1%	-0.8%	-0.5%	-2.0%	2.9%
Public Thermal Power Generation	3.1	3.3	3.3	3.3	3.3	3.4	1.4%	0.4%	-0.1%	-0.8%	2.7%
Autoprod. Power Generation	0.6	0.7	0.9	1.7	1.7	1.8	3.2%	5.0%	18.5%	2.8%	0.9%
Autoprod. Thermal Power Generation	2.1	2.0	1.0	1.9	1.9	2.0	-1.0%	-13.3%	17.6%	2.5%	1.4%
Energy Branch	2.4	2.4	2.3	2.3	2.3	2.3	-0.4%	-0.3%	-0.8%	-0.6%	0.5%
Industry	2.2	2.0	2.1	1.8	1.8	1.8	-1.5%	0.6%	-3.0%	-1.6%	0.0%
Transport	3.0	3.1	3.0	3.0	3.0	3.0	0.0%	0.0%	-0.1%	0.0%	0.2%
Tertiary-Domestic	1.8	1.7	1.6	1.5	1.5	1.5	-1.6%	-1.3%	-0.7%	-1.4%	1.0%
CO_2 per capita (kg of CO_2/inhabitant)	16660	15492	15529	15505	15478	15798	-1.4%	0.0%	0.0%	-0.2%	2.1%
Industry	3129	2484	2150	1797	1779	1813	-4.5%	-2.8%	-4.4%	-1.0%	1.9%
Transport	4754	4593	4839	4893	4930	5001	-0.7%	1.0%	0.3%	0.8%	1.4%
Tertiary-Domestic	2641	2301	2075	2037	2026	2117	-2.7%	-2.0%	-0.5%	-0.5%	4.4%
CO_2 per unit of GDP (tn of CO_2/1990 MECU)	1382	1210	1127	1095	1084	1090	-2.6%	-1.4%	-0.7%	-0.9%	0.5%
Public Thermal Power Generation	369	363	349	338	330	337	-0.3%	-0.8%	-0.8%	-2.5%	2.2%
Autoprod. Thermal Power Generation	1	1	13	40	42	41	2.1%	84.1%	33.5%	2.9%	-2.0%
Energy Branch	81	72	72	65	64	65	-2.5%	0.1%	-2.5%	-1.8%	1.4%
Industry	260	194	156	127	125	125	-5.7%	-4.3%	-5.0%	-1.7%	0.3%
Transport	394	359	351	345	345	345	-1.9%	-0.4%	-0.4%	0.0%	-0.1%
Tertiary-Domestic	219	180	151	144	142	146	-3.9%	-3.5%	-1.1%	-1.3%	2.8%

UNITED STATES : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	1553.3	1570.2	1648.8	1663.6	1663.9	1687.3	0.2%	1.0%	0.2%	0.0%	1.4%
Solids	447.9	465.9	539.1	535.6	531.5	547.0	0.8%	3.0%	-0.2%	-0.8%	2.9%
Oil	498.3	514.3	431.2	403.4	400.0	399.0	0.6%	-3.5%	-1.7%	-0.8%	-0.3%
Natural gas	454.6	385.9	419.2	441.3	435.7	440.2	-3.2%	1.7%	1.3%	-1.3%	1.0%
Nuclear	69.4	106.0	159.4	176.9	186.0	186.4	8.8%	8.5%	2.6%	5.1%	0.2%
Hydro & Wind	24.0	24.4	23.7	23.0	27.4	30.6	0.4%	-0.6%	-0.8%	19.1%	11.7%
Geothermal	4.6	8.5	13.8	15.0	12.8	13.5	13.1%	10.1%	2.2%	-14.5%	5.4%
Other renewable energy sources	54.5	65.1	62.3	68.4	70.5	70.7	3.6%	-0.9%	2.4%	3.1%	0.3%
Net Imports	307.3	201.8	344.7	453.2	438.6	470.4	-8.1%	11.3%	7.1%	-3.2%	7.2%
Solids	-57.0	-57.3	-64.8	-39.1	-49.4	-51.3	0.1%	2.5%	-11.9%	26.4%	3.7%
Oil	340.3	235.3	376.2	431.3	422.5	453.8	-7.1%	9.8%	3.5%	-2.0%	7.4%
Crude oil	299.0	202.9	350.2	419.3	419.3	440.0	-7.5%	11.5%	4.6%	0.0%	4.9%
Oil products	41.3	32.4	26.0	12.0	3.2	13.8	-4.7%	-4.3%	-17.5%	-73.4%	332.7%
Natural gas	21.7	20.3	33.2	57.1	62.2	64.6	-1.3%	10.3%	14.5%	9.0%	3.7%
Electricity	2.3	3.5	0.2	3.8	3.2	3.2	8.9%	-45.4%	117.9%	-15.7%	-0.2%
Gross Inland Consumption	1811.6	1781.7	1925.7	2058.5	2088.5	2135.0	-0.3%	1.6%	1.7%	1.5%	2.2%
Solids	376.2	425.7	456.7	473.4	475.3	494.0	2.5%	1.4%	0.9%	0.4%	3.9%
Oil	803.9	736.8	770.3	806.2	804.4	832.4	-1.7%	0.9%	1.1%	-0.2%	3.5%
Natural gas	476.8	411.7	439.3	491.7	508.7	504.2	-2.9%	1.3%	2.9%	3.5%	-0.9%
Other (1)	154.7	207.5	259.3	287.2	300.0	304.4	6.0%	4.6%	2.6%	4.5%	1.5%
Electricity Generation in Twh	2427.3	2621.9	3181.5	3451.8	3558.4	3652.0	1.6%	3.9%	2.1%	3.1%	2.6%
Nuclear	266.2	406.7	611.6	678.9	713.8	715.2	8.8%	8.5%	2.6%	5.1%	0.2%
Hydro & wind	278.8	284.0	273.2	262.8	314.1	350.9	0.4%	-0.8%	-1.0%	19.5%	11.7%
Thermal	1882.4	1931.3	2296.8	2510.1	2530.5	2585.9	0.5%	3.5%	2.2%	0.8%	2.2%
Generation Capacity in GWe	603.1	701.9	733.3	764.8	771.4	778.3	3.1%	0.9%	1.1%	0.9%	0.9%
Nuclear	56.5	81.6	99.6	99.1	99.1	100.4	7.6%	4.1%	-0.1%	0.0%	1.3%
Hydro & wind	76.7	85.0	92.4	99.7	100.2	100.3	2.1%	1.7%	1.9%	0.5%	0.1%
Thermal	470.0	535.3	541.3	565.9	572.0	577.6	2.6%	0.2%	1.1%	1.1%	1.0%
Average Load Factor in %	45.9	42.6	49.5	51.5	52.7	53.6	-1.5%	3.0%	1.0%	2.2%	1.7%
Fuel Inputs for Thermal Power Generation	442.9	458.8	558.1	631.0	632.5	644.6	0.7%	4.0%	3.1%	0.2%	1.9%
Solids	292.0	353.7	387.6	432.4	435.6	456.8	3.9%	1.9%	2.8%	0.8%	4.9%
Oil	60.6	25.1	27.3	22.3	15.1	16.9	-16.2%	1.7%	-4.9%	-32.0%	11.9%
Gas	85.6	71.2	89.7	118.5	127.7	117.5	-3.6%	4.7%	7.2%	7.8%	-8.0%
Geothermal	4.6	8.5	13.8	15.0	12.8	13.5	13.1%	10.1%	2.2%	-15.9%	-9.9%
Biomass	0.1	0.4	39.7	42.8	41.1	39.7	26.6%	156.9%	1.9%	-4.0%	-3.2%
Average Thermal Efficiency in %	36.6	36.2	35.4	34.2	34.4	34.5	-0.2%	-0.5%	-0.8%	0.6%	0.3%
Non-Energy Uses	96.2	82.4	107.2	114.1	112.3	120.3	-3.0%	5.4%	1.6%	-1.6%	7.1%
Total Final Energy Demand	1223.7	1196.3	1206.7	1255.3	1280.2	1323.2	-0.5%	0.2%	1.0%	2.0%	3.4%
Solids	56.2	57.4	56.6	28.4	28.0	27.0	0.4%	-0.3%	-15.9%	-1.3%	-3.7%
Oil	601.5	582.4	596.3	620.5	628.0	644.6	-0.6%	0.5%	1.0%	1.2%	2.6%
Gas	337.4	296.6	303.0	319.7	326.4	344.9	-2.5%	0.4%	1.4%	2.1%	5.7%
Electricity	174.2	193.8	226.5	254.2	261.6	269.0	2.2%	3.2%	2.9%	2.9%	2.8%
Heat	0.0	1.4	1.7	7.1	7.5	7.6	-	3.9%	43.6%	4.7%	1.6%
Renewable energy sources	54.4	64.7	22.6	25.4	28.8	30.1	3.6%	-19.0%	2.9%	13.4%	4.6%
CO_2 Emissions in Mt of CO_2	4720.6	4650.8	4930.3	5159.1	5215.0	5379.3	-0.3%	1.2%	1.1%	1.1%	3.2%
Indicators											
Population (Million)	227.73	238.47	249.91	260.68	263.17	265.56	0.9%	0.9%	1.1%	1.0%	0.9%
GDP (index 1985=100)	88.6	100.0	114.6	123.9	126.8	130.3	2.4%	2.8%	2.0%	2.4%	2.8%
Gross Inl Cons./GDP (toe/1990 MECU)	537.0	468.0	441.4	436.4	432.5	430.3	-2.7%	-1.2%	-0.3%	-0.9%	-0.5%
Gross Inl Cons./Capita (toe/inhabitant)	7.96	7.47	7.71	7.90	7.94	8.04	-1.2%	0.6%	0.6%	0.5%	1.3%
Electricity Generated/Capita (kWh/inhabitant)	10659	10995	12731	13242	13521	13752	0.6%	3.0%	1.0%	2.1%	1.7%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	20.7	19.5	19.7	19.8	19.8	20.3	-1.2%	0.2%	0.1%	0.1%	2.2%
Import Dependency %	16.7	11.2	17.6	21.7	20.7	21.8	-7.7%	9.5%	5.4%	-4.7%	5.0%

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

OECD PACIFIC : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	2125.7	2312.6	2519.3	2692.2	2734.5	2810.0	1.7%	1.7%	1.7%	1.6%	2.8%
Solids	541.2	605.6	705.0	715.7	722.3	741.5	2.3%	3.1%	0.4%	0.9%	2.7%
Oil	746.8	828.5	799.4	837.9	846.4	875.2	2.1%	-0.7%	1.2%	1.0%	3.4%
Natural gas	572.7	519.7	577.2	646.0	649.1	671.0	-1.9%	2.1%	2.9%	0.5%	3.4%
Nuclear	105.0	169.8	238.4	282.7	296.2	298.0	10.1%	7.0%	4.4%	4.8%	0.6%
Hydro & Wind	68.6	75.8	77.6	78.6	86.4	89.8	2.0%	0.5%	0.3%	10.0%	3.9%
Geothermal	7.8	13.0	22.9	24.6	23.4	24.7	10.9%	11.9%	1.8%	-4.6%	5.5%
Other renewable energy sources	83.6	100.3	98.7	106.8	110.6	109.8	3.7%	-0.3%	2.0%	3.6%	-0.7%
Net Imports	544.4	304.8	469.9	503.8	463.1	476.8	-11.0%	9.0%	1.8%	-8.1%	2.9%
Solids	-35.2	-53.5	-70.0	-58.8	-70.1	-70.6	8.7%	5.5%	-4.3%	19.2%	0.7%
Oil	580.9	347.8	519.0	538.9	510.3	525.6	-9.8%	8.3%	0.9%	-5.3%	3.0%
Crude oil	501.0	271.7	429.9	481.6	462.7	458.4	-11.5%	9.6%	2.9%	-3.9%	-0.9%
Oil products	79.9	76.1	89.1	57.2	47.6	67.2	-1.0%	3.2%	-10.5%	-16.8%	41.1%
Natural gas	-0.6	11.0	22.5	24.8	24.1	21.1	-	15.3%	2.5%	-2.8%	-12.6%
Electricity	-0.6	-0.6	-1.6	-1.1	-1.2	0.7	-1.8%	23.0%	-9.2%	9.5%	-
Gross Inland Consumption	2602.1	2622.7	2901.0	3122.7	3174.7	3256.3	0.2%	2.0%	1.9%	1.7%	2.6%
Solids	496.2	572.5	612.6	637.1	645.3	670.9	2.9%	1.4%	1.0%	1.3%	4.0%
Oil	1268.7	1154.9	1267.2	1330.7	1327.7	1369.4	-1.9%	1.9%	1.2%	-0.2%	3.1%
Natural gas	572.9	537.0	585.1	663.2	686.1	693.0	-1.3%	1.7%	3.2%	3.4%	1.0%
Other (1)	264.4	358.3	436.1	491.6	515.6	523.0	6.3%	4.0%	3.0%	4.9%	1.4%
Electricity Generation in Twh	3716.2	4184.7	5061.9	5575.4	5737.9	5861.6	2.4%	3.9%	2.4%	2.9%	2.2%
Nuclear	401.2	649.4	913.3	1084.5	1136.2	1143.2	10.1%	7.1%	4.4%	4.8%	0.6%
Hydro & wind	797.8	880.3	901.5	912.1	1003.2	1041.8	2.0%	0.5%	0.3%	10.0%	3.8%
Thermal	2517.2	2655.0	3247.0	3578.8	3598.4	3676.6	1.1%	4.1%	2.5%	0.5%	2.2%
Generation Capacity in GWe	916.8	1083.2	1163.9	1247.2	1263.9	1279.0	3.4%	1.4%	1.7%	1.3%	1.2%
Nuclear	80.0	120.3	148.5	160.4	160.4	163.1	8.5%	4.3%	2.0%	0.0%	1.6%
Hydro & wind	204.3	232.7	255.4	277.1	280.8	281.0	2.6%	1.9%	2.1%	1.4%	0.1%
Thermal	632.6	730.2	760.0	809.7	822.6	835.0	2.9%	0.8%	1.6%	1.6%	1.5%
Average Load Factor in %	46.3	44.1	49.6	51.0	51.8	52.3	-1.0%	2.4%	0.7%	1.6%	0.9%
Fuel Inputs for Thermal Power Generation	591.8	620.7	766.1	861.7	863.0	884.8	1.0%	4.3%	3.0%	0.2%	2.5%
Solids	339.8	422.6	468.9	526.3	533.8	562.2	4.5%	2.1%	2.9%	1.4%	5.3%
Oil	136.6	78.6	97.4	94.6	79.2	81.2	-10.5%	4.4%	-0.7%	-16.2%	2.4%
Gas	107.4	103.7	133.4	169.1	180.7	172.2	-0.7%	5.2%	6.1%	6.9%	-4.7%
Geothermal	7.3	12.4	22.0	23.5	22.3	23.5	11.3%	12.2%	1.7%	-7.7%	0.0%
Biomass	0.7	3.4	44.3	48.2	46.9	45.7	37.5%	67.2%	2.1%	-2.6%	-2.6%
Average Thermal Efficiency in %	36.6	36.8	36.4	35.7	35.8	35.7	0.1%	-0.2%	-0.5%	0.4%	-0.3%
Non-Energy Uses	147.8	140.6	176.9	189.6	190.4	201.2	-1.0%	4.7%	1.8%	0.4%	5.6%
Total Final Energy Demand	1746.7	1744.0	1828.2	1924.5	1969.1	2031.5	0.0%	0.9%	1.3%	2.3%	3.2%
Solids	93.7	98.7	97.7	67.0	68.0	65.6	1.0%	-0.2%	-9.0%	1.5%	-3.5%
Oil	900.6	869.8	925.9	971.4	986.8	1014.5	-0.7%	1.3%	1.2%	1.6%	2.8%
Gas	398.4	367.9	380.6	411.0	422.4	447.2	-1.6%	0.7%	1.9%	2.8%	5.9%
Electricity	269.2	307.5	366.0	407.5	419.2	430.6	2.7%	3.5%	2.7%	2.9%	2.7%
Heat	1.8	3.2	3.6	9.3	9.8	10.2	12.3%	2.6%	26.6%	5.3%	3.9%
Renewable energy sources	82.9	96.9	54.5	58.4	63.0	63.3	3.2%	-10.9%	1.7%	7.9%	0.4%
CO_2 Emissions in Mt of CO_2	6539.4	6529.4	7098.7	7502.6	7594.5	7844.2	0.0%	1.7%	1.4%	1.2%	3.3%
Indicators											
Population (Million)	511.75	543.39	575.32	601.49	608.12	614.35	1.2%	1.1%	1.1%	1.1%	1.0%
GDP (index 1985=100)	87.3	100.0	117.6	126.3	128.8	132.9	2.7%	3.3%	1.8%	2.0%	3.1%
Gross Inl Cons./GDP (toe/1990 MECU)	437.4	385.1	362.3	362.9	361.8	359.8	-2.5%	-1.2%	0.0%	-0.3%	-0.5%
Gross Inl Cons./Capita (toe/inhabitant)	5.08	4.83	5.04	5.19	5.22	5.30	-1.0%	0.9%	0.7%	0.6%	1.5%
Electricity Generated/Capita (kWh/inhabitant)	7262	7701	8798	9269	9435	9541	1.2%	2.7%	1.3%	1.8%	1.1%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	12.8	12.0	12.3	12.5	12.5	12.8	-1.2%	0.5%	0.3%	0.1%	2.2%
Import Dependency %	20.6	11.5	16.0	15.9	14.4	14.5	-11.0%	6.8%	-0.1%	-9.6%	0.5%

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

OECD PACIFIC : MAIN INDICATORS

	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Gross Inland Consumption (Mtoe)	2602.1	2622.7	2901.0	3122.7	3174.7	3256.3	0.2%	2.0%	1.9%	1.7%	2.6%
Public Thermal Power Generation	568.3	594.4	659.9	698.9	697.3	717.6	0.9%	2.1%	1.4%	-0.2%	2.9%
Autoprod. Thermal Power Generation	16.3	13.9	84.4	139.7	143.8	144.0	-3.1%	43.4%	13.4%	2.9%	0.2%
Energy Branch	154.8	159.2	185.7	192.4	193.7	199.8	0.6%	3.1%	0.9%	0.7%	3.1%
Final Energy Consumption	1746.7	1744.0	1828.2	1924.5	1969.1	2031.5	0.0%	0.9%	1.3%	2.3%	3.2%
Industry	592.7	552.7	519.6	519.6	530.0	544.2	-1.4%	-1.2%	0.0%	2.0%	2.7%
Transport	591.3	611.0	698.6	751.6	769.0	789.6	0.7%	2.7%	1.8%	2.3%	2.7%
Tertiary-Domestic	562.7	580.3	610.1	653.4	670.1	697.6	0.6%	1.0%	1.7%	2.6%	4.1%
Energy Intensity (toe/1990 MECU)	437.4	385.1	362.3	362.9	361.8	359.8	-2.5%	-1.2%	0.0%	-0.3%	-0.5%
Public Thermal Power Generation	95.5	87.3	82.4	81.2	79.5	79.3	-1.8%	-1.1%	-0.4%	-2.2%	-0.2%
Autoprod. Thermal Power Generation	2.7	2.0	10.5	16.2	16.4	15.9	-5.7%	38.9%	11.4%	0.9%	-2.9%
Industry	99.6	81.1	64.9	60.4	60.4	60.1	-4.0%	-4.4%	-1.8%	0.0%	-0.4%
Transport	99.4	89.7	87.2	87.3	87.6	87.2	-2.0%	-0.6%	0.0%	0.3%	-0.4%
Tertiary-Domestic	94.6	85.2	76.2	75.9	76.4	77.1	-2.1%	-2.2%	-0.1%	0.6%	0.9%
Energy per capita (Kgoe/inhabitant)	5085	4826	5043	5192	5221	5300	-1.0%	0.9%	0.7%	0.6%	1.5%
Industry	1158	1017	903	864	872	886	-2.6%	-2.3%	-1.1%	0.9%	1.6%
Transport	1156	1124	1214	1249	1264	1285	-0.5%	1.5%	0.7%	1.2%	1.6%
Tertiary-Domestic	1100	1068	1061	1086	1102	1136	-0.6%	-0.1%	0.6%	1.4%	3.0%
Electricity Share (%)											
Final Energy Consumption	15.4%	17.6%	20.0%	21.2%	21.3%	21.2%	2.7%	2.6%	1.4%	0.5%	-0.4%
Industry	19.5%	22.0%	26.9%	30.4%	30.3%	30.2%	2.4%	4.1%	3.0%	-0.1%	-0.5%
Transport	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	1.7%	1.1%	0.0%	-1.1%	-2.1%
Tertiary-Domestic	26.9%	31.6%	36.6%	37.7%	38.1%	37.7%	3.3%	3.0%	0.8%	3.4%	0.0%
Total Renewable Consumption (Mtoe)	160.0	189.0	199.2	209.9	220.5	224.3	3.4%	1.1%	1.3%	5.0%	1.7%
Hydro	68.6	75.7	77.3	78.1	85.9	89.2	2.0%	0.4%	0.3%	10.1%	3.8%
Biomass	83.6	100.3	98.7	106.8	110.6	109.8	3.7%	-0.3%	2.0%	3.6%	-0.7%
Other renewable energy sources	7.8	13.1	23.3	25.1	23.9	25.3	11.0%	12.2%	1.9%	-4.5%	5.6%
Renewable intensity (toe/1990Mecu)	26.9	27.8	24.9	24.4	25.1	24.8	0.6%	-2.2%	-0.5%	3.0%	-1.4%
Renewable per capita (Kgoe/inhabitant)	312.6	347.9	346.3	349.0	362.6	365.1	2.2%	-0.1%	0.2%	3.9%	0.7%
CO_2 Emissions (Mt of CO_2)	6539.4	6529.4	7098.7	7502.6	7594.5	7844.2	0.0%	1.7%	1.4%	1.2%	3.3%
Public Thermal Power Generation	1708.0	1870.1	2092.8	2208.0	2188.7	2302.9	1.8%	2.3%	1.3%	-0.9%	5.2%
Autoprod. Thermal Power Generation	51.2	37.6	117.1	282.5	296.2	301.4	-6.0%	25.5%	24.6%	4.9%	1.7%
Energy Branch	378.2	381.7	436.0	437.8	438.5	453.8	0.2%	2.7%	0.1%	0.1%	3.5%
Industry	1295.9	1135.2	1077.7	981.4	988.7	1011.6	-2.6%	-1.0%	-2.3%	0.8%	2.3%
Transport	1799.2	1860.3	2124.7	2278.5	2332.1	2398.0	0.7%	2.7%	1.8%	2.4%	2.8%
Tertiary-Domestic	1038.6	986.5	979.4	1017.3	1036.0	1085.5	-1.0%	-0.1%	1.0%	1.8%	4.8%
Carbon Intensity (tn of CO2/toe)	2.5	2.5	2.4	2.4	2.4	2.4	-0.2%	-0.3%	-0.5%	-0.4%	0.7%
Public Power Generation	2.3	2.2	2.1	2.1	2.0	2.1	-0.8%	-0.8%	-0.7%	-2.6%	2.7%
Public Thermal Power Generation	3.0	3.1	3.2	3.2	3.1	3.2	0.9%	0.2%	-0.1%	-0.7%	2.2%
Autoprod. Power Generation	2.4	2.0	1.2	1.8	1.9	1.9	-3.9%	-9.4%	10.6%	2.1%	1.5%
Autoprod. Thermal Power Generation	3.1	2.7	1.4	2.0	2.1	2.1	-3.0%	-12.5%	9.9%	1.9%	1.6%
Energy Branch	2.4	2.4	2.3	2.3	2.3	2.3	-0.4%	-0.4%	-0.8%	-0.5%	0.4%
Industry	2.2	2.1	2.1	1.9	1.9	1.9	-1.2%	0.2%	-2.3%	-1.2%	-0.4%
Transport	3.0	3.0	3.0	3.0	3.0	3.0	0.0%	0.0%	-0.1%	0.0%	0.1%
Tertiary-Domestic	1.8	1.7	1.6	1.6	1.5	1.6	-1.6%	-1.1%	-0.8%	-0.7%	0.6%
CO_2 per capita (kg of CO_2/inhabitant)	12778	12016	12339	12473	12489	12768	-1.2%	0.5%	0.3%	0.1%	2.2%
Industry	2532	2089	1873	1632	1626	1647	-3.8%	-2.2%	-3.4%	-0.3%	1.3%
Transport	3516	3423	3693	3788	3835	3903	-0.5%	1.5%	0.6%	1.2%	1.8%
Tertiary-Domestic	2030	1815	1702	1691	1704	1767	-2.2%	-1.3%	-0.2%	0.7%	3.7%
CO_2 per unit of GDP (tn of CO_2/1990 MECU)	1099	959	887	872	865	867	-2.7%	-1.6%	-0.4%	-0.7%	0.1%
Public Thermal Power Generation	287	275	261	257	249	254	-0.9%	-1.0%	-0.5%	-2.8%	2.0%
Autoprod. Thermal Power Generation	9	6	15	33	34	33	-8.5%	21.5%	22.4%	2.8%	-1.3%
Energy Branch	64	56	54	51	50	50	-2.5%	-0.6%	-1.7%	-1.8%	0.4%
Industry	218	167	135	114	113	112	-5.2%	-4.2%	-4.1%	-1.2%	-0.8%
Transport	302	273	265	265	266	265	-2.0%	-0.6%	-0.1%	0.4%	-0.3%
Tertiary-Domestic	175	145	122	118	118	120	-3.7%	-3.3%	-0.8%	-0.1%	1.6%

JAPAN : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	43.2	67.7	75.6	91.1	99.1	102.5	9.4%	2.2%	4.8%	8.8%	3.4%
Solids	10.9	9.6	4.6	3.8	3.4	3.6	-2.5%	-13.8%	-4.4%	-9.7%	3.5%
Oil	0.5	0.6	0.6	0.8	0.8	0.8	2.5%	0.8%	7.7%	-0.8%	-2.3%
Natural gas	1.9	2.0	1.8	2.0	1.9	2.0	0.3%	-1.7%	2.7%	-2.8%	1.0%
Nuclear	21.5	41.6	52.7	70.1	75.9	78.8	14.1%	4.9%	7.4%	8.2%	3.8%
Hydro & Wind	7.6	7.1	7.7	5.8	7.1	6.9	-1.3%	1.5%	-6.8%	22.1%	-1.9%
Geothermal	0.8	1.3	1.5	1.9	2.9	3.4	10.7%	3.1%	6.1%	53.9%	16.5%
Other Renewable energy sources	0.0	5.5	6.7	6.6	7.0	7.1	-	4.1%	-0.4%	5.3%	1.2%
Net Imports	318.8	308.4	369.3	402.2	404.6	415.6	-0.7%	3.7%	2.2%	0.6%	2.7%
Solids	47.5	63.4	69.0	74.8	79.0	81.5	5.9%	1.7%	2.0%	5.6%	3.2%
Oil	251.7	212.1	258.7	278.1	275.6	279.9	-3.4%	4.1%	1.8%	-0.9%	1.6%
Crude oil	223.0	172.2	198.5	235.3	232.1	229.1	-5.0%	2.9%	4.3%	-1.4%	-1.3%
Oil products	28.7	39.9	60.2	42.8	43.5	50.8	6.8%	8.6%	-8.2%	1.6%	17.0%
Natural gas	19.5	33.0	41.7	49.3	50.0	54.3	11.0%	4.8%	4.3%	1.4%	8.5%
Electricity	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Gross Inland Consumption	346.5	367.0	438.8	482.9	497.0	510.4	1.2%	3.6%	2.4%	2.9%	2.7%
Solids	59.6	73.0	74.0	78.8	82.6	84.6	4.1%	0.3%	1.6%	4.9%	2.5%
Oil	235.6	203.6	252.9	268.5	269.6	273.5	-2.9%	4.4%	1.5%	0.4%	1.5%
Natural gas	21.4	35.0	43.3	51.2	52.0	56.1	10.3%	4.3%	4.3%	1.7%	7.8%
Other (1)	29.9	55.5	68.6	84.4	92.9	96.1	13.2%	4.3%	5.3%	10.0%	3.5%
Electricity Generation in Twh	572.5	666.9	850.8	955.9	980.8	1003.2	3.1%	5.0%	3.0%	2.6%	2.3%
Nuclear	82.6	159.6	202.3	269.1	291.3	302.2	14.1%	4.9%	7.4%	8.2%	3.8%
Hydro & wind	88.3	82.9	89.3	67.3	82.1	80.5	-1.3%	1.5%	-6.8%	22.1%	-1.9%
Thermal	401.6	424.5	559.2	619.5	607.4	620.5	1.1%	5.7%	2.6%	-2.0%	2.2%
Generation Capacity in GWe	143.7	169.4	194.7	220.7	226.5	231.2	3.3%	2.8%	3.2%	2.6%	2.0%
Nuclear	15.7	24.7	31.6	40.5	40.5	41.9	9.5%	5.1%	6.4%	0.0%	3.3%
Hydro & wind	29.8	34.3	37.8	41.9	43.8	43.8	2.9%	2.0%	2.6%	4.3%	0.0%
Thermal	98.3	110.3	125.3	138.3	142.3	145.5	2.3%	2.6%	2.5%	2.9%	2.3%
Average Load Factor in %	45.5	45.0	49.9	49.4	49.4	49.5	-0.2%	2.1%	-0.2%	0.0%	0.2%
Fuel Inputs for Thermal Power Generation	87.2	85.9	110.0	122.1	119.7	124.4	-0.3%	5.1%	2.6%	-2.0%	4.0%
Solids	10.5	20.5	25.3	32.1	34.6	36.9	14.3%	4.3%	6.1%	7.9%	6.7%
Oil	60.3	36.4	48.4	48.6	42.4	42.5	-9.6%	5.9%	0.1%	-12.6%	0.1%
Gas	15.6	25.7	31.8	36.3	36.4	38.2	10.5%	4.4%	3.4%	0.1%	5.0%
Geothermal	0.8	1.3	1.5	1.8	2.7	3.2	10.7%	3.1%	4.3%	78.6%	78.0%
Biomass	0.0	2.1	3.0	3.3	3.5	3.6	-	7.9%	2.2%	7.1%	3.2%
Average Thermal Efficiency in %	39.6	42.5	43.7	43.7	43.7	42.9	1.4%	0.6%	0.0%	0.0%	-1.7%
Non-Energy Uses	29.1	28.0	36.8	40.2	43.0	43.3	-0.7%	5.6%	2.2%	6.9%	0.9%
Total Final Energy Demand	204.0	218.3	257.7	279.7	287.3	293.8	1.4%	3.4%	2.1%	2.7%	2.2%
Solids	21.4	22.8	22.5	21.7	22.0	21.4	1.3%	-0.3%	-0.9%	1.5%	-2.6%
Oil	128.6	129.3	151.5	163.0	167.4	171.2	0.1%	3.2%	1.9%	2.7%	2.3%
Gas	9.7	11.8	14.7	18.3	19.1	20.5	3.9%	4.6%	5.7%	3.9%	7.5%
Electricity	44.1	50.8	65.1	72.9	74.8	76.6	2.9%	5.1%	2.9%	2.6%	2.4%
Heat	0.1	0.1	0.2	0.5	0.6	0.6	6.2%	7.9%	23.3%	21.0%	13.5%
Renewable energy sources	0.0	3.4	3.7	3.3	3.4	3.4	-	1.5%	-2.6%	3.6%	-0.9%
CO_2 Emissions in Mt of CO_2	812.2	821.2	966.9	1050.3	1058.6	1085.8	0.2%	3.3%	2.1%	0.8%	2.6%
Indicators											
Population (Million)	116.80	120.75	123.54	124.96	125.57	125.86	0.7%	0.5%	0.3%	0.5%	0.2%
GDP (index 1985=100)	84.7	100.0	125.4	132.7	134.7	140.0	3.4%	4.6%	1.4%	1.5%	3.9%
Gross Inl Cons./GDP (toe/1990 MECU)	219.8	197.2	188.1	195.5	198.3	195.9	-2.1%	-0.9%	1.0%	1.4%	-1.2%
Gross Inl Cons./Capita (toe/inhabitant)	2.97	3.04	3.55	3.86	3.96	4.05	0.5%	3.2%	2.1%	2.4%	2.4%
Electricity Generated/Capita (kWh/inhabitant)	4902	5523	6886	7650	7811	7971	2.4%	4.5%	2.7%	2.1%	2.1%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	7.0	6.8	7.8	8.4	8.4	8.6	-0.4%	2.9%	1.8%	0.3%	2.3%
Import Dependency %	89.0	82.4	83.2	82.1	80.4	80.8	-1.5%	0.2%	-0.3%	-2.1%	0.4%

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

EFTA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	63.6	83.4	131.2	183.1	194.7	220.0	5.6%	9.5%	8.7%	6.4%	13.0%
Solids	0.2	0.4	0.2	0.2	0.2	0.2	12.0%	-10.5%	-0.2%	-3.0%	-21.2%
Oil	25.0	39.5	84.4	132.0	142.3	161.1	9.6%	16.4%	11.9%	7.8%	13.2%
Natural gas	22.8	23.4	24.1	27.6	28.3	36.8	0.6%	0.6%	3.4%	2.5%	30.2%
Nuclear	3.7	5.9	6.2	6.4	6.5	6.6	9.5%	1.0%	0.8%	2.2%	1.0%
Hydro & Wind	10.3	11.9	13.3	13.4	13.9	11.8	2.9%	2.3%	0.0%	3.9%	-15.1%
Geothermal	0.6	0.8	1.0	0.9	1.0	1.0	7.9%	2.8%	-0.9%	5.2%	1.7%
Other Renewable energy sources	1.1	1.6	2.0	2.6	2.6	2.7	7.7%	4.8%	7.2%	-0.6%	2.6%
Net Imports	-21.4	-38.5	-80.4	-131.5	-142.9	-166.6	12.4%	15.9%	13.1%	8.7%	16.5%
Solids	1.3	1.3	1.1	1.0	1.1	1.0	0.2%	-4.2%	-2.7%	11.8%	-4.4%
Oil	-1.0	-18.0	-59.4	-109.7	-120.2	-136.9	79.6%	26.9%	16.6%	9.5%	13.9%
Crude oil	-11.4	-26.9	-65.2	-111.5	-122.9	-139.0	18.8%	19.4%	14.3%	10.3%	13.1%
Oil products	10.4	8.9	5.8	1.7	2.7	2.1	-3.2%	-8.0%	-26.3%	57.4%	-23.2%
Natural gas	-21.0	-21.0	-20.5	-21.6	-22.6	-31.4	-0.1%	-0.4%	1.3%	4.4%	38.9%
Electricity	-0.7	-0.8	-1.5	-1.0	-1.2	0.7	1.3%	14.3%	-9.7%	16.4%	-
Gross Inland Consumption	41.1	45.1	48.6	51.1	50.9	51.0	1.9%	1.5%	1.3%	-0.4%	0.4%
Solids	1.4	1.7	1.3	1.2	1.3	1.2	5.2%	-5.9%	-1.0%	3.0%	-4.6%
Oil	23.1	21.5	22.7	21.7	21.2	21.7	-1.4%	1.1%	-1.2%	-2.3%	2.7%
Natural gas	1.7	2.4	3.6	5.9	5.7	5.4	7.1%	8.1%	13.2%	-4.4%	-5.0%
Other (1)	14.9	19.4	20.9	22.2	22.8	22.7	5.4%	1.5%	1.5%	2.4%	-0.3%
Electricity Generation in Twh	135.1	162.2	180.7	182.5	189.3	165.2	3.7%	2.2%	0.2%	3.7%	-12.7%
Nuclear	14.3	22.6	23.6	24.4	24.9	25.1	9.5%	0.9%	0.8%	2.2%	1.0%
Hydro & wind	119.5	138.1	155.1	155.1	161.2	136.8	2.9%	2.3%	0.0%	3.9%	-15.1%
Thermal	1.3	1.5	2.0	3.1	3.2	3.3	3.2%	5.9%	11.9%	5.1%	1.4%
Generation Capacity in GWe	34.8	39.8	43.7	45.2	45.4	44.7	2.7%	1.9%	0.8%	0.5%	-1.5%
Nuclear	1.9	2.9	3.0	3.1	3.1	3.1	8.5%	0.2%	0.8%	0.0%	0.0%
Hydro & wind	31.8	35.6	39.3	40.6	40.9	40.2	2.3%	2.0%	0.8%	0.5%	-1.7%
Thermal	1.1	1.2	1.5	1.5	1.5	1.5	2.0%	4.2%	0.9%	0.0%	0.0%
Average Load Factor in %	44.3	46.6	47.2	46.1	47.6	42.2	1.0%	0.3%	-0.6%	3.2%	-11.4%
Fuel Inputs for Thermal Power Generation	0.5	0.9	1.1	1.4	1.5	1.6	11.7%	3.9%	7.5%	4.6%	4.7%
Solids	0.0	0.1	0.0	0.0	0.0	0.0	16.9%	-0.3%	-4.0%	-5.9%	2.2%
Oil	0.2	0.2	0.1	0.1	0.1	0.1	2.9%	-10.7%	-14.6%	5.1%	33.9%
Gas	0.1	0.1	0.1	0.1	0.2	0.2	-1.4%	1.0%	6.8%	14.0%	31.1%
Geothermal	0.1	0.2	0.4	0.4	0.4	0.5	23.4%	10.6%	1.2%	10.9%	20.7%
Biomass	0.2	0.3	0.5	0.8	0.8	0.8	17.7%	6.0%	15.7%	0.7%	-3.9%
Average Thermal Efficiency in %	21.1	14.2	15.6	18.3	18.4	17.8	-7.6%	1.9%	4.1%	0.5%	-3.2%
Non-Energy Uses	2.2	2.5	2.5	2.2	2.5	2.4	2.1%	0.0%	-2.8%	14.8%	-3.3%
Total Final Energy Demand	33.0	35.7	36.9	37.8	38.6	39.6	1.6%	0.6%	0.7%	1.9%	2.8%
Solids	1.2	1.5	1.2	1.1	1.2	1.2	4.9%	-4.8%	-1.3%	6.7%	-3.6%
Oil	19.7	19.2	19.0	18.9	19.1	20.0	-0.5%	-0.2%	-0.2%	1.0%	5.1%
Gas	0.7	1.1	1.5	1.9	2.1	2.2	9.4%	5.9%	5.3%	10.1%	6.8%
Electricity	9.7	11.7	12.7	13.2	13.5	13.4	3.8%	1.6%	1.0%	1.9%	-0.4%
Heat	0.7	0.9	1.0	1.0	1.1	1.0	5.5%	2.3%	1.3%	3.1%	-1.7%
Renewable energy sources	0.9	1.2	1.5	1.7	1.7	1.8	5.5%	3.9%	4.1%	-1.0%	5.8%
CO_2 Emissions in Mt of CO_2	72.2	74.0	75.7	81.1	81.0	83.5	0.5%	0.5%	1.7%	-0.1%	3.2%
Indicators											
Population (Million)	10.70	10.93	11.29	11.64	11.71	11.76	0.4%	0.7%	0.8%	0.6%	0.4%
GDP (index 1985=100)	90.6	100.0	112.4	117.5	119.6	121.9	2.0%	2.4%	1.1%	1.8%	1.9%
Gross Inl Cons./GDP (toe/1990 MECU)	185.5	184.4	176.5	177.7	173.8	171.2	-0.1%	-0.9%	0.2%	-2.2%	-1.5%
Gross Inl Cons./Capita (toe/inhabitant)	3.85	4.13	4.30	4.39	4.34	4.34	1.4%	0.8%	0.5%	-1.0%	-0.1%
Electricity Generated/Capita (kWh/inhabitant)	12628	14839	16006	15682	16172	14052	3.3%	1.5%	-0.5%	3.1%	-13.1%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	6.7	6.8	6.7	7.0	6.9	7.1	0.1%	-0.2%	0.9%	-0.7%	2.7%
Import Dependency %	-51.7	-84.6	-163.9	-254.4	-276.8	-321.1	10.4%	14.1%	11.6%	8.8%	16.0%

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

EFTA : MAIN INDICATORS

	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Gross Inland Consumption (Mtoe)	41.1	45.1	48.6	51.1	50.9	51.0	1.9%	1.5%	1.3%	-0.4%	0.4%
Public Thermal Power Generation	0.4	0.6	0.6	0.9	0.9	0.9	8.8%	1.5%	9.2%	0.7%	-3.6%
Autoprod. Thermal Power Generation	0.1	0.1	0.1	0.2	0.2	0.3	10.4%	-0.5%	16.8%	11.3%	35.8%
Energy Branch	1.8	2.2	3.4	5.5	4.9	4.5	4.4%	8.8%	12.9%	-10.3%	-7.9%
Final Energy Consumption	33.0	35.7	36.9	37.8	38.6	39.6	1.6%	0.6%	0.7%	1.9%	2.8%
Industry	10.7	11.3	9.8	10.1	10.3	10.2	1.0%	-2.8%	0.6%	2.1%	-0.5%
Transport	7.8	8.9	10.8	11.1	11.1	11.4	2.5%	4.0%	0.6%	0.6%	2.7%
Tertiary-Domestic	14.4	15.5	16.2	16.7	17.1	18.0	1.5%	0.9%	0.7%	2.7%	4.9%
Energy Intensity (toe/1990 MECU)	185.5	184.4	176.5	177.7	173.8	171.2	-0.1%	-0.9%	0.2%	-2.2%	-1.5%
Public Thermal Power Generation	1.7	2.4	2.3	3.1	3.1	2.9	6.7%	-0.8%	8.0%	-1.1%	-5.4%
Autoprod. Thermal Power Generation	0.3	0.4	0.3	0.6	0.6	0.9	8.3%	-2.8%	15.5%	9.3%	33.2%
Industry	48.5	46.2	35.8	35.1	35.2	34.4	-0.9%	-5.0%	-0.5%	0.2%	-2.4%
Transport	35.4	36.2	39.3	38.5	38.1	38.4	0.5%	1.6%	-0.5%	-1.2%	0.8%
Tertiary-Domestic	64.9	63.4	59.0	58.0	58.5	60.2	-0.5%	-1.4%	-0.4%	0.8%	3.0%
Energy per capita (Kgoe/inhabitant)	3846	4128	4300	4387	4344	4341	1.4%	0.8%	0.5%	-1.0%	-0.1%
Industry	1004	1035	871	867	880	872	0.6%	-3.4%	-0.1%	1.5%	-0.9%
Transport	733	811	957	952	952	973	2.0%	3.4%	-0.1%	0.0%	2.2%
Tertiary-Domestic	1345	1420	1437	1431	1461	1527	1.1%	0.2%	-0.1%	2.1%	4.5%
Electricity Share (%)											
Final Energy Consumption	29.5%	32.8%	34.5%	35.0%	35.0%	33.9%	2.2%	1.0%	0.4%	0.0%	-3.1%
Industry	43.1%	48.7%	57.4%	55.3%	55.6%	53.9%	2.5%	3.3%	-0.9%	0.5%	-3.1%
Transport	3.0%	2.8%	2.7%	3.1%	3.2%	3.1%	-1.5%	-0.7%	3.6%	2.7%	-3.5%
Tertiary-Domestic	33.7%	38.3%	41.7%	43.8%	43.2%	42.1%	2.6%	1.7%	1.2%	2.8%	-3.9%
Total Renewable Consumption (Mtoe)	11.9	14.3	16.3	16.9	17.4	15.4	3.7%	2.7%	0.9%	3.3%	-11.5%
Hydro	10.3	11.9	13.3	13.3	13.9	11.8	2.9%	2.3%	0.0%	3.9%	-15.1%
Biomass	1.1	1.6	2.0	2.6	2.6	2.7	7.7%	4.8%	7.2%	-0.6%	2.6%
Other renewable energy sources	0.6	0.8	1.0	0.9	1.0	1.0	7.9%	2.8%	-0.6%	5.4%	1.8%
Renewable intensity (toe/1990Mecu)	53.8	58.4	59.2	58.8	59.6	51.8	1.6%	0.3%	-0.2%	1.5%	-13.2%
Renewable per capita (Kgoe/inhabitant)	1114.9	1307.0	1442.2	1450.9	1490.3	1312.6	3.2%	2.0%	0.2%	2.7%	-11.9%
CO_2 Emissions (Mt of CO_2)	72.2	74.0	75.7	81.1	81.0	83.5	0.5%	0.5%	1.7%	-0.1%	3.2%
Public Thermal Power Generation	0.4	0.5	0.4	0.2	0.2	0.2	3.4%	-6.9%	-14.7%	2.3%	-11.4%
Autoprod. Thermal Power Generation	0.2	0.3	0.2	0.2	0.2	0.5	9.1%	-6.4%	4.6%	2.0%	139.6%
Energy Branch	4.2	5.1	8.2	13.4	11.9	11.1	3.9%	9.8%	13.2%	-11.2%	-6.3%
Industry	18.3	16.9	11.5	11.7	11.8	12.3	-1.5%	-7.4%	0.3%	1.2%	4.5%
Transport	23.3	26.4	32.2	32.9	33.1	34.0	2.5%	4.1%	0.5%	0.5%	2.8%
Tertiary-Domestic	25.5	24.5	23.0	22.4	23.4	25.1	-0.8%	-1.2%	-0.7%	4.6%	7.2%
Carbon Intensity (tn of CO_2/toe)	1.8	1.6	1.6	1.6	1.6	1.6	-1.3%	-1.0%	0.4%	0.3%	2.8%
Public Power Generation	0.0	0.0	0.0	0.0	0.0	0.0	-1.9%	-8.8%	-15.1%	-1.5%	-2.6%
Public Thermal Power Generation	1.2	0.9	0.6	0.2	0.2	0.2	-5.0%	-8.3%	-21.9%	1.6%	-8.1%
Autoprod. Power Generation	0.1	0.2	0.1	0.1	0.1	0.4	7.6%	-6.4%	1.3%	3.3%	160.2%
Autoprod. Thermal Power Generation	3.0	2.8	2.1	1.3	1.2	2.1	-1.2%	-5.9%	-10.4%	-8.4%	76.5%
Energy Branch	2.4	2.3	2.4	2.5	2.4	2.5	-0.5%	1.0%	0.2%	-1.0%	1.7%
Industry	1.7	1.5	1.2	1.2	1.1	1.2	-2.6%	-4.8%	-0.4%	-0.8%	5.1%
Transport	3.0	3.0	3.0	3.0	3.0	3.0	0.0%	0.0%	-0.1%	-0.1%	0.1%
Tertiary-Domestic	1.8	1.6	1.4	1.3	1.4	1.4	-2.2%	-2.1%	-1.4%	1.9%	2.1%
CO_2 per capita (kg of CO_2/inhabitant)	6746	6772	6708	6964	6915	7104	0.1%	-0.2%	0.9%	-0.7%	2.7%
Industry	1712	1551	1021	1002	1008	1049	-2.0%	-8.0%	-0.5%	0.6%	4.1%
Transport	2180	2419	2856	2830	2828	2895	2.1%	3.4%	-0.2%	0.0%	2.4%
Tertiary-Domestic	2381	2245	2041	1925	2002	2136	-1.2%	-1.9%	-1.4%	4.0%	6.7%
CO2 per unit of GDP (tn of CO2/1990 MECU)	325	302	275	282	277	280	-1.5%	-1.9%	0.6%	-1.9%	1.2%
Public Thermal Power Generation	2	2	1	1	1	1	1.4%	-9.0%	-15.6%	0.5%	-13.0%
Autoprod. Thermal Power Generation	1	1	1	1	1	2	6.9%	-8.5%	3.5%	0.2%	135.1%
Energy Branch	19	21	30	47	41	37	1.8%	7.3%	11.9%	-12.7%	-8.1%
Industry	83	69	42	41	40	41	-3.5%	-9.6%	-0.8%	-0.6%	2.6%
Transport	105	108	117	115	113	114	0.5%	1.7%	-0.6%	-1.2%	0.9%
Tertiary-Domestic	115	100	84	78	80	84	-2.7%	-3.5%	-1.8%	2.7%	5.2%

NORWAY : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	55.7	72.9	120.1	170.6	182.4	208.1	5.5%	10.5%	9.2%	6.9%	14.1%
Solids	0.2	0.4	0.2	0.2	0.2	0.2	12.0%	-10.5%	-0.2%	-3.0%	-21.2%
Oil	25.0	39.5	84.4	132.0	142.3	161.1	9.6%	16.4%	11.9%	7.8%	13.2%
Natural gas	22.8	23.4	24.1	27.6	28.3	36.8	0.5%	0.6%	3.4%	2.5%	30.2%
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Hydro & Wind	7.2	8.8	10.4	9.6	10.4	8.9	4.1%	3.4%	-2.0%	8.8%	-14.6%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	0.6	0.8	1.0	1.2	1.2	1.2	5.9%	4.3%	4.8%	-2.7%	2.9%
Net Imports	-36.2	-52.4	-96.3	-146.2	-157.6	-182.6	7.7%	12.9%	11.0%	7.8%	15.8%
Solids	0.8	0.9	0.7	0.8	0.9	0.9	2.0%	-5.2%	4.0%	9.8%	-0.6%
Oil	-15.1	-31.1	-73.5	-123.4	-133.1	-150.5	15.5%	18.8%	13.8%	7.9%	13.0%
Crude oil	-16.1	-31.2	-68.4	-116.5	-127.7	-144.5	14.1%	17.0%	14.2%	9.6%	13.1%
Oil products	1.0	0.2	-5.1	-6.9	-5.4	-6.0	-29.4%	-	7.9%	-21.1%	10.7%
Natural gas	-21.9	-22.2	-22.2	-23.6	-24.8	-33.8	0.3%	0.0%	1.6%	4.9%	36.2%
Electricity	0.0	0.0	-1.4	0.0	-0.6	0.8	3.3%	96.4%	-69.8%	4950.1%	-
Gross Inland Consumption	18.8	20.3	21.5	23.4	23.5	23.1	1.6%	1.1%	2.2%	0.4%	-1.6%
Solids	1.0	1.2	0.9	1.0	1.0	1.0	3.1%	-5.9%	3.4%	3.7%	-1.8%
Oil	9.2	8.4	8.6	7.7	8.0	8.2	-1.7%	0.4%	-2.5%	3.4%	3.1%
Natural gas	0.9	1.2	2.0	3.9	3.5	3.0	6.3%	10.9%	18.7%	-11.8%	-13.3%
Other (1)	7.8	9.6	10.1	10.8	11.0	10.9	4.3%	1.0%	1.8%	2.3%	-1.3%
Electricity Generation in Twh	83.8	102.7	121.6	112.2	122.1	104.5	4.2%	3.4%	-2.0%	8.8%	-14.4%
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Hydro & wind	83.6	102.4	121.1	111.5	121.3	103.6	4.1%	3.4%	-2.0%	8.8%	-14.6%
Thermal	0.1	0.3	0.5	0.7	0.7	0.8	20.4%	6.1%	9.9%	4.7%	18.1%
Generation Capacity in GWe	20.0	23.7	27.1	27.5	27.6	27.7	3.4%	2.8%	0.3%	0.4%	0.3%
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Hydro & wind	19.8	23.4	26.9	27.2	27.3	27.4	3.4%	2.8%	0.3%	0.4%	0.3%
Thermal	0.2	0.3	0.3	0.3	0.3	0.3	1.5%	-0.3%	4.0%	0.0%	0.0%
Average Load Factor in %	47.8	49.6	51.2	46.6	50.5	43.1	0.7%	0.6%	-2.3%	8.3%	-14.6%
Fuel Inputs for Thermal Power Generation	0.0	0.1	0.1	0.1	0.2	0.2	23.1%	1.3%	7.2%	6.9%	7.4%
Solids	0.0	0.0	0.0	0.0	0.0	0.0	20.5%	12.7%	3.1%	-4.5%	5.8%
Oil	0.0	0.1	0.0	0.0	0.0	0.0	19.9%	-50.5%	-100.0%	-	-
Gas	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	22.4%	27.3%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Biomass	0.0	0.0	0.1	0.1	0.1	0.1	-	42.8%	4.0%	8.7%	2.6%
Average Thermal Efficiency in %	33.1	29.5	37.2	40.9	40.1	44.2	-2.2%	4.7%	2.4%	-2.1%	10.2%
Non-Energy Uses	1.6	1.9	1.8	1.6	1.9	1.9	4.1%	-1.0%	-3.1%	19.2%	-3.1%
Total Final Energy Demand	14.8	15.9	16.2	17.0	17.2	17.8	1.4%	0.4%	1.2%	1.4%	3.2%
Solids	0.9	1.0	0.8	0.9	1.0	1.0	2.5%	-4.5%	3.2%	8.4%	-0.6%
Oil	6.9	6.2	6.1	6.2	6.2	6.8	-2.1%	-0.2%	0.3%	0.4%	9.7%
Gas	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Electricity	6.4	7.9	8.3	8.8	8.9	8.8	4.1%	1.2%	1.3%	1.9%	-0.8%
Heat	0.0	0.0	0.1	0.1	0.1	0.1	-	14.1%	6.9%	8.2%	2.7%
Renewable energy sources	0.6	0.8	0.9	1.1	1.0	1.1	5.3%	2.1%	4.8%	-3.5%	3.0%
CO_2 Emissions in Mt of CO_2	28.1	27.7	29.7	35.3	34.2	35.2	-0.3%	1.4%	4.4%	-3.1%	3.1%
Indicators											
Population (Million)	4.09	4.15	4.24	4.34	4.36	4.38	0.3%	0.4%	0.6%	0.5%	0.5%
GDP (index 1985=100)	85.7	100.0	108.6	125.4	129.8	136.7	3.1%	1.7%	3.6%	3.6%	5.3%
Gross Inl Cons./GDP (toe/1990 MECU)	263.0	243.5	236.6	224.0	217.1	202.8	-1.5%	-0.6%	-1.4%	-3.1%	-6.5%
Gross Inl Cons./Capita (toe/inhabitant)	4.61	4.89	5.06	5.41	5.40	5.28	1.2%	0.7%	1.7%	-0.1%	-2.1%
Electricity Generated/Capita (kWh/inhabitant)	20497	24736	28675	25869	28001	23844	3.8%	3.0%	-2.5%	8.2%	-14.8%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	6.9	6.7	7.0	8.1	7.8	8.0	-0.7%	1.0%	3.8%	-3.6%	2.5%
Import Dependency %	-189.8	-253.9	-439.9	-608.9	-650.5	-763.4	6.0%	11.6%	8.5%	6.8%	17.4%

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

PART IV CENTRAL AND EASTERN EUROPE

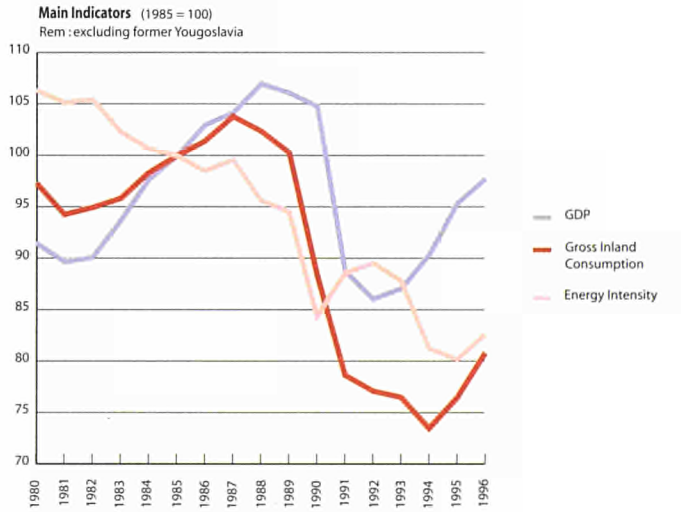
The partition of Central and Eastern Countries into two groups does not reflect accurately the geographical and political situation and originates purely from statistical conventions and practises. The geographical group -Baltic States- is introduced in order to complete the energy presentation to cover all regions of the world. Given the complexities and differences between national, OECD and SOEC statistical conventions, attempts to integrate Estonian, Latvian and Lithuanian energy statistics before 1991 into CEEC summary sheet had unsatisfactory results thus necessitating the current ad hoc solution.

A major characteristic of all these countries is the fact that 10 of them are candidates for entry into the European Union: Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. The Commission's communication "Agenda 2000" gives a scrupulous assessment of the preparedness for membership of the ten applicant countries and recommends that accession negotiations start with Hungary, Poland,, Estonia, the Czech Republic and Slovenia. These are judged as being closest to fulfilling criteria set by the European Council at its summit in Copenhagen in June 1993. Negotiations with them will open early in 1998, as well as Cyprus whose application has already received a favourable sign from the Commission. Meanwhile, the door remains open to Bulgaria, Romania, Latvia, Lithuania and Slovakia and they will be invited into forming partnerships with the EU to help speed up their preparations for membership.

Central and Eastern Europe: Major trends (1985-1996)

- Period marked by reforms and restructuring in many countries inducing a deep recession but GDP rebounded after 1993
- Common downward trend (-21 to -25% since 1988) in both gross inland energy consumption and energy production
- Reduction of final energy demand concentrated on solid fuels and natural gas
- Transport sector shifted to individual cars as a result of increasing standards of living
- Increased share of electricity in final energy consumption, focused on tertiary-domestic sector
- Contribution of solid fuels in gross inland energy declined but still dominated
- Common downward trend in both energy production and gross inland energy consumption
- Large predominance of solid fuels to cover electricity production
- Reform and privatisation of the power industry is under way
- Refinery industry in need of restructuring and upgrading
- Energy intensity has improved by about 2.2% per year on average between 1985 and 1995, but rebounded in 1996
- Improvement in energy intensity driven by industry and the tertiary-domestic sector
- CO_2 emissions reduced by 16.5% between 1990 and 1995 but increased by 7.4% in 1996
- Energy import dependency is increasing

This region includes the following countries: Albania, Bulgaria, the Czech Republic, Hungary, Poland, Romania, the Slovak Republic and the Republics of the former Yugoslavia which represents altogether a stable population of around 122 million inhabitants. Given the improvement of available statistical data, the Czech and Slovak Republics will be shown individually, while the "former Yugoslavia" still includes, for statistical reasons related to the political situation prevailing in this region since 1992, all the republics emerging from the partition of that country. For the most recent years (period 1991-1996), when available, the data for the newly formed independent states, especially Slovenia, has been given to complement the existing aggregate data, to reflect, as realistically as possible, the new geopolitical climate of the region.



[1] Analysis excludes the former Yugoslavia for obvious statistical reasons.

CEEC : GDP (1985=100)

	1985	1990	1993	1994	1995	1996
CEEC	100	104.80	87.12	90.43	95.39	97.82
Poland	100	98.46	97.56	102.63	109.81	116.18
Hungary	100	104.12	88.41	91.01	92.36	93.56
Czech Republic	100	147.67	93.13	95.65	101.34	105.50
Slovakia	100	107.26	81.81	85.32	91.92	98.27
Bulgaria	100	107.91	83.55	83.97	85.37	76.07
Romania	100	86.11	70.64	73.50	78.72	79.51

Period marked by reforms in many countries that induced a deep recession but GDP rebounded after 1993.

Eastern European countries are undergoing major political and economic structural reforms. Previously under strong central government control, they have now begun to decentralise their economies through various programs, consisting of industrial restructuring and privatisation. Former state-owned firms were internally restructured, shifting from public ownership with state control to various types of private ownership. To address the needs of potential investors for clearly defined property rights, each country has attempted to develop viable legal structures, contract laws, regulatory systems, capital markets, trade policies, and domestic bond and stock markets. Eastern countries have begun to rebound from the region's economic setbacks. Since 1993 they have experienced positive levels of economic growth, ranging from 1.1% in 1993 to 5.5% in 1995 and 2.5% in 1996 even if the different countries present contrasting patterns. Poland, the dominant economy in the region, accounting for about 40% of its total income, was the first to recover, experiencing a positive growth in 1992. The Czech Republic, which has the second highest level of GDP in the region, showed a slight decline in 1993 but joined the rest of the countries in 1994 when they all had positive economic growth.

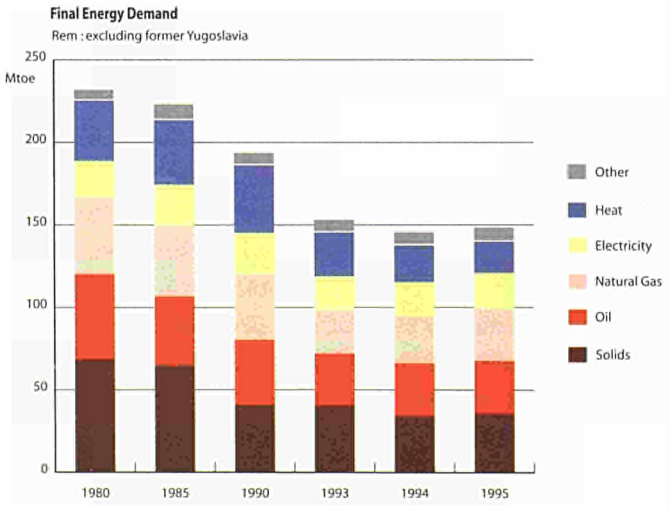
ENERGY OUTLOOK

Common downward trend (-21 to -25% since 1988) in both gross inland energy consumption and energy production

Large variations of energy consumption have been observed in Eastern Countries as in the CIS, since the beginning of the economic and structural reforms. In addition, these countries were characterised, before 1990, by the highest energy intensity in the world after Former Soviet Union. This situation resulted from the industrial structure based on high-intensive industries (steel, cement, chemical, ...) that used energy very inefficiently. Given the economic crisis faced by the Central and Eastern European Countries since 1988, a common downward trend has been observed in both energy production (in 1996 down to 75% of its 19885 value), and gross inland consumption (in 1996 down to 79% of its 1988 value). This evolution is of importance in the context of the Kyoto protocol because the particular energy situation of both Central and Eastern Countries and the CIS had slowed down the growth of energy consumption at the world level and as a consequence the growth of greenhouse gas emissions. But this positive impact will disappear with the ongoing rebound of the economy in the Eastern Countries. As an example of this, their gross inland energy consumption increased by 10% between 1994 and 1996, and their CO_2 emissions by 8.6%.

Reduction of final energy demand concentrated on solid fuels and natural gas...

The **final energy demand** peaked in 1987 (231.6 Mtoe) and has declined since then by 36% to reach a minimum of 148.9Mtoe in 1994. In 1995 for the first time, energy demand rebounded by 3% at the regional level and this trend is expected to continue in the near future with the recovery of the economy. The drop in demand was mainly at the expense of solid fuels (-55% between 1987 and 1995), and gas (-36%), and distributed heat (-17%). The reduction of solid fuel consumption has been marked both by the reduction of direct uses for steam and heat production, and by the marked slowdown of steel production. The evolution of gas consumption has been influenced by supply shortages imposed by Russia who started to invoice their supplies at the world market price in place of special conditions prevailing before 1989. Oil, sustained by the stable demand from the transport sector marked by a growing number of private cars, limits its decline to 27%.



Distributed heat largely used for room heating declined by 17% in the absence of a systematic metering of consumption, and electricity, contributing largely to the modernisation of industry and improvements of standards of living to 15%. In this way, oil and electricity are reinforcing their share in the total final demand.

The rebound of energy consumption observed in 1995 has been mainly covered by natural gas. This illustrates the fact that economic growth will occur in the context of shifting patterns of energy use. Outside the transportation sector, serious efforts to increase reliance on natural gas are underway in part because of economics (electricity sector, ...) and in part because of environmental concerns.

Transport sector shifted to individual cars as a result of increasing standards of living...

The share of the transport sector in the final energy consumption increased from 9% in 1985 to 13% in 1995, to the detriment of industry (42% in 1995 vs. 46% in 1985), when the share of tertiary-domestic remained stable. During the restructuring period, the transport sector was marked by a contrasting evolution: from one part motorization increased very rapidly but starting from a very low level, and at the same time the per capita consumption of energy in the transport sector remained quite stable since 1985 at about 195 kgoe. This represents only 25% of the average European consumption per capita. The main explanation of this behaviour is a major shift from goods transportation with reduced volumes as a result of the decline of industrial activities, to individual transportation associated with the increasing standards of living.

The high contribution of industry reflects the predominance of heavy industries based on old technologies inherited from the socialist regime. Despite the modernisation that is under way, the structure of the final consumption remains closer to the developing countries than to the OECD region.

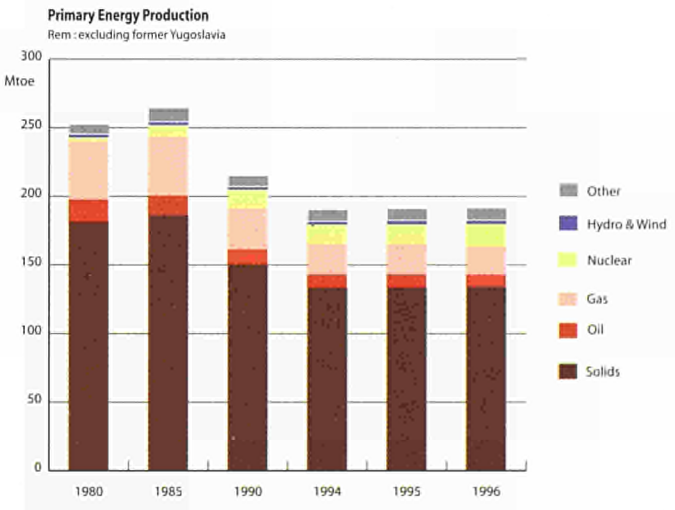
Two contrasting elements have to be considered when analysing the evolution of the tertiary-domestic sector. At the domestic level, metering of real energy consumption and effective tariffing of consumption was under development but was not yet a reference situation in all regions. In many situations, energy was still tariffed on a contractual basis, for example, in function with the square meters occupied. This situation does not favour rational use of energy. At the tertiary level, services and commercial activities were still under development and will issue increasing energy demand in the near future even if improved technological solutions are applied.

Increasing share of electricity in final energy demand, focused on the tertiary-domestic sector...

The share of electricity in final consumption reached 14.4% in 1995, from 10.9% in 1985 and 9.5% in 1980. But it must be underlined that contribution of the transport sector is higher than in the OECD region for two reasons: a larger contribution of railways for long distance transport and the electrification of public transport (trams and trolley buses) in a number of large and medium sized cities. A major evolution was observed in the tertiary-domestic sector where the electricity share increased from 7.2% in 1980 to 15.7% in 1995, reflecting the improvement of living standards.

Contribution of solid fuels in gross inland energy declined but still dominated...

Solid fuels (47% in 1995 from 54% in 1980), followed equally by oil (22% in 1996 from 25% in 1980) and gas (22% in 1996 from 18% in 1980) dominated **Gross inland energy consumption**. Poland with a consumption of about 76 Mtoe in 1996 was the key consumer in Eastern Countries, representing about 60% of the region's consumption. In other countries, coal consumption is dominated by the use of low quality subbituminous coal and lignite, produced from local reserves. In Poland the contribution of solid fuels in 1996 reached 70% of gross inland consumption. The second largest consumer was the Czech republic where solid fuels based on indigenous production, contributed for about 52% of gross inland consumption. At the opposite end, in Romania, producer of both oil and gas, solid fuels represented only 23% and in Hungary, historically oriented to gas consumption (38% of gross inland consumption in 1996), solid fuels accounted for only 17%. During the 80's the contribution of nuclear power increased significantly but has remained stable since 1990. Renewable



sources, mainly biomass, quite stable in volume since 1985, have remained marginal.

Since the peak of 1987, the reduction of consumption of about 75 Mtoe has been covered respectively by solid fuels (70%), oil (20%) and natural gas (10%). The evolution of fossil fuel consumption by the electricity sector where the reduction of consumption was concentrated on solid fuels and oil products accentuated the trend observed for the fossil fuels in the final consumption. At the same time, non-fossil fuel's consumption was stabilising, retrieving in 1996 its peak observed in 1988 thanks to limited gains in the three components: hydro, nuclear and biomass.

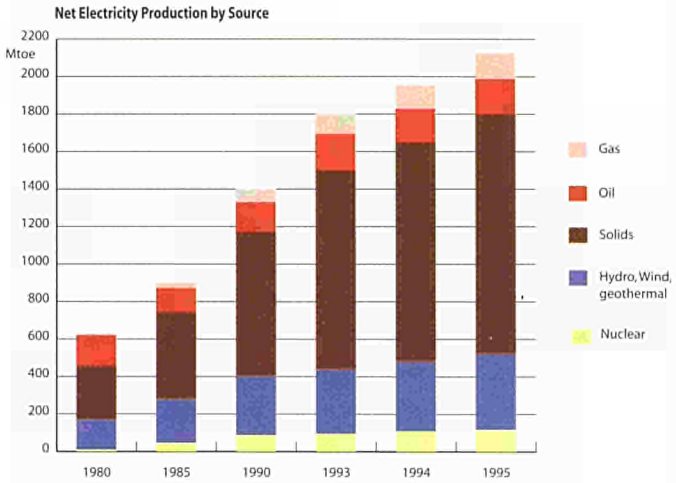
Common downward trend in both energy production and gross inland energy consumption...

Indigenous **energy production** has undergone an evolution adjusted to the gross inland energy consumption; the energy sector being also affected by the restructuring, the required investment to improve obsolete equipment and the closing of non-profitable sites. Since 1985 the reduction of fossil fuels production (46 Mtoe for solid fuels, 21 Mtoe for gas and 4 Mtoe for oil) has been compensated only by a nuclear power increase (3 Mtoe). The main reduction occurred in Poland and the Czech republic for solid fuels and in Romania for oil and gas.

Large predominance of solid fuels to cover electricity production...

Central and Eastern European countries have reinforced their self-sufficiency for **electricity supply** since 1990 to the point of being almost totally self-sufficient since 1993. Electricity is mainly produced by thermal power stations (76% in 1995 declining from 85% in 1985); followed by nuclear (15% in 1995 increasing from 9% in 1985) and hydro (9% in 1995 thanks to a major jump by 23% in 1995 when production remained quite stable since 1985). Thermal power stations are mainly fired with solid fuels (about 80% in 1995), oil and gas covering respectively 7% and 13% of the rest.

As electricity generation peaked at 386 TWh in 1989 and only reached 362 TWh in 1995, it has not been necessary to expand capacity since 1987. But, as the power industry capacity was characterised by an aging, inefficient and polluting capacity, a lot of investment has been necessary to refurbish existing capacities with a view to improving their performances and reduce the production costs and to reduce impact on the environment. In Romania a Canadian-build reactor at Cernavoda was opened in April 1966. The plan, which was expected to begin operation commercially at the end of the year, is the first western-designed nuclear power plant in Eastern Europe.



The development of renewable energy sources has been almost limited to improvements of existing hydroelectric facilities and small pilot projects for other renewables such as geothermal and wind. Hydroelectricity represents a substantial source of electricity in only a few countries, such as Romania (23% of all electricity generated) and Slovakia (13%). Most of the potential for expansion lies in Albania, Bulgaria and Romania, as well as in the former Yugoslav republics. However, these countries have found it difficult to secure financing for expansion projects.

Reform and privatisation of the power industry is under way...

The traditional electricity industries in this region were vertically integrated monopolies controlled by central governments. But reforms have started with respect to structure, ownership, and regulation. Several of the countries have attempted to reform their electricity industries, motivated in part by the desire to ensure availability of foreign funds needed for upgrades and expansion. Among them, Hungary has adopted the most ambitious privatisation program. In 1991, the state-owned electricity company was converted into a holding company (MVR) for six regional power distribution companies. Subsequently, Hungary has sold the six power distribution companies and all generation assets, except for nuclear power and the transmission grid. Poland has desegmented its power sector and now allows competition among independent generation companies. Independent transmission and distribution companies have been created that operate separately from the generating companies. Privatisation of electricity generation and distribution is also being considered, although the Polish government plans to maintain 51% ownership of the transmission grid. The Czech Republic is also privatising its national generation and transmission company, and plans have been made to privatise regional distribution companies.

Refinery industry in need of restructuring and upgrading...

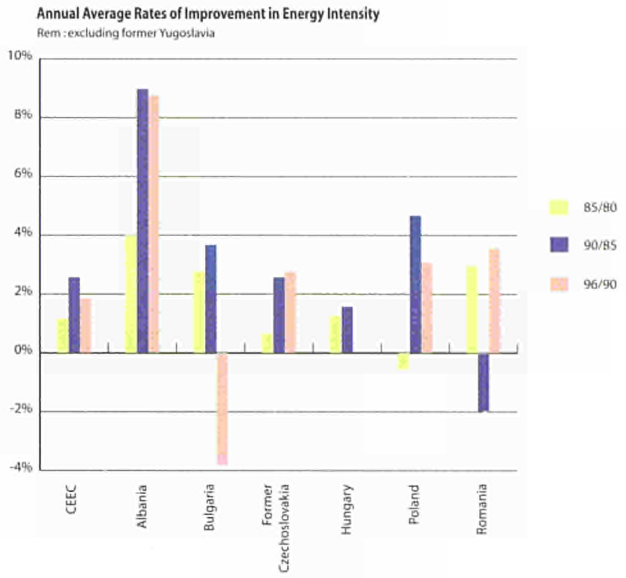
Concerning the **refining industry**, the Communist regimes left Eastern European countries with bloated and inefficient hydrocarbon industries that suffered from decades of neglect with outdated technology, heavy debt, and environmental problems. All Eastern European countries have refinery industries. Most are badly in need of restructuring and upgrading. In 1996, the refinery capacity, including former Yugoslav Republic, reached 2310 millions barrels day, or about 3% of the world installed capacity. The petroleum sector was among fastest growing sectors in Eastern Europe's energy industry, partly due to the introduction of foreign competition. So far, most oil companies are still state-owned and government-run. However, to meet the needs of the economies where privatisation efforts are strongest, private ownership is beginning to emerge. For example, Hungary has sold an 18.8% stake in its vertically integrated petroleum company, MOL. The Czech Republic merged its two largest refineries and sold 49 percent to IOC, a western consortium.

COMPETITIVENESS

Energy intensity has improved by about 2.2% per year on average between 1985 and 1995, but has rebounded in 1996...

Energy intensity declined slowly between 1980 and 1988. But, from then on, the reforms engaged to restructure the economy and in particular the industrial sector, introduced a more dynamic improvement. Before the start of its economic collapse, Eastern Europe had one of the highest energy intensities in the world. This situation resulted from the industrial structure based on high-intensive industries (steel, cement, chemical, ...) that used energy very inefficiently. Inefficiency was the result of policies in which the domestic energy prices were kept below world market prices. The artificially low energy prices encouraged development of an industrial base that used energy very inefficiently. The political changes that happened in most countries between 1989 and 1993 led to decreases in both GDP (-18% between 1989 and 1993, excluding former Yugoslavia), and gross inland energy consumption (-24%). From that moment, with the help of foreign aid, an industrial reconversion took place, leading to a further decrease in energy intensity (-7.5% in 1994 and –1.3% in 1995), while the GDP exhibited clear signs of recovering (+3.8% in 1994 and +5.5% in 1995). But the energy intensity rebounded by 3.1% in 1996, partly due to the cold climatic conditions that reinforced energy demand for room heating.

Major improvements of about 30% on the period 1985-1995 have been seen in Poland and Czech Republic and slightly less (about 25%) in Bulgaria and Romania although Romania was more



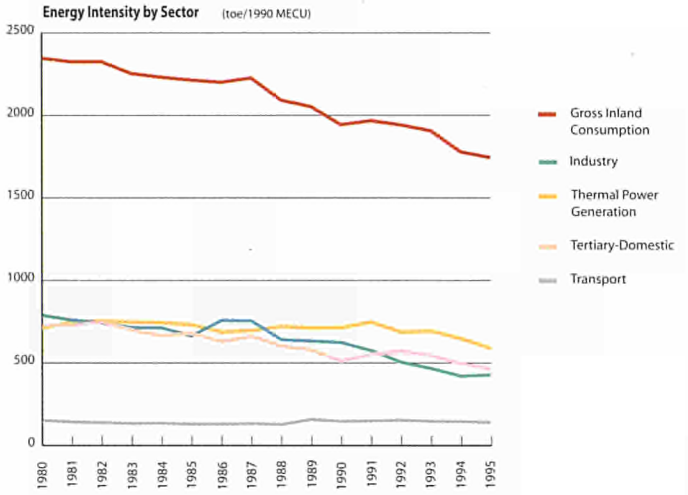
deeply affected by the economic crisis (GDP reduced by 22% between 1985 and 1995). It must be stressed that, excepting Hungary where energy intensity was 40% lower than the regional level, CEEC appeared to be a reasonably homogeneous region from this point of view.

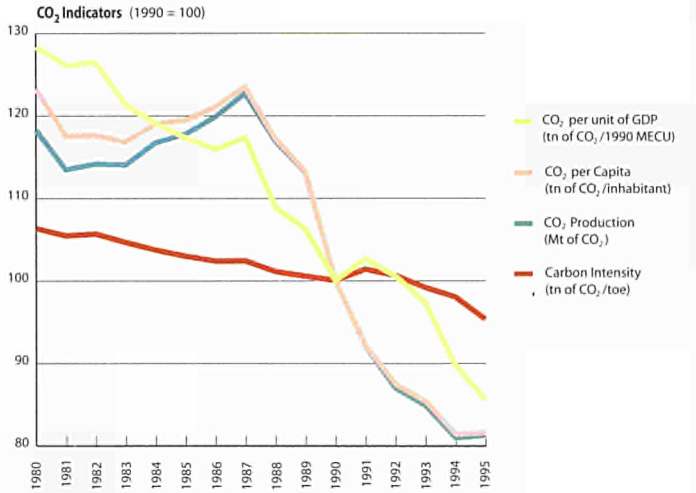
Improvement in energy intensity driven by industry and the tertiary-domestic sector...

The continuing improvement of energy intensity has been mainly sustained by the industrial sector's widespread reconstruction and modernisation (-46% since 1980) and by the tertiary-domestic sector (-29% since 1980). This was made possible by a more rational use of energy, reduction of heat losses and a levelling out of living standards. Concerning residential-tertiary sector it must be underlined that, before 1989, energy distribution systems were not geared to metering and pricing so to encourage rational use of energy. Residences frequently do not have energy meters or control equipment so that energy use in the residential sector was inelastic with respect to both energy price and income. This situation has improved since then, in relation to the privatisation of the energy sector. The energy intensity of transport was declining by the beginning of the 80's but increased with the outset of the

CEEC : ENERGY INTENSITY (TOE/1990 MECU)

	1980	1985	1990	1994	1995	1996
CEEC	2259.2	2124.2	1793.0	1727.0	1703.9	1756.2
Poland	2711.0	2728.7	2201.9	2000.4	1922.1	1983.1
Hungary	1187.5	1125.1	1017.5	984.7	1000.4	1008.6
Czech Republic	2703.6	2653.7	1607.7	2045.1	1959.3	1945.3
Slovakia	2012.9	1955.1	2072.1	2044.8	1969.9	1961.6
Romania	2163.7	1854.5	2046.0	1662.1	1666.0	1646.5
Bulgaria	2347.3	2037.6	1687.9	1659.3	1792.5	2109.0





economic reforms to peak in 1992 about 4% above the 1980 value. Since 1992 the transport intensity was also rising under the pressure of increasing car numbers compensated by declining consumption per capita. Finally, the weight of power generation was also declining as the electricity intensity of the GDP had diminished since 1985.

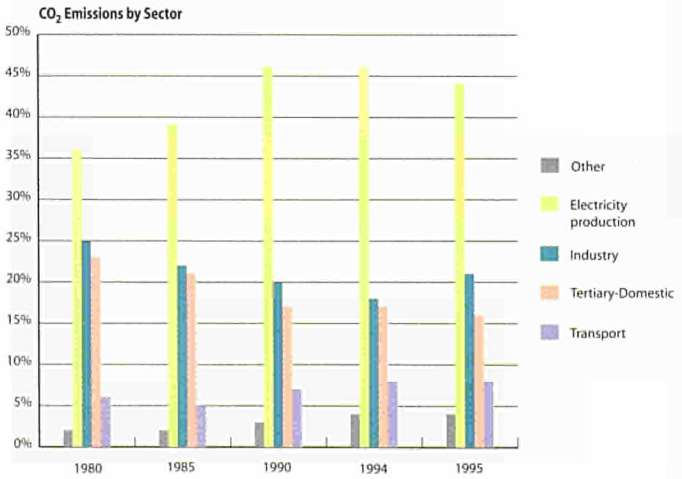
In terms of gross inland **energy consumption per capita**, a marked reduction has been observed since the peak of 1987 (from 3.46 toe per capita in 1987 to 2.45 toe in 1994 and 2.54 toe in 1995). This results from two main factors: first, economic and political reforms inducing in some countries energy shortages affecting mainly the domestic sector (heating) and individual transport, and secondly, the restructuring of industry and the modernisation of equipment (industrial processes, insulation and equipment in households, vehicles). Average consumption per capita in 1995 was 30% below the European Union average despite a higher energy intensity reflecting the present lower standards of life in these regions.

ENVIRONMENT

CO_2 emissions reduced by 16.5% between 1990 and 1995 but increased by 7.4% in 1996...

The evolution of CO_2 emissions was deeply influenced by the profile of energy consumption: increasing continuously between 1980 and 1987 to peak at 1008 million tonnes and declining since then to reach 831 million tonnes in 1990 and 686 million tonnes in 1994. But since 1994, in line with the evolution of gross inland energy consumption, CO_2 emissions were increasing by only 1% in 1995, but by 7.4% in 1996 on account of climatic conditions. The per capita CO_2 emissions, which were 20% above the average EU level in 1985, accounted for only 89% of this level in 1996. CO_2 emissions per unit of GDP have declined regularly since the beginning of the 80's by about 2.5% per year on average. Finally, the increasing share of natural gas and the development of nuclear during the second half of the 80's permitted a reduction in carbon intensity.

In the period 1980-1995, emissions from tertiary-domestic sector were reduced by 49%, those from industry by 45% and those from the transport sector by only 7%. The largest sector in terms of emissions remained largely power generation (about 43% of total emissions in 1995 from 41% in 1990, 38% in 1985 and 34% in 1980). This included emissions related to heat produced in cogeneration units and explains the relatively low contribution of the tertiary-domestic sector (18% of total emissions in 1995from 25% in 1980). Industrial emissions declined in volume until 1993 to represent only 17% of total emissions but were rebounding with the recent progress of industrial production (+19% in only two years).



GLOBAL MARKETS

Energy import dependency is increasing...

As a whole, the energy needs of this region depended on **external supplies** at 26% in 1996; almost the peak level of 1990. The Central and Eastern Countries together have been net importers of crude oil and natural gas, mainly from the former USSR. On the other hand, this region remains a net oil product exporter. But in this case the volumes concerned remained very limited. Total oil imports represented 68% of total oil requirements in 1996; declining slightly since 1994 (78%) at the benefit of gas importation that increased substantially in 1995 and 1996. As regional resources of hydrocarbons remain quite limited, any increase of oil or gas consumption in the future will be covered by additional imports.

Imports of Russian natural gas dominate Eastern Europe's total supply, comprising 60% of consumption, though some countries have made attempts to diversify supplies. Hungary receives a small amount of gas from Western suppliers (Ruhrgas). Poland and the Czech Republic have also actively explored alternative suppliers but have yet to diversify from Russian gas. At the opposite end, Gazprom was negotiating to improve its participation in Eastern Europe's companies. It was already the case in Bulgaria where a joint venture Topenergy (50% Gazprom) was responsible for importing Russian gas to Bulgaria. The Slovak Gas Company (SPP) formed a joined venture with Gazprom to increase the level of cooperation between the two countries on gas deliveries and transit.

CENTRAL AND EASTERN EUROPEAN COUNTRIES (Former Yugoslavia excluded) : Summary Energy Balance

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	249.5	261.3	212.5	189.3	191.8	196.4	0.9%	-4.0%	-2.9%	1.3%	2.4%
Solids	179.9	184.8	148.6	133.1	134.8	139.1	0.5%	-4.3%	-2.7%	1.3%	3.2%
Oil	16.4	14.6	11.4	9.9	10.3	10.3	-2.3%	-4.9%	-3.4%	4.0%	-0.9%
Natural gas	41.8	42.2	29.8	22.2	21.9	20.7	0.2%	-6.7%	-7.2%	-1.2%	-5.6%
Nuclear	2.8	8.2	13.8	14.2	14.3	15.0	24.0%	11.1%	0.7%	0.9%	5.0%
Hydro & Wind	2.3	2.0	1.8	2.2	2.7	2.8	-2.2%	-2.7%	5.2%	23.1%	3.4%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	6.3	9.4	7.1	7.7	7.8	8.6	8.5%	-5.7%	2.3%	0.9%	10.6%
Net Imports	71.3	66.3	79.4	51.9	58.8	69.4	-1.4%	3.7%	-10.1%	13.2%	18.1%
Solids	-12.9	-13.8	-9.9	-15.9	-18.0	-14.1	1.5%	-6.5%	12.5%	13.7%	-21.9%
Oil	65.3	56.8	53.2	40.7	44.7	47.7	-2.8%	-1.3%	-6.5%	9.8%	6.6%
Crude oil	71.7	63.6	56.5	44.5	47.5	na	-2.4%	-2.3%	-5.8%	6.9%	na
Oil products	-6.3	-6.7	-3.2	-3.8	-2.8	na	1.2%	-13.6%	3.7%	-25.0%	na
Natural gas	17.7	21.6	33.7	27.1	32.0	35.7	4.1%	9.2%	-5.3%	17.9%	11.6%
Electricity	1.1	1.6	2.4	0.0	0.1	0.1	8.5%	8.0%	-	-	0.0%
Gross Inland Consumption	319.9	328.6	290.7	241.6	251.4	265.8	0.5%	-2.4%	-4.5%	4.1%	5.7%
Solids	167.2	172.7	139.3	116.7	118.2	125.0	0.7%	-4.2%	-4.3%	1.4%	5.7%
Oil	81.2	71.5	63.4	51.3	54.3	57.9	-2.5%	-2.4%	-5.2%	5.9%	6.7%
Natural gas	59.0	63.1	62.9	49.6	53.9	56.4	1.3%	-0.1%	-5.8%	8.7%	4.6%
Other (1)	12.4	21.3	25.1	24.1	25.0	26.5	11.4%	3.3%	-1.0%	3.9%	5.9%
Electricity Generation in TWh	323.3	359.0	358.6	346.2	361.7	na	2.1%	0.0%	-0.9%	4.5%	na
Nuclear	10.7	31.4	53.0	54.5	55.0	na	24.0%	11.1%	0.7%	0.8%	na
Hydro & wind	26.4	23.7	20.6	25.3	31.1	na	-2.2%	-2.7%	5.2%	23.0%	na
Thermal	286.2	303.9	284.9	266.4	275.6	na	1.2%	-1.3%	-1.7%	3.5%	na
Generation Capacity in GWe	70.7	86.1	94.6	93.6	93.7	na	4.0%	1.9%	-0.3%	0.1%	na
Nuclear	1.7	4.6	7.9	8.8	8.8	na	21.7%	11.4%	2.5%	0.0%	na
Hydro & wind	9.9	13.0	14.2	14.4	14.5	na	5.6%	1.9%	0.3%	0.4%	na
Thermal	59.1	68.5	72.4	70.4	70.4	na	3.0%	1.1%	-0.7%	0.0%	na
Average Load Factor in %	52.2	47.6	43.3	42.2	44.1	na	-1.8%	-1.9%	-0.6%	4.4%	na
Fuel Inputs for Thermal Power Generation	90.0	102.2	93.4	85.4	81.8	na	2.6%	-1.8%	-2.2%	-4.3%	na
Solids	70.2	77.2	69.9	67.8	65.2	na	1.9%	-2.0%	-0.7%	-3.9%	na
Oil	11.4	10.9	9.7	6.9	6.1	na	-0.7%	-2.4%	-8.0%	-12.0%	na
Gas	8.2	13.4	13.3	10.0	10.2	na	10.5%	-0.2%	-6.8%	2.1%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Biomass	0.3	0.6	0.5	0.6	0.2	na	13.0%	-4.2%	7.3%	-68.3%	na
Average Thermal Efficiency in %	27.4	25.6	26.2	26.8	29.0	na	-1.3%	0.5%	0.5%	8.1%	na
Non-Energy Uses	10.9	10.6	11.3	10.8	11.5	na	-0.5%	1.3%	-1.1%	6.9%	na
Total Final Energy Demand	229.8	223.1	190.8	148.9	153.3	na	-0.6%	-3.1%	-6.0%	3.0%	na
Solids	71.7	73.0	46.9	34.3	36.7	na	0.3%	-8.5%	-7.5%	7.2%	na
Oil	56.1	44.1	39.4	32.3	32.6	na	-4.7%	-2.2%	-4.9%	0.7%	na
Gas	46.0	43.6	42.0	29.3	32.3	na	-1.1%	-0.7%	-8.6%	10.1%	na
Electricity	21.7	24.3	25.1	20.7	21.9	na	2.2%	0.6%	-4.6%	5.5%	na
Heat	28.2	29.2	30.8	25.2	22.2	na	0.7%	1.0%	-4.9%	-11.8%	na
Renewable energy sources	6.0	8.9	6.6	7.1	7.7	na	8.2%	-5.8%	1.9%	8.3%	na
CO_2 Emissions in Mt of CO_2	978.1	979.8	831.2	686.2	693.3	745.0	0.0%	-3.2%	-4.7%	1.0%	7.4%
Indicators											
Population (Million)	95.28	97.90	99.34	98.76	98.97	98.95	0.5%	0.3%	-0.1%	0.2%	0.0%
GDP (index 1985=100)	91.5	100.0	104.8	90.4	95.4	97.8	1.8%	0.9%	-3.6%	5.5%	2.5%
Gross Inl Cons./GDP (toe/1990 MECU)	2259.2	2124.2	1793.0	1727.0	1703.9	1756.2	-1.2%	-3.3%	-0.9%	-1.3%	3.1%
Gross Inl Cons./Capita (toe/inhabitant)	3.36	3.36	2.93	2.45	2.54	2.69	0.0%	-2.7%	-4.4%	3.8%	5.7%
Electricity Generated/Capita (kWh/inhabitant)	3393	3667	3610	3506	3654	na	1.6%	-0.3%	-0.7%	4.2%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	10.3	10.0	8.4	6.9	7.0	7.5	-0.5%	-3.5%	-4.5%	0.8%	7.5%
Import Dependency %	22.3	20.1	27.2	21.5	23.3	26.1	-2.0%	6.2%	-5.8%	8.7%	11.8%

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

CENTRAL AND EASTERN EUROPEAN COUNTRIES (Former Yugoslavia excluded) : Main Indicators

	1980	1985	1990	1993	1994	1995	85/80	90/85	94/90	95/94
							Annual % Change			
Gross Inland Consumption (Mtoe)	319.9	328.6	290.7	251.5	241.6	251.4	0.5%	-2.4%	-4.5%	4.1%
Public Thermal Power Generation	76.8	87.5	81.0	73.4	68.2	69.9	2.6%	-1.5%	-4.2%	2.4%
Autoprod. Thermal Power Generation	13.2	14.7	12.4	16.9	17.2	11.9	2.2%	-3.4%	8.6%	-31.0%
Energy Branch	14.1	14.7	15.3	17.4	17.5	17.5	0.8%	0.8%	3.4%	-0.3%
Final Energy Consumption	229.2	222.1	190.4	152.9	148.1	152.4	-0.6%	-3.0%	-6.1%	2.9%
Industry	115.1	108.8	90.0	62.1	59.8	64.0	-1.1%	-3.7%	-9.7%	6.9%
Transport	20.6	19.1	22.5	19.3	19.2	19.5	-1.5%	3.3%	-3.9%	1.6%
Tertiary-Domestic	93.6	94.2	78.0	71.6	69.1	68.9	0.1%	-3.7%	-3.0%	-0.2%
Energy Intensity (toe/1990 MECU)	2259.2	2124.2	1793.0	1866.2	1727.0	1703.9	-1.2%	-3.3%	-0.9%	-1.3%
Public Thermal Power Generation	542.5	565.8	499.7	544.4	487.8	473.7	0.8%	-2.5%	-0.6%	-2.9%
Autoprod. Thermal Power Generation	93.1	94.9	76.3	125.6	122.8	80.3	0.4%	-4.3%	12.7%	-34.6%
Industry	812.6	703.5	554.9	460.6	427.5	433.4	-2.8%	-4.6%	-6.3%	1.4%
Transport	145.4	123.4	138.6	143.0	137.0	132.0	-3.2%	2.3%	-0.3%	-3.7%
Tertiary-Domestic	660.8	608.9	480.8	531.1	494.0	467.1	-1.6%	-4.6%	0.7%	-5.4%
Energy per Capita (Kgoe/inhabitant)	3357	3356	2926	2547	2446	2540	0.0%	-2.7%	-4.4%	3.8%
Industry	1208	1112	906	629	606	646	-1.6%	-4.0%	-9.6%	6.7%
Transport	216	195	226	195	194	197	-2.0%	3.0%	-3.8%	1.4%
Tertiary-Domestic	982	962	785	725	700	696	-0.4%	-4.0%	-2.8%	-0.5%
Electricity Share (%)										
Final Energy Consumption	9.5%	10.9%	13.2%	13.7%	14.0%	14.4%	2.9%	3.8%	1.5%	2.5%
Industry	12.0%	13.3%	15.0%	15.3%	15.7%	15.6%	2.1%	2.4%	1.1%	-0.3%
Transport	5.3%	6.6%	5.8%	5.5%	5.5%	5.5%	4.4%	-2.3%	-1.6%	0.6%
Tertiary-Domestic	7.3%	9.1%	13.2%	14.5%	14.9%	15.7%	4.4%	7.8%	3.2%	5.0%
Total Renewable Consumption (Mtoe)	8.5	11.5	8.8	9.3	9.9	10.5	6.0%	-5.1%	2.9%	6.8%
Hydro	2.3	2.0	1.8	2.0	2.2	2.7	-2.2%	-2.7%	5.2%	23.0%
Biomass	6.3	9.4	7.0	7.3	7.7	7.9	8.5%	-5.7%	2.2%	2.2%
Other renewable energy sources	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	461.5%
Renewable intensity (toe/1990MECU)	60.4	74.1	54.4	69.1	70.6	71.5	4.2%	-6.0%	6.7%	1.3%
Renewable per capita (Kgoe/inhabitant)	89.7	117.1	88.8	94.3	100.0	106.6	5.5%	-5.4%	3.0%	6.6%
CO_2 Emissions (Mt of CO_2)	978.1	979.8	831.2	715.4	686.2	693.3	0.0%	-3.2%	-4.7%	1.0%
Public Thermal Power Generation	282.5	317.3	293.5	271.5	258.0	264.6	2.3%	-1.5%	-3.2%	2.5%
Autoprod. Thermal Power Generation	49.0	54.1	44.8	58.6	55.4	36.5	2.0%	-3.7%	5.5%	-34.1%
Energy Branch	23.1	22.7	24.4	21.6	27.1	27.5	-0.3%	1.5%	2.7%	1.2%
Industry	268.2	252.1	197.1	123.8	127.5	147.2	-1.2%	-4.8%	-10.3%	15.4%
Transport	60.5	55.3	65.4	56.0	55.6	56.4	-1.8%	3.4%	-4.0%	1.4%
Tertiary-Domestic	241.4	224.7	148.7	133.1	124.5	122.1	-1.4%	-7.9%	-4.3%	-2.0%
Carbon Intensity (tn of CO_2/toe)	3.1	3.0	2.9	2.8	2.8	2.8	-0.5%	-0.8%	-0.2%	-2.9%
Public Power Generation	3.5	3.2	3.0	3.1	3.0	3.0	-1.2%	-1.3%	0.1%	-0.2%
Public Thermal Power Generation	3.7	3.6	3.6	3.7	3.8	3.8	-0.3%	0.0%	1.1%	0.1%
Autoprod. Power Generation	3.7	3.7	3.6	3.5	3.2	3.1	-0.2%	-0.3%	-2.9%	-4.6%
Autoprod. Thermal Power Generation	3.7	3.7	3.6	3.5	3.2	3.1	-0.2%	-0.3%	-2.9%	-4.5%
Energy Branch	1.6	1.5	1.6	1.2	1.5	1.6	-1.2%	0.7%	-0.7%	1.5%
Industry	2.3	2.3	2.2	2.0	2.1	2.3	-0.1%	-1.1%	-0.7%	7.9%
Transport	2.9	2.9	2.9	2.9	2.9	2.9	-0.3%	0.1%	-0.1%	-0.2%
Tertiary-Domestic	2.6	2.4	1.9	1.9	1.8	1.8	-1.6%	-4.4%	-1.4%	-1.7%
CO_2 per Capita (kg of CO_2/inhabitant)	10265	10008	8367	7246	6949	7006	-0.5%	-3.5%	-4.5%	0.8%
Industry	2815	2575	1984	1254	1292	1487	-1.8%	-5.1%	-10.2%	15.1%
Transport	635	565	658	567	563	570	-2.3%	3.1%	-3.8%	1.2%
Tertiary-Domestic	2534	2296	1497	1348	1261	1233	-2.0%	-8.2%	-4.2%	-2.2%
CO_2 per unit of GDP (tn of CO2/1990 MECU)	6908	6334	5127	5308	4905	4699	-1.7%	-4.1%	-1.1%	-4.2%
Public Thermal Power Generation	1995	2051	1810	2015	1845	1793	0.6%	-2.5%	0.5%	-2.8%
Autoprod. Thermal Power Generation	346	350	276	435	396	247	0.2%	-4.6%	9.4%	-37.6%
Energy Branch	163	147	151	160	194	186	-2.1%	0.5%	6.5%	-4.0%
Industry	1894	1630	1216	918	912	997	-3.0%	-5.7%	-6.9%	9.4%
Transport	428	358	403	416	398	382	-3.5%	2.4%	-0.4%	-3.9%
Tertiary-Domestic	1705	1453	917	988	890	827	-3.2%	-8.8%	-0.7%	-7.1%

BULGARIA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	7.7	9.3	9.6	9.1	10.0	10.5	3.8%	0.6%	-1.4%	10.3%	5.0%
Solids	5.2	5.3	5.4	4.8	5.1	5.2	0.4%	0.4%	-3.0%	7.3%	1.9%
Oil	0.3	0.2	0.1	0.0	0.0	0.0	-6.1%	-21.5%	-11.7%	18.9%	0.0%
Natural gas	0.1	0.0	0.0	0.0	0.0	0.0	-35.0%	-8.3%	42.2%	-11.1%	0.0%
Nuclear	1.6	3.4	3.8	4.0	4.5	4.9	16.3%	2.2%	1.1%	12.6%	8.5%
Hydro & Wind	0.3	0.2	0.2	0.1	0.1	0.1	-9.7%	-3.3%	-18.9%	52.9%	8.7%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	0.2	0.2	0.2	0.2	0.2	0.2	0.2%	-2.4%	-0.7%	28.1%	4.5%
Net Imports	21.0	21.6	17.7	11.9	13.5	13.9	0.6%	-3.9%	-9.5%	14.0%	2.6%
Solids	4.3	5.2	3.4	2.1	2.2	2.2	4.0%	-8.3%	-10.9%	4.1%	0.5%
Oil	13.4	11.5	8.6	6.0	6.8	6.9	-3.0%	-5.7%	-8.5%	12.5%	1.7%
Crude oil	13.2	12.6	8.3	7.0	8.1	na	-0.9%	-8.0%	-4.1%	14.8%	na
Oil products	0.1	-1.1	0.3	-1.0	-1.3	na	-	-	-	28.2%	na
Natural gas	3.0	4.6	5.4	3.7	4.6	4.8	8.6%	3.5%	-8.9%	22.0%	4.9%
Electricity	0.3	0.4	0.3	0.0	0.0	0.0	2.3%	-2.5%	-	116.7%	0.0%
Gross Inland Consumption	28.7	30.7	27.5	21.0	23.1	24.2	1.4%	-2.2%	-6.5%	9.8%	4.8%
Solids	9.4	10.5	8.8	7.1	7.2	7.4	2.2%	-3.4%	-5.1%	1.3%	3.0%
Oil	13.7	11.5	8.8	5.9	6.5	6.7	-3.4%	-5.1%	-9.7%	10.7%	3.8%
Natural gas	3.2	4.6	5.4	3.8	4.6	4.8	7.7%	3.2%	-8.3%	20.0%	5.3%
Other (1)	2.5	4.2	4.5	4.2	4.8	5.2	11.3%	1.4%	-1.5%	13.7%	8.5%
Electricity Generation in TWh	34.8	41.6	42.1	37.5	40.7	na	3.6%	0.2%	-2.9%	8.6%	na
Nuclear	6.2	13.1	14.7	15.3	17.3	na	16.3%	2.2%	1.1%	12.6%	na
Hydro & wind	3.7	2.2	1.9	0.8	1.2	na	-9.6%	-3.4%	-18.7%	51.9%	na
Thermal	25.0	26.3	25.6	21.3	22.2	na	1.0%	-0.5%	-4.5%	4.1%	na
Generation Capacity in GWe	8.2	10.2	11.1	12.1	12.1	na	4.6%	1.7%	2.1%	0.0%	na
Nuclear	0.9	1.8	2.8	3.5	3.5	na	14.9%	9.4%	6.4%	0.0%	na
Hydro & wind	1.9	2.0	2.0	1.4	1.4	na	1.1%	0.0%	-8.2%	0.0%	na
Thermal	5.4	6.5	6.4	7.1	7.1	na	3.6%	-0.3%	2.8%	0.0%	na
Average Load Factor in %	48.5	46.4	43.2	35.4	38.5	na	-0.9%	-1.4%	-4.9%	8.6%	na
Fuel Inputs for Thermal Power Generation	9.5	9.8	8.0	7.8	8.1	na	0.7%	-4.0%	-0.8%	3.6%	na
Solids	5.4	5.5	5.4	5.8	5.8	na	0.5%	-0.2%	1.6%	0.3%	na
Oil	4.2	3.4	0.7	0.7	0.6	na	-3.7%	-27.7%	0.5%	-11.3%	na
Gas	0.0	0.9	1.9	1.3	1.7	na	-	15.9%	-9.2%	25.8%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	22.6	22.9	27.4	23.5	23.7	na	0.3%	3.6%	-3.7%	0.6%	na
Non-Energy Uses	0.7	0.7	0.5	1.1	1.2	na	0.9%	-6.5%	21.8%	8.8%	na
Total Final Energy Demand	19.2	18.2	17.5	10.8	11.3	na	-1.2%	-0.7%	-11.4%	4.7%	na
Solids	3.4	4.4	1.5	1.4	1.4	na	5.3%	-19.8%	-2.1%	0.3%	na
Oil	8.0	5.4	5.8	3.1	2.9	na	-7.6%	1.4%	-14.3%	-7.9%	na
Gas	3.2	3.7	2.5	1.3	1.6	na	3.0%	-7.2%	-15.8%	25.6%	na
Electricity	2.6	3.0	3.0	2.3	2.5	na	3.4%	0.1%	-6.9%	8.2%	na
Heat	1.9	1.4	4.5	2.6	2.8	na	-5.5%	26.0%	-13.0%	7.4%	na
Renewable energy sources	0.2	0.2	0.2	0.2	0.2	na	0.2%	-2.4%	-1.3%	27.3%	na
CO_2 Emissions in Mt of CO_2	81.8	79.6	66.2	52.0	52.8	na	-0.5%	-3.6%	-5.8%	1.5%	na
Indicators											
Population (Million)	8.86	8.94	8.72	8.44	8.41	8.41	0.2%	-0.5%	-0.8%	-0.4%	0.0%
GDP (index 1985=100)	80.9	100.0	107.9	84.0	85.4	76.1	4.3%	1.5%	-6.1%	1.7%	-10.9%
Gross Inl Cons./GDP (toe/1990 MECU)	2347.3	2037.6	1687.9	1659.3	1792.5	2109.0	-2.8%	-3.7%	-0.4%	8.0%	17.7%
Gross Inl Cons./Capita (toe/inhabitant)	3.24	3.44	3.15	2.49	2.75	2.88	1.2%	-1.7%	-5.7%	10.2%	4.8%
Electricity Generated/Capita (kWh/inhabitant)	3932	4657	4833	4441	4842	na	3.4%	0.7%	-2.1%	9.0%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	9.2	8.9	7.6	6.2	6.3	na	-0.7%	-3.1%	-5.1%	1.8%	na
Import Dependency %	73.3	69.8	63.6	55.7	57.8	56.5	-1.0%	-1.8%	-3.3%	3.8%	-2.2%

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

CZECH REPUBLIC : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	43.3	44.6	39.3	32.1	31.3	31.9	0.6%	-2.5%	-4.9%	-2.6%	2.2%
Solids	42.2	43.0	35.2	27.6	27.0	27.6	0.4%	-4.0%	-5.9%	-2.1%	2.0%
Oil	0.1	0.0	0.0	0.2	0.3	0.2	-0.8%	0.4%	47.5%	8.2%	-17.4%
Natural gas	0.3	0.2	0.2	0.2	0.2	0.2	-5.2%	-3.6%	-1.2%	3.7%	-8.1%
Nuclear	0.0	0.6	3.3	3.4	3.2	3.3	-	39.3%	0.8%	-5.8%	5.1%
Hydro & Wind	0.2	0.1	0.1	0.1	0.2	0.2	-7.0%	-2.9%	0.3%	37.0%	13.3%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	0.6	0.5	0.5	0.6	0.4	0.4	-3.9%	1.9%	2.2%	-23.2%	0.0%
Net Imports	7.3	7.9	7.4	6.8	7.6	9.5	1.7%	-1.4%	-2.0%	12.1%	24.5%
Solids	-6.0	-6.9	-5.9	-6.6	-6.6	-6.1	2.8%	-3.1%	2.8%	0.3%	-8.2%
Oil	11.0	11.3	8.5	7.6	7.8	8.0	0.6%	-5.5%	-2.8%	2.1%	3.0%
Crude oil	9.1	8.7	7.2	6.6	6.9	7.4	-1.0%	-3.7%	-2.0%	5.2%	6.4%
Oil products	1.8	2.7	1.4	1.0	0.8	0.6	7.6%	-12.4%	-7.3%	-18.1%	-25.4%
Natural gas	2.4	3.5	4.8	5.8	6.4	7.5	7.9%	6.3%	5.0%	10.5%	17.5%
Electricity	-0.1	-0.1	-0.1	0.0	0.0	0.0	-14.9%	0.5%	-10.5%	-	-
Gross Inland Consumption	50.2	52.8	47.2	38.9	39.5	40.8	1.0%	-2.2%	-4.7%	1.5%	3.4%
Solids	35.9	36.0	29.5	21.4	21.2	21.1	0.1%	-3.9%	-7.6%	-0.9%	-0.6%
Oil	11.0	11.4	8.6	7.7	7.9	8.2	0.6%	-5.3%	-3.0%	3.0%	4.1%
Natural gas	2.6	4.2	5.3	5.8	6.5	7.5	10.2%	4.4%	2.4%	13.2%	15.1%
Other (1)	0.6	1.2	3.9	4.0	3.8	4.0	12.9%	26.9%	1.1%	-5.0%	3.9%
Electricity Generation in TWh	52.7	58.1	62.6	58.4	60.6	63.8	2.0%	1.5%	-1.7%	3.7%	5.4%
Nuclear	0.0	2.4	12.6	13.0	12.2	12.9	-	39.3%	0.8%	-5.8%	5.1%
Hydro & wind	2.4	1.7	1.4	1.5	2.0	2.0	-7.0%	-2.9%	0.3%	37.1%	-1.6%
Thermal	50.3	54.1	48.5	44.0	46.3	49.0	1.5%	-2.1%	-2.4%	5.4%	5.7%
Generation Capacity in GWe	na	na	15.3	13.9	13.9	14.5	na	na	-2.4%	0.0%	5.0%
Nuclear	na	na	1.8	1.8	1.8	1.8	na	na	0.0%	0.0%	0.0%
Hydro & wind	na	na	1.4	1.4	1.4	1.8	na	na	0.1%	0.0%	26.5%
Thermal	na	na	12.1	10.7	10.7	11.0	na	na	-3.1%	0.0%	3.0%
Average Load Factor in %	na	na	46.7	48.1	49.9	50.1	na	na	0.7%	3.7%	0.3%
Fuel Inputs for Thermal Power Generation	11.4	11.7	10.1	12.0	12.4	13.4	0.5%	-2.9%	4.4%	3.1%	8.2%
Solids	10.0	10.6	9.2	11.4	11.7	12.5	1.2%	-2.8%	5.6%	2.4%	7.1%
Oil	1.2	0.9	0.7	0.3	0.3	0.4	-5.6%	-4.4%	-21.4%	10.1%	18.8%
Gas	0.2	0.2	0.2	0.2	0.3	0.5	0.0%	0.0%	10.6%	38.9%	35.4%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Biomass	0.0	0.0	0.0	0.1	0.0	0.0	-	-	-	-37.9%	0.0%
Average Thermal Efficiency in %	37.9	39.7	41.3	31.5	32.2	31.4	0.9%	0.8%	-6.6%	2.2%	-2.4%
Non-Energy Uses	0.8	0.8	0.7	1.1	1.9	2.0	2.1%	-3.6%	13.2%	64.6%	4.1%
Total Final Energy Demand	38.4	39.3	33.6	24.8	25.9	25.8	0.5%	-3.1%	-7.4%	4.8%	-0.6%
Solids	21.4	22.5	17.4	7.4	7.2	5.8	1.0%	-5.0%	-19.1%	-2.7%	-20.1%
Oil	9.4	7.6	6.0	5.0	5.5	5.6	-4.3%	-4.6%	-4.3%	10.4%	2.3%
Gas	2.4	3.4	4.2	4.9	5.2	5.9	7.7%	4.0%	4.0%	6.7%	12.1%
Electricity	3.3	3.7	4.1	3.9	4.1	4.3	2.7%	2.2%	-1.7%	6.9%	4.6%
Heat	1.4	1.7	1.5	3.1	3.5	3.7	3.9%	-2.6%	20.7%	12.3%	8.3%
Renewable energy sources	0.6	0.5	0.5	0.5	0.4	0.4	-3.9%	1.9%	-0.9%	-21.2%	13.3%
CO_2 Emissions in Mt of CO_2	172.4	176.7	146.4	108.8	111.3	112.5	0.5%	-3.7%	-7.2%	2.3%	1.0%
Indicators											
Population (Million)	10.28	10.31	10.36	10.34	10.33	10.32	0.0%	0.1%	-0.1%	0.0%	-0.1%
GDP (index 1985=100)	93.2	100.0	147.7	95.6	101.3	105.5	1.4%	8.1%	-10.3%	6.0%	4.1%
Gross Inl Cons./GDP (toe/1990 MECU)	2703.6	2653.7	1607.7	2045.1	1959.3	1945.3	-0.4%	-9.5%	6.2%	-4.2%	-0.7%
Gross Inl Cons./Capita (toe/inhabitant)	4.88	5.12	4.56	3.76	3.82	3.96	1.0%	-2.3%	-4.7%	1.6%	3.5%
Electricity Generated/Capita (kWh/inhabitant)	5121	5640	6037	5649	5863	6184	2.0%	1.4%	-1.6%	3.8%	5.5%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	16.8	17.1	14.1	10.5	10.8	10.9	0.5%	-3.8%	-7.1%	2.4%	1.2%
Import Dependency %	14.5	15.0	15.6	17.5	19.3	23.2	0.7%	0.8%	2.9%	10.5%	20.4%

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

HUNGARY : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change			
Primary Production	14.9	16.9	14.2	12.5	13.0	13.0	2.6%	-3.4%	-3.1%	4.2%	-0.7%
Solids	6.4	5.8	4.2	3.0	3.1	3.3	-2.0%	-6.3%	-8.1%	2.7%	9.2%
Oil	2.5	2.5	2.3	2.0	2.3	2.1	0.0%	-2.1%	-3.9%	18.7%	-8.7%
Natural gas	5.1	5.8	3.8	3.8	3.8	3.6	2.8%	-8.2%	-0.4%	0.9%	-5.9%
Nuclear	0.0	1.7	3.6	3.7	3.7	3.7	-	16.2%	0.6%	-0.2%	1.5%
Hydro & Wind	0.0	0.0	0.0	0.0	0.0	0.0	6.7%	2.8%	-2.5%	1.2%	0.0%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	0.9	1.1	0.4	0.2	0.2	0.2	3.9%	-19.0%	-17.8%	31.1%	-1.2%
Net Imports	14.3	13.8	14.2	11.4	12.1	13.5	-0.6%	0.5%	-5.4%	6.7%	11.3%
Solids	2.2	2.6	1.6	1.2	1.1	1.2	3.6%	-9.0%	-7.0%	-12.1%	12.1%
Oil	8.3	7.1	6.5	5.5	5.3	5.5	-3.1%	-1.8%	-4.1%	-2.6%	3.3%
Crude oil	7.4	6.4	6.3	5.4	5.7	5.1	-2.9%	-0.3%	-3.7%	6.2%	-10.9%
Oil products	0.8	0.7	0.2	0.0	-0.4	-0.4	-4.8%	-23.9%	-26.9%	-	-13.0%
Natural gas	3.2	3.3	5.2	4.5	5.5	6.6	0.4%	9.7%	-3.3%	22.5%	19.3%
Electricity	0.6	0.9	1.0	0.2	0.2	0.2	7.9%	0.6%	-34.6%	18.2%	0.0%
Gross Inland Consumption	28.9	30.4	28.6	24.2	24.9	26.6	1.0%	-1.2%	-4.1%	3.1%	6.5%
Solids	8.5	8.0	6.2	4.3	4.2	4.5	-1.0%	-5.1%	-8.7%	-2.6%	8.4%
Oil	11.0	9.8	8.6	7.4	7.5	7.7	-2.1%	-2.6%	-3.6%	0.7%	3.1%
Natural gas	8.0	8.8	8.9	8.4	9.2	10.2	2.1%	0.2%	-1.3%	8.7%	10.8%
Other (1)	1.5	3.7	4.9	4.0	4.1	4.1	19.4%	5.9%	-4.9%	2.0%	1.3%
Electricity Generation in TWh	23.9	26.8	28.4	33.5	34.0	35.1	2.3%	1.2%	4.2%	1.5%	3.2%
Nuclear	0.0	6.5	13.7	14.0	14.0	14.2	-	16.2%	0.6%	-0.2%	1.1%
Hydro & wind	0.1	0.2	0.2	0.2	0.2	0.2	6.7%	2.8%	-2.5%	1.2%	27.0%
Thermal	23.8	20.2	14.5	19.3	19.8	20.7	-3.2%	-6.3%	7.4%	2.7%	4.4%
Generation Capacity in GWe	4.8	5.8	6.6	7.0	7.0	7.1	3.7%	2.6%	1.4%	0.5%	0.6%
Nuclear	0.0	0.8	1.7	1.8	1.8	1.8	-	15.1%	2.7%	0.0%	0.0%
Hydro & wind	0.0	0.0	0.0	0.0	0.0	0.0	0.0%	0.9%	0.0%	0.0%	0.0%
Thermal	4.8	4.9	4.9	5.1	5.1	5.2	0.6%	-0.2%	1.0%	0.6%	0.9%
Average Load Factor in %	56.3	52.7	49.2	54.8	55.4	56.8	-1.3%	-1.4%	2.8%	1.0%	2.5%
Fuel Inputs for Thermal Power Generation	8.2	7.0	5.3	5.8	5.9	6.0	-3.1%	-5.4%	2.5%	1.1%	2.4%
Solids	4.2	3.7	3.3	2.7	2.8	2.9	-2.7%	-2.0%	-5.0%	4.0%	3.7%
Oil	1.5	1.4	0.4	1.7	1.6	1.3	-0.7%	-23.4%	45.4%	-8.0%	-13.9%
Gas	2.5	1.9	1.6	1.4	1.5	1.8	-5.4%	-3.3%	-2.7%	6.6%	17.0%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Biomass	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Average Thermal Efficiency in %	25.1	24.8	23.7	28.5	28.9	29.5	-0.2%	-1.0%	4.8%	1.6%	1.9%
Non-Energy Uses	2.7	2.2	1.9	1.7	1.8	1.6	-3.6%	-3.2%	-2.6%	3.2%	-8.6%
Total Final Energy Demand	19.7	21.4	20.0	15.6	15.9	16.5	1.7%	-1.3%	-6.1%	2.0%	3.4%
Solids	3.5	3.8	2.5	1.2	1.1	1.0	2.1%	-7.9%	-16.3%	-15.0%	-1.9%
Oil	7.2	6.4	6.5	4.4	4.0	3.8	-2.1%	0.3%	-9.5%	-8.1%	-4.7%
Gas	3.9	5.1	5.6	5.8	6.5	7.1	5.5%	1.9%	0.9%	11.3%	10.4%
Electricity	2.2	2.6	2.7	2.4	2.4	2.5	3.4%	0.9%	-3.3%	0.6%	3.4%
Heat	2.1	2.4	2.3	1.6	1.8	1.8	2.7%	-0.9%	-8.1%	8.0%	0.3%
Renewable energy sources	0.9	1.1	0.4	0.2	0.2	0.2	3.9%	-19.2%	-17.6%	31.1%	-1.2%
CO_2 Emissions in Mt of CO_2	79.1	78.0	68.6	56.9	56.9	58.6	-0.3%	-2.5%	-4.6%	0.2%	2.9%
Indicators											
Population (Million)	10.71	10.58	10.37	10.16	10.30	10.27	-0.2%	-0.4%	-0.5%	1.4%	-0.3%
GDP (index 1985=100)	90.1	100.0	104.1	91.0	92.4	93.6	2.1%	0.8%	-3.3%	1.5%	1.3%
Gross Inl Cons./GDP (toe/1990 MECU)	1187.5	1125.1	1017.5	984.7	1000.4	1008.6	-1.1%	-2.0%	-0.8%	1.6%	0.8%
Gross Inl Cons./Capita (toe/inhabitant)	2.70	2.87	2.76	2.38	2.42	2.48	1.2%	-0.8%	-3.6%	1.7%	2.4%
Electricity Generated/Capita (kWh/inhabitant)	2230	2533	2743	3298	3303	3417	2.6%	1.6%	4.7%	0.1%	3.5%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	7.4	7.4	6.6	5.6	5.5	5.7	0.0%	-2.1%	-4.1%	-1.2%	3.2%
Import Dependency %	49.4	45.6	49.7	47.0	48.6	52.2	-1.6%	1.7%	-1.4%	3.5%	7.4%

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

POLAND : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	124,1	128.1	101.5	97.6	99.5	103.5	0.6%	-4.6%	-1.0%	1.9%	4.0%
Solids	115.9	118.0	94.5	89.3	91.1	94.3	0.4%	-4.4%	-1.4%	2.0%	3.6%
Oil	0.3	0.2	0.2	0.3	0.4	0.4	-10.5%	-2.2%	16.5%	11.7%	8.0%
Natural gas	4.5	4.1	2.4	3.1	3.2	3.2	-1.9%	-10.5%	6.8%	2.3%	2.3%
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Hydro & Wind	0.2	0.2	0.1	0.1	0.2	0.2	-4.6%	-5.2%	5.2%	9.7%	2.3%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	3.1	5.7	4.4	4.8	4.7	5.3	13.0%	-5.0%	2.2%	-0.6%	12.6%
Net Imports	2.6	-1.8	2.1	-0.4	-0.9	5.6	-	-	-	147.3%	-
Solids	-20.5	-23.2	-18.9	-19.3	-21.2	-18.1	2.5%	-4.0%	0.5%	10.0%	-14.7%
Oil	18.8	16.7	14.3	14.2	14.7	17.7	-2.3%	-3.0%	-0.3%	3.8%	20.3%
Crude oil	16.6	13.8	12.9	12.8	13.0	15.0	-3.7%	-1.2%	-0.3%	1.5%	na
Oil products	2.1	2.9	1.4	1.4	1.7	2.7	6.6%	-14.0%	-0.1%	25.1%	na
Natural gas	4.3	4.8	6.8	5.0	5.8	6.3	2.4%	6.9%	-7.4%	16.6%	8.4%
Electricity	0.0	-0.2	-0.1	-0.2	-0.2	-0.3	55.1%	-13.2%	26.7%	4.6%	11.5%
Gross Inland Consumption	126.5	128.4	102.0	96.6	99.3	108.4	0.3%	-4.5%	-1.4%	2.8%	9.2%
Solids	96.0	96.9	75.4	68.9	70.3	75.6	0.2%	-4.9%	-2.2%	2.1%	7.5%
Oil	18.5	16.9	13.3	14.8	15.2	18.0	-1.8%	-4.7%	2.8%	2.7%	18.3%
Natural gas	8.8	8.9	8.9	8.2	9.0	9.5	0.3%	0.0%	-2.1%	9.5%	6.2%
Other (1)	3.2	5.6	4.4	4.7	4.8	5.2	11.6%	-4.8%	1.6%	1.6%	9.8%
Electricity Generation in TWh	120.8	135.6	134.5	133.3	137.0	141.2	2.3%	-0.2%	-0.2%	2.8%	3.0%
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Hydro & wind	2.3	1.9	1.4	1.7	1.9	1.9	-4.6%	-5.2%	5.2%	8.9%	2.3%
Thermal	118.4	133.7	133.1	131.6	135.2	139.3	2.5%	-0.1%	-0.3%	2.7%	3.0%
Generation Capacity in GWe	24.7	29.0	30.9	29.6	29.5	29.6	3.3%	1.3%	-1.0%	-0.6%	0.4%
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Hydro & wind	1.3	2.0	1.9	2.0	2.0	2.0	8.8%	-1.3%	2.5%	0.0%	0.0%
Thermal	23.4	27.1	29.1	27.6	27.4	27.5	2.9%	1.4%	-1.3%	-0.6%	0.4%
Average Load Factor in %	55.8	53.3	49.7	51.3	53.1	54.5	-0.9%	-1.4%	0.8%	3.4%	2.6%
Fuel Inputs for Thermal Power Generation	46.5	50.6	44.5	41.5	36.9	37.8	1.7%	-2.5%	-1.7%	-11.2%	2.4%
Solids	43.9	48.2	42.7	39.8	36.3	37.2	1.9%	-2.4%	-1.8%	-8.8%	2.3%
Oil	2.3	1.8	1.2	1.2	0.4	0.4	-4.7%	-7.0%	-1.3%	-65.4%	-2.9%
Gas	0.1	0.1	0.1	0.1	0.1	0.1	-7.9%	0.0%	-0.8%	-8.1%	33.4%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Biomass	0.3	0.6	0.4	0.5	0.1	0.1	13.0%	-5.0%	2.5%	-76.7%	22.2%
Average Thermal Efficiency in %	21.9	22.7	25.7	27.2	31.5	31.7	0.8%	2.5%	1.4%	15.7%	0.6%
Non-Energy Uses	4.5	4.7	4.6	3.9	4.0	4.2	1.2%	-0.6%	-4.0%	1.7%	6.7%
Total Final Energy Demand	77.6	78.3	60.3	60.4	61.7	66.6	0.2%	-5.1%	0.0%	2.2%	7.9%
Solids	31.8	29.8	17.2	19.7	22.5	23.9	-1.3%	-10.4%	3.5%	14.2%	5.9%
Oil	12.1	11.4	9.3	11.4	12.0	13.8	-1.2%	-4.0%	5.3%	4.7%	15.1%
Gas	6.1	6.0	6.0	5.7	6.0	6.5	-0.2%	-0.1%	-1.2%	4.8%	8.9%
Electricity	7.2	7.8	8.3	7.3	7.7	8.0	1.7%	1.2%	-3.0%	5.1%	4.2%
Heat	17.6	18.1	15.6	11.9	8.8	9.2	0.5%	-3.0%	-6.5%	-25.9%	4.9%
Renewable energy sources	2.8	5.1	3.9	4.3	4.7	5.2	13.0%	-5.0%	2.2%	10.5%	9.9%
CO_2 Emissions in Mt of CO_2	409.7	413.3	331.8	321.6	322.3	340.2	0.2%	-4.3%	-0.8%	0.2%	5.5%
Indicators											
Population (Million)	35.58	37.20	38.12	38.54	38.61	38.64	0.9%	0.5%	0.3%	0.2%	0.1%
GDP (index 1985=100)	99.1	100.0	98.5	102.6	109.8	116.2	0.2%	-0.3%	1.0%	7.0%	5.8%
Gross Inl Cons./GDP (toe/1990 MECU)	2711.0	2728.7	2201.9	2000.4	1922.1	1983.1	0.1%	-4.2%	-2.4%	-3.9%	3.2%
Gross Inl Cons./Capita (toe/inhabitant)	3.55	3.45	2.68	2.51	2.57	2.81	-0.6%	-5.0%	-1.6%	2.6%	9.1%
Electricity Generated/Capita (kWh/inhabitant)	3394	3644	3528	3459	3549	3654	1.4%	-0.6%	-0.5%	2.6%	2.9%
CO_2 Emissions/Capita (t of CO_2/inhabitant)	11.5	11.1	8.7	8.3	8.3	8.8	-0.7%	-4.8%	-1.1%	0.0%	5.5%
Import Dependency %	2.0	-1.4	2.0	-0.4	-0.9	5.2	-	-	-	140.3%	-

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

ROMANIA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	52.6	54.4	40.1	31.6	31.7	31.1	0.7%	-5.9%	-5.8%	0.5%	-2.1%
Solids	8.1	10.3	7.6	7.3	7.4	7.6	4.9%	-6.0%	-0.9%	0.6%	2.6%
Oil	11.2	10.4	7.7	6.8	6.8	6.8	-1.4%	-5.9%	-3.1%	-0.3%	0.7%
Natural gas	31.3	31.3	22.9	14.8	14.4	13.4	0.0%	-6.1%	-10.3%	-2.6%	-7.4%
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Hydro & Wind	1.1	1.1	0.9	1.1	1.4	1.4	0.1%	-2.9%	4.4%	28.0%	-5.5%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	1.0	1.3	0.9	1.5	1.7	1.9	5.6%	-5.5%	12.5%	14.2%	12.8%
Net Imports	12.1	11.3	21.6	10.6	14.1	14.4	-1.4%	13.9%	-16.3%	32.3%	2.6%
Solids	4.0	4.9	4.3	2.5	2.7	2.7	4.1%	-2.7%	-12.9%	9.6%	-1.2%
Oil	6.9	4.6	10.6	4.4	6.5	5.9	-8.1%	18.4%	-19.9%	48.0%	-8.0%
Crude oil	15.5	14.2	15.6	7.9	8.4	na	-1.7%	1.9%	-15.7%	6.6%	na
Oil products	-8.6	-9.6	-5.0	-3.5	-1.9	na	2.4%	-12.3%	-8.4%	-44.8%	na
Natural gas	1.1	1.5	5.9	3.7	4.9	5.8	6.6%	31.2%	-10.9%	30.6%	18.7%
Electricity	0.0	0.3	0.8	0.1	0.0	0.0	49.9%	23.8%	-47.5%	-58.1%	0.0%
Gross Inland Consumption	64.7	64.7	61.5	42.6	45.8	45.7	0.0%	-1.0%	-8.7%	7.4%	-0.2%
Solids	12.1	15.2	11.7	9.8	10.1	10.2	4.6%	-5.1%	-4.4%	3.4%	1.4%
Oil	18.1	14.9	18.2	11.6	13.2	12.9	-3.8%	4.1%	-10.7%	13.3%	-1.6%
Natural gas	32.4	31.9	28.8	18.6	19.3	19.2	-0.3%	-2.0%	-10.4%	4.1%	-0.8%
Other (1)	2.1	2.6	2.7	2.7	3.2	3.3	4.7%	0.6%	-0.1%	18.5%	4.5%
Electricity Generation in TWh	67.5	71.8	64.3	55.1	59.3	na	1.3%	-2.2%	-3.8%	7.5%	na
Nuclear	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Hydro & wind	12.6	12.7	11.0	13.0	16.7	na	0.1%	-2.9%	4.4%	28.0%	na
Thermal	54.8	59.1	53.3	42.1	42.6	na	1.5%	-2.0%	-5.7%	1.1%	na
Generation Capacity in GWe	16.1	19.6	22.5	22.1	22.3	na	4.0%	2.8%	-0.5%	1.0%	na
Nuclear	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Hydro & wind	3.5	4.4	5.7	5.9	6.0	na	5.1%	5.1%	1.2%	1.0%	na
Thermal	12.7	15.2	16.8	16.1	16.3	na	3.7%	2.1%	-1.0%	1.0%	na
Average Load Factor in %	47.8	41.9	32.7	28.5	30.4	na	-2.6%	-4.8%	-3.3%	6.4%	na
Fuel Inputs for Thermal Power Generation	11.3	19.9	22.3	15.7	15.7	na	12.0%	2.3%	-8.4%	0.0%	na
Solids	4.7	7.0	7.1	6.5	6.7	na	8.4%	0.2%	-2.3%	3.0%	na
Oil	1.5	2.8	6.2	2.9	3.0	na	13.1%	17.6%	-17.8%	5.5%	na
Gas	5.1	10.1	9.0	6.3	6.0	na	14.5%	-2.3%	-8.3%	-5.5%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	-	-	-	5.6%	na
Average Thermal Efficiency in %	41.7	25.6	20.6	23.1	23.3	na	-9.3%	-4.3%	2.9%	1.1%	na
Non-Energy Uses	1.4	1.2	1.1	1.2	1.0	na	-3.5%	-1.8%	4.0%	-17.2%	na
Total Final Energy Demand	57.9	49.2	42.4	25.2	26.3	na	-3.2%	-2.9%	-12.2%	4.4%	na
Solids	6.9	7.0	2.8	1.2	1.5	na	0.4%	-17.0%	-18.1%	20.6%	na
Oil	13.4	8.9	8.0	5.8	5.8	na	-7.9%	-2.1%	-8.0%	0.9%	na
Gas	27.3	21.8	19.8	8.4	9.5	na	-4.3%	-1.9%	-19.3%	12.8%	na
Electricity	4.6	5.1	4.7	2.9	3.1	na	1.9%	-1.8%	-10.9%	6.3%	na
Heat	4.7	5.1	6.2	5.4	4.7	na	1.6%	3.8%	-3.4%	-12.8%	na
Renewable energy sources	1.0	1.2	0.9	1.5	1.7	na	5.5%	-5.5%	11.8%	14.7%	na
CO_2 Emissions in Mt of CO_2	178.1	176.1	162.0	107.9	111.1	na	-0.2%	-1.7%	-9.7%	3.0%	na
Indicators											
Population (Million)	22.20	22.73	23.21	22.73	22.69	22.62	0.5%	0.4%	-0.5%	-0.2%	-0.3%
GDP (index 1985=100)	85.7	100.0	86.1	73.5	78.7	79.5	3.1%	-2.9%	-3.9%	7.1%	1.0%
Gross Inl Cons./GDP (toe/1990 MECU)	2163.7	1854.5	2046.0	1662.1	1666.0	1646.5	-3.0%	2.0%	-5.1%	0.2%	-1.2%
Gross Inl Cons./Capita (toe/inhabitant)	2.91	2.85	2.65	1.87	2.02	2.02	-0.5%	-1.4%	-8.3%	7.5%	0.1%
Electricity Generated/Capita (kWh/inhabitant)	3040	3160	2771	2426	2612	na	0.8%	-2.6%	-3.3%	7.7%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	8.0	7.7	7.0	4.7	4.9	na	-0.7%	-2.1%	-9.2%	3.2%	na
Import Dependency %	18.7	17.4	35.2	25.0	30.8	31.6	-1.4%	15.1%	-8.2%	23.3%	2.8%

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

SLOVAKIA(3) : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	3.5	5.1	5.5	5.1	4.9	5.1	7.9%	1.5%	-2.1%	-2.8%	3.8%
Solids	1.7	1.7	1.4	1.1	1.1	1.0	-0.2%	-3.7%	-6.5%	3.5%	-4.8%
Oil	0.0	0.1	0.1	0.1	0.1	0.2	9.5%	2.6%	-1.7%	8.6%	100.0%
Natural gas	0.1	0.3	0.3	0.2	0.3	0.3	17.8%	2.1%	-9.8%	17.1%	0.0%
Nuclear	1.2	2.4	3.1	3.2	3.0	3.1	15.7%	5.1%	0.2%	-5.7%	3.7%
Hydro & Wind	0.2	0.2	0.2	0.4	0.4	0.5	-1.3%	-2.3%	22.9%	14.1%	17.4%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	0.2	0.4	0.4	0.2	0.1	0.1	11.9%	-1.3%	-19.2%	-55.4%	-28.3%
Net Imports	14.4	13.5	16.3	11.6	12.3	13.5	-1.3%	3.7%	-8.0%	6.0%	9.7%
Solids	3.0	3.4	5.5	4.2	3.8	5.0	2.1%	10.2%	-6.4%	-9.7%	31.7%
Oil	7.4	5.9	4.7	3.1	3.6	3.5	-4.6%	-4.3%	-10.3%	18.9%	-2.5%
Crude oil	9.8	7.9	6.2	4.8	5.4	na	-4.1%	-4.9%	-6.3%	13.2%	na
Oil products	-2.3	-2.0	-1.4	-1.7	-1.7	na	-2.5%	-6.9%	4.3%	2.9%	na
Natural gas	3.7	3.9	5.6	4.3	4.8	4.8	1.3%	7.4%	-6.3%	10.2%	1.8%
Electricity	0.3	0.4	0.4	0.0	0.1	0.1	4.8%	4.4%	-46.4%	229.7%	0.0%
Gross Inland Consumption	17.9	18.8	21.4	16.8	17.4	18.6	1.0%	2.6%	-5.9%	3.8%	6.5%
Solids	4.8	5.2	7.2	5.1	5.1	6.1	1.7%	6.8%	-8.1%	0.0%	17.6%
Oil	7.5	6.0	4.7	3.2	3.4	3.6	-4.3%	-4.7%	-9.4%	7.6%	6.2%
Natural gas	3.8	4.2	5.3	4.7	5.3	5.1	2.1%	4.8%	-3.0%	11.2%	-2.9%
Other (1)	1.9	3.4	4.1	3.7	3.6	3.8	12.4%	4.0%	-2.6%	-3.7%	4.5%
Electricity Generation in TWh	20.0	21.9	23.4	24.5	25.6	na	1.9%	1.3%	1.1%	4.7%	na
Nuclear	4.5	9.4	12.0	12.1	11.4	na	15.7%	5.1%	0.2%	-5.8%	na
Hydro & wind	2.3	2.1	1.9	4.3	4.9	na	-1.3%	-2.3%	23.0%	14.1%	na
Thermal	13.2	10.4	9.5	8.1	9.3	na	-4.6%	-1.8%	-4.1%	15.5%	na
Generation Capacity in GWe	0.9	1.8	6.3	7.1	7.1	na	14.9%	29.2%	3.0%	0.0%	na
Nuclear	0.9	1.8	1.8	1.6	1.6	na	14.9%	0.0%	-1.9%	0.0%	na
Hydro & wind	0.0	0.0	1.7	1.9	1.9	na	-	-	4.1%	0.0%	na
Thermal	0.0	0.0	2.9	3.5	3.5	na	-	-	4.9%	0.0%	na
Average Load Factor in %	259.0	142.3	42.2	39.3	41.1	na	-11.3%	-21.6%	-1.8%	4.7%	na
Fuel Inputs for Thermal Power Generation	2.8	2.9	2.9	2.5	2.8	na	0.2%	-0.2%	-3.2%	10.0%	na
Solids	2.0	2.2	2.0	1.6	1.9	na	1.5%	-1.5%	-5.0%	17.5%	na
Oil	0.6	0.4	0.2	0.2	0.2	na	-6.3%	-9.3%	-4.3%	-21.7%	na
Gas	0.3	0.3	0.6	0.6	0.7	na	2.1%	12.9%	2.4%	4.8%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	-	-	5.2%	-89.8%	na
Average Thermal Efficiency in %	39.9	31.2	28.6	27.6	29.0	na	-4.8%	-1.7%	-0.9%	5.0%	na
Non-Energy Uses	0.6	0.8	2.3	1.6	1.6	na	5.5%	24.1%	-9.1%	4.3%	na
Total Final Energy Demand	14.4	14.4	14.8	11.1	11.1	na	0.0%	0.6%	-7.0%	0.6%	na
Solids	4.2	4.5	4.9	3.2	3.0	na	1.5%	1.6%	-10.0%	-5.9%	na
Oil	5.0	3.8	3.2	2.2	2.0	na	-5.1%	-3.6%	-9.3%	-8.3%	na
Gas	2.9	3.2	3.7	3.2	3.5	na	2.0%	2.7%	-3.6%	10.2%	na
Electricity	1.6	1.8	2.0	1.8	1.9	na	2.4%	1.8%	-3.1%	5.1%	na
Heat	0.5	0.5	0.6	0.6	0.7	na	3.8%	3.6%	-3.0%	16.4%	na
Renewable energy sources	0.2	0.4	0.4	0.1	0.1	na	11.9%	-2.2%	-21.2%	-49.5%	na
CO_2 Emissions in Mt of CO_2	50.3	49.0	50.0	37.0	37.1	na	-0.5%	0.4%	-7.3%	0.4%	na
Indicators											
Population (Million)	4.98	5.19	5.28	5.35	5.37	5.37	0.8%	0.3%	0.3%	0.4%	0.0%
GDP (index 1985=100)	92.6	100.0	107.3	85.3	91.9	98.3	1.6%	1.4%	-5.6%	7.7%	6.9%
Gross Inl Cons./GDP (toe/1990 MECU)	2012.9	1955.1	2072.1	2044.8	1969.9	1961.6	-0.6%	1.2%	-0.3%	-3.7%	-0.4%
Gross Inl Cons./Capita (toe/inhabitant)	3.60	3.63	4.05	3.14	3.25	3.46	0.1%	2.2%	-6.2%	3.4%	6.5%
Electricity Generated/Capita (kWh/inhabitant)	4009	4228	4438	4577	4775	na	1.1%	1.0%	0.8%	4.3%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	10.1	9.4	9.5	6.9	6.9	na	-1.3%	0.1%	-7.6%	0.0%	na
Import Dependency %	80.5	71.9	76.0	69.2	70.7	72.8	-2.2%	1.1%	-2.3%	2.1%	3.1%

(1) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
(2) Estimates
(3) Provisional data before 1990

SLOVENIA : SUMMARY ENERGY BALANCE

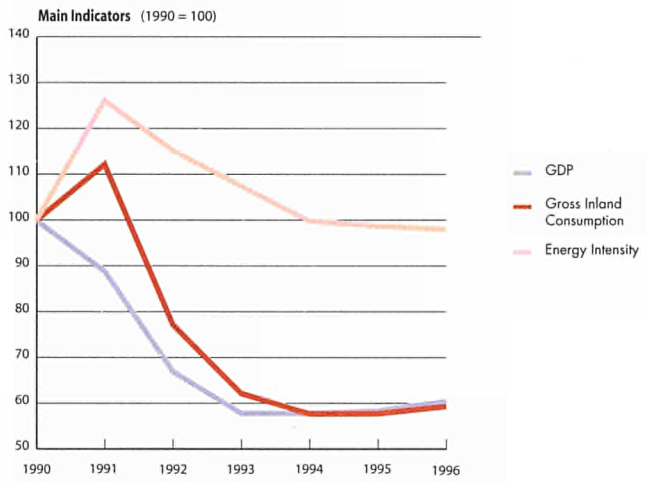
Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	1.6	2.8	2.7	2.8	2.8	2.8	11.5%	-0.9%	1.0%	1.5%	-0.7%
Solids	1.3	1.5	1.2	1.0	1.0	1.0	1.9%	-4.0%	-3.4%	0.6%	-1.3%
Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0%	0.0%	-9.6%	0.0%	0.0%
Natural gas	0.0	0.0	0.0	0.0	0.0	0.0	-3.6%	29.2%	-13.7%	40.0%	-33.3%
Nuclear	0.0	1.1	1.2	1.2	1.2	1.2	-	2.7%	-0.1%	3.7%	-2.2%
Hydro & Wind	0.3	0.3	0.3	0.3	0.3	0.3	-1.2%	-1.5%	3.5%	-4.5%	9.4%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	0.0	0.0	0.0	0.2	0.2	0.2	-	-	-	0.0%	0.0%
Net Imports	2.7	2.4	2.5	2.7	3.0	3.1	-1.9%	0.6%	1.7%	11.7%	5.5%
Solids	0.3	0.5	0.1	0.1	0.2	0.2	7.9%	-24.0%	3.0%	32.2%	-2.8%
Oil	1.9	1.4	1.8	2.1	2.3	2.2	-5.1%	4.6%	4.2%	6.4%	-0.5%
Crude oil	0.5	0.5	0.6	0.4	0.6	na	-2.9%	5.2%	-9.4%	50.6%	na
Oil products	1.3	1.0	1.2	1.7	1.6	na	-6.0%	4.3%	9.3%	-4.0%	na
Natural gas	0.4	0.6	0.7	0.6	0.7	0.9	11.0%	0.5%	-3.3%	18.6%	26.4%
Electricity	0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-	-10.4%	18.2%	-14.5%	0.0%
Gross Inland Consumption	4.3	5.2	5.2	5.5	5.8	5.9	3.9%	0.2%	1.1%	7.1%	1.6%
Solids	1.6	1.9	1.4	1.2	1.2	1.2	3.0%	-5.8%	-3.8%	0.8%	-1.4%
Oil	1.9	1.4	1.8	2.1	2.3	2.3	-5.0%	3.9%	4.5%	10.5%	-2.1%
Natural gas	0.4	0.6	0.7	0.6	0.7	0.9	10.8%	1.4%	-4.7%	18.3%	28.6%
Other (1)	0.4	1.2	1.4	1.6	1.6	1.6	25.8%	3.0%	3.7%	3.5%	-1.9%
Electricity Generation in TWh	8.0	12.2	12.4	12.6	12.6	na	8.9%	0.3%	0.4%	0.2%	na
Nuclear	0.0	4.1	4.6	4.6	4.8	na	-	2.7%	-0.1%	3.7%	na
Hydro & wind	3.4	3.2	3.0	3.4	3.2	na	-1.2%	-1.5%	3.6%	-4.7%	na
Thermal	4.6	5.0	4.9	4.6	4.6	na	1.6%	-0.5%	-1.3%	0.2%	na
Generation Capacity in GWe	0.0	0.0	2.5	2.5	2.5	na	-	-	-0.4%	-0.2%	na
Nuclear	0.0	0.0	0.6	0.6	0.6	na	-	-	0.0%	0.0%	na
Hydro & wind	0.0	0.0	0.8	0.8	0.8	na	-	-	0.0%	0.1%	na
Thermal	0.0	0.0	1.1	1.1	1.1	na	-	-	-0.9%	-0.6%	na
Average Load Factor in %	0.0	0.0	56.1	57.9	58.1	na	-	-	0.8%	0.4%	na
Fuel Inputs for Thermal Power Generation	1.2	1.5	1.3	1.2	1.1	na	4.6%	-3.1%	-2.2%	-11.1%	na
Solids	1.0	1.2	1.1	1.0	0.9	na	2.8%	-2.5%	-2.1%	-12.3%	na
Oil	0.1	0.2	0.2	0.1	0.1	na	3.4%	-1.6%	-2.5%	-14.9%	na
Gas	0.0	0.1	0.1	0.1	0.1	na	49.4%	-11.0%	-3.8%	12.7%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	32.9	28.3	32.4	33.7	37.9	na	-2.9%	2.7%	1.0%	12.6%	na
Non-Energy Uses	0.0	0.0	0.0	0.0	0.0	na	-21.4%	21.7%	-9.0%	291.3%	na
Total Final Energy Demand	3.3	3.2	3.3	3.7	3.9	na	-0.9%	1.0%	2.8%	4.9%	na
Solids	0.6	0.7	0.3	0.2	0.1	na	1.4%	-14.0%	-16.9%	-13.8%	na
Oil	1.6	1.2	1.5	1.9	2.1	na	-5.6%	4.2%	6.1%	9.9%	na
Gas	0.3	0.4	0.5	0.4	0.4	na	6.3%	5.6%	-3.7%	-0.9%	na
Electricity	0.7	0.8	0.8	0.8	0.8	na	2.9%	1.6%	-1.2%	0.9%	na
Heat	0.1	0.1	0.2	0.2	0.2	na	2.9%	7.9%	0.3%	6.7%	na
Renewable energy sources	0.0	0.0	0.0	0.3	0.3	na	-	-	-	-0.1%	na
CO_2 Emissions in Mt of CO_2	12.9	13.0	12.2	12.1	12.2	na	0.3%	-1.4%	-0.1%	0.1%	na
Indicators											
Population (Million)	1.90	1.97	2.00	1.99	1.99	1.99	0.7%	0.3%	-0.1%	0.0%	0.0%
GDP (index 1990=100)	na	na	100.00	97.58	97.07	100.07	na	na	-0.6%	-0.5%	3.1%
Gross Inl Cons./GDP (toe/1990 MECU)	na	na	382.9	409.61	441.12	435.44	na	na	1.7%	7.7%	-1.3%
Gross Inl Cons./Capita (toe/inhabitant)	2.25	2.63	2.61	2.74	2.94	2.99	3.2%	-0.1%	1.2%	7.1%	1.6%
Electricity Generated/Capita (kWh/inhabitant)	4215	6213	6221	6347	6356	na	8.1%	0.0%	0.5%	0.2%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	6.8	6.6	6.1	6.1	6.1	na	-0.4%	-1.7%	0.1%	0.1%	na
Import Dependency %	62.5	46.8	47.7	49.4	51.4	53.1	-5.6%	0.4%	0.9%	4.1%	3.4%

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

The Baltic states: Major trends (1985-1996)

- Separation from the former USSR was followed by a severe economic crisis until 1993
- Both energy production and demand decreased strongly until 1993 but only production rebounded
- Increasing weight of the transport sector
- Nuclear production directly marked by the vanishing of electricity exports to the former Soviet Union
- Difficulties to secure gas imports from Gazprom
- Energy intensity at almost the same level as in 1990
- CO_2 emissions have dropped by 47% over a six year period
- Energy import dependency remained in the range of 60%

The Baltic Countries are comprised of Estonia, Latvia and Lithuania, previously part of the former USSR. Any reliable economic and energy indicator seems difficult to gather for these countries for a long-term period. This situation prevailed before independence, as generally observed elsewhere in the former USSR, due to aggregation of figures for several Republics and to non standardised methods of computing economic and energy data. As a consequence, energy data and indicators described below must be interpreted carefully, in particular data in relation to the year 1990 and to biomass.



Separation from the former USSR was followed by a severe economic crisis until 1993...

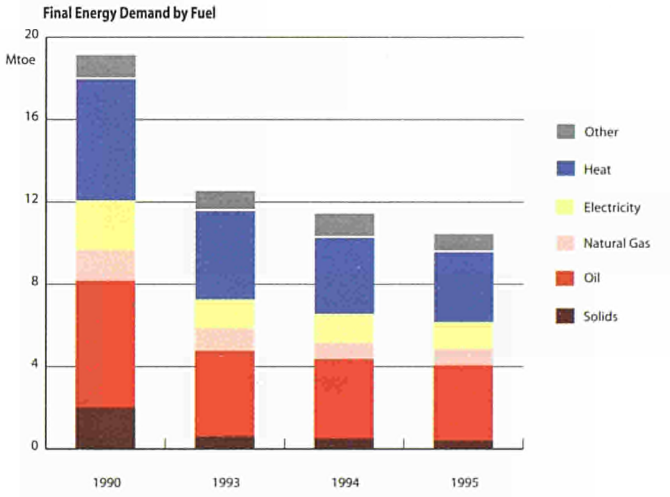
The separation from the former USSR has induced a severe economic crisis in the Baltic countries. The GDP dropped between 1991 and 1993 by about 42% but has stabilised since then and even started to recover in 1996 (+3.5%). This change was due to several factors, including the disruption of trading links with other former Soviet republics, the increase of relative energy prices, the transformation of the centrally-planned economy to a free market and the reorientation of trade towards the West.

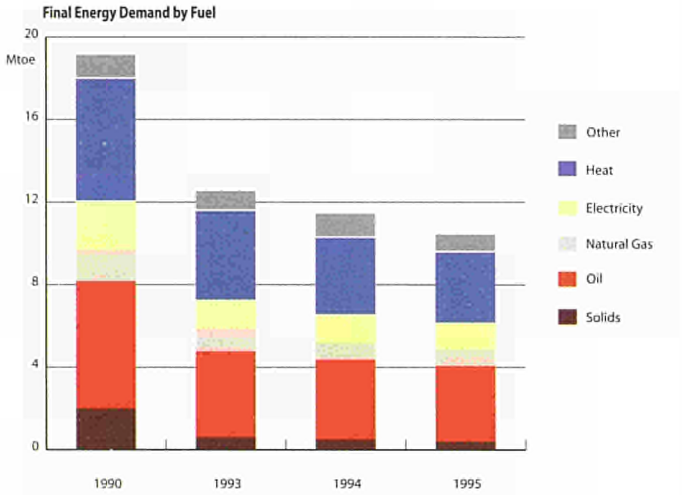
ENERGY OUTLOOK

Both energy production and demand decreased strongly until 1993 but production rebounded...

As a direct consequence of economic restructuring, both the **energy production and gross inland energy consumption** decreased sharply over the same period. The production of energy declined from 11.3 Mtoe in 1990 to 7.2 Mtoe in 1994 and rebounded to 7.8 in 1996, whereas the gross inland energy demand decreased from 31.4 Mtoe in 1990 to 18.2 Mtoe in 1994 and then stabilised. All fossil fuel demand was strictly reduced: between 1990 and 1996 gas consumption dropped by 57%, solid fuel consumption by 55% and oil products by 38%. Only non-fossil fuels as a whole (nuclear, biomass and hydro) maintained their level of consumption over the same period.

This evolution was mainly influenced by the behaviour of **total final energy demand,** mainly oil and distributed heat, at one third each. The demand for oil, gas and distributed heat fell in absolute terms between 1990 and 1995, by about 40-47% as with gross inland consumption, while at the same time demand for electricity decreased by 28% and solid fuels by 80%. This evolu-





tion resulted from both the economic climate and the effective increases of energy prices in an energy market confronted with the reality of world or regional market prices.

Increasing weight of the transport sector…

The evolution of the structure by sector of final energy demand demonstrated the increasing importance of transport in the new market economies. Its share doubled from 11% in 1990 to 22% in 1995 to the detriment of industry (from 31% to 27%) and tertiary-domestic (from 58% to 51%). This is related to the increasing motorization as a result of migration to market economies and increasing of standards of living.

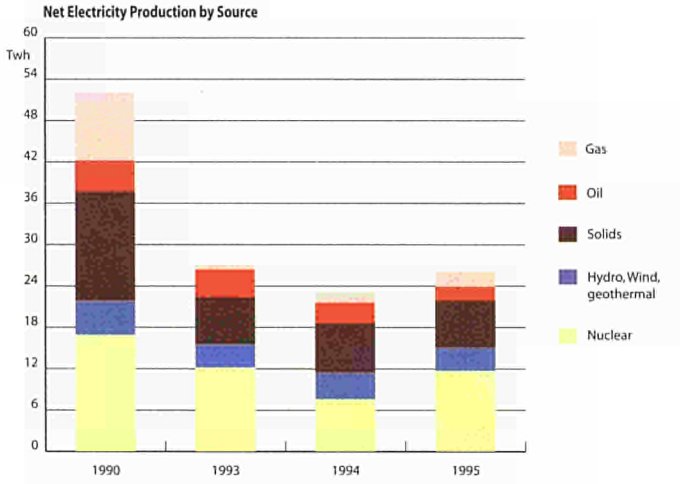
The electricity share in final consumption increased slowly since 1993 to reach 17.4% in industry (16.1% in 1990) and 14.1% in tertiary-domestic sector (11.5% in 1990). These levels remained well below the European averages and demonstrate the large potential for electricity increases in the future.

Nuclear production directly marked by the vanishing of electricity exports to the former Soviet Union…

The Baltic countries are **energy producers** of solid fuels, mainly shale oil, and of nuclear energy. Both productions have significantly dropped between 1990 and 1996, 50% for oil shale and 14% for nuclear, as production grew substantially since the dip observed in 1994. In the beginning of the 90's, nuclear production was directly affected by vanishing electricity exports to the former Soviet Union. On the other hand biomass production has stabilised since 1990 at about 1Mtoe.

Difficulties to secure gas imports from Gazprom...

The **electricity generation capacity** has remained quite constant over the last four years at about 11 GWe, the only major modification being the commissioning of 600 MWe of pumping storage units. Thermal power stations represented 58% of the capacity in 1995, the complement being covered by nuclear energy (22%) and by hydro (20%). The load factor dropped dramatically from 55% to 27% over the period and at the same time electricity production was reduced by about 50%. Thermal power stations, the production of which was almost equivalent to nuclear units in 1995, are mainly fired by solid fuels (62% in 1995), oil and natural gas (19% each). Since 1990 the contribution of natural gas has been drastically reduced due to the difficulties in securing gas imports by Gazprom.



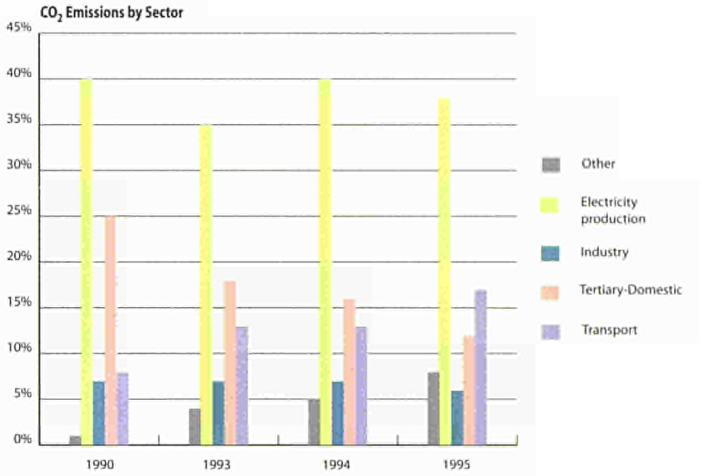
COMPETITIVENESS

Energy intensity at almost the same level as in 1990...

In terms of **energy intensity**, as energy consumption declined more slowly than economic activities between 1990 and 1993, an increase of 7.5% was observed during this period. Baltic countries have been gaining in energy intensity since the transition to the free market began. But as this region is relatively small, rapid shifts in energy intensity could result from simply closing or opening one large plant. Since 1993, energy intensity improved on average by 3% per year. Major gains were observed in Estonia and Latvia although energy intensity in Lithuania was increasing.

The evolution of energy intensity by sector was marked by the continued improvement of an industry confronted with restructuring and modernisation, the doubling of transport energy intensity in relation to increasing living standards and car use and the limited increase in tertiary-domestic (6% between 1990 and 1993) resulting from life style improvements induced by the capitalist economy. This was followed by a significant improvement associated with the recovery of the economy.

The **gross inland energy consumption per capita** dropped from 3.95 to 2.34 Kgoe/inhabitant over the period 1990-1994,but rebounded to 2.43 Kgoe/inhabitant in 1996.

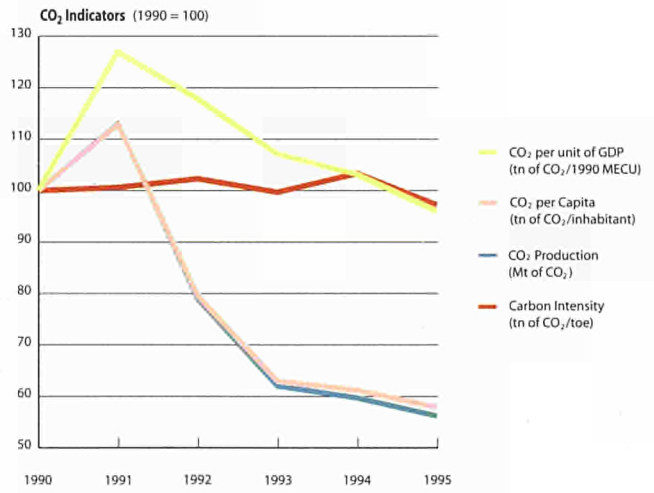


ENVIRONMENT

CO_2 emissions have dropped by 47% over a six year period...

As the final energy consumption dropped over the period, the **CO_2 emissions** followed the same trend: from 76 Mt. CO_2 in 1990 to 40 Mt. CO_2 in 1996 (47% drop over six years). Since 1994, increased gross inland energy consumption has been compensated by a greater contribution of nuclear and natural gas in replacing solid fuels and oil products. This explains the continued reduction these last two years (-11%). As the population of the Baltic countries remained almost stable over the period, the **per capita CO_2 emissions** follow the same trend, and dropped from 9.5 to 5.2 tonnes of CO_2/inhabitant over the period, compared to an European average value of 8.4 over the same period.

Looking at CO_2 emissions by sector at the regional level, it appears that the largest sector in terms of emissions is power generation with about 36% of total emissions in 1995 (40% in 1990). Transport became the second contributor in 1995, accounting for 17% against 8% in 1990. The tertiary-domestic sector declined to 12% in 1995 from 25% in 1990 whereas industry remained stable at about 7%.



GLOBAL MARKETS

Energy import dependency remained in the range of 60%...

The Baltic Countries are **energy importers** of coal, but mainly of oil and gas coming from the CIS. These imports dropped significantly by almost 46% between 1990 and 1994 and have been quite stable since then; the increasing gas imports being compensated by oil reduction use. Historically, Baltic countries were net exporters of electricity with a large capacity based on nuclear power and shale oil. But, if oil shale exports continued at 50% of the 1990 level, electricity exports disappeared as early as 1993. As at the same time gross energy consumption dropped by 40%, the **energy import dependency** that was 62% in 1990 fell to 58% in 1996.

BALTIC COUNTRIES : SUMMARY ENERGY BALANCE

Mtoe	1990	1993	1994	1995	1996(2)	93/90	94/93	95/94	96/95
						Annual % Change			
Primary Production	11.3	8.1	7.2	7.7	7.8	-10.7%	-11.3%	8.1%	0.6%
Solids	5.4	3.5	3.5	3.2	2.7	-13.4%	0.5%	-9.9%	-16.6%
Oil	0.0	0.1	0.1	0.1	0.1	-	27.4%	38.7%	0.0%
Natural gas	0.0	0.0	0.0	0.0	0.0	-	-	-	-
Nuclear	4.4	3.3	2.1	3.1	3.8	-9.6%	-36.8%	51.9%	19.8%
Hydro & Wind	0.4	0.3	0.3	0.3	0.2	-12.7%	14.9%	-11.8%	-18.4%
Geothermal	0.0	0.0	0.0	0.0	0.0	-	-	-	-
Other renewable energy sources	1.0	0.9	1.1	1.0	1.0	-4.7%	24.4%	-12.7%	0.7%
Net Imports	19.5	11.0	11.0	10.9	10.9	-17.5%	0.0%	-0.5%	-0.1%
Solids	1.9	0.8	0.8	0.6	0.8	-26.6%	3.6%	-27.5%	44.3%
Oil	10.7	7.7	7.0	6.8	6.7	-10.4%	-9.5%	-2.1%	-1.3%
Crude oil	9.6	5.2	3.6	3.2	na	-18.4%	-30.5%	-11.5%	na
Oil products	1.1	2.5	3.4	3.6	na	30.6%	34.3%	8.1%	na
Natural gas	8.2	2.7	3.1	3.6	3.5	-31.3%	14.7%	18.3%	-4.8%
Electricity	-1.3	-0.2	0.2	-0.1	-0.1	-50.9%	-	-	0.0%
Gross Inland Consumption	31.4	19.6	18.2	18.2	18.7	-14.6%	-7.1%	0.1%	2.7%
Solids	7.7	4.5	4.3	4.0	3.5	-16.3%	-4.1%	-7.0%	-13.1%
Oil	11.1	7.7	7.2	6.4	6.9	-11.5%	-6.7%	-11.2%	7.5%
Natural gas	8.1	3.1	3.1	3.6	3.5	-27.7%	0.9%	18.0%	-5.0%
Other (1)	4.6	4.3	3.6	4.2	4.9	-2.0%	-16.7%	15.7%	17.4%
Electricity Generation in TWh	52.2	27.2	23.3	26.2	na	-19.6%	-14.1%	12.2%	na
Nuclear	17.0	12.3	7.7	11.8	na	-10.4%	-37.1%	53.4%	na
Hydro & wind	4.9	3.3	3.8	3.3	na	-12.7%	15.0%	-11.9%	na
Thermal	30.3	11.6	11.9	11.1	na	-27.3%	2.1%	-6.9%	na
Generation Capacity in GWe	10.8	10.8	11.0	11.1	na	0.0%	1.9%	0.3%	na
Nuclear	2.5	2.4	2.4	2.4	na	-1.8%	0.0%	0.0%	na
Hydro & wind	1.6	1.6	2.2	2.2	na	0.4%	37.3%	0.1%	na
Thermal	6.7	6.8	6.4	6.5	na	0.6%	-5.7%	0.4%	na
Average Load Factor in %	55.2	28.7	24.2	27.0	na	-19.6%	-15.7%	11.9%	na
Fuel Inputs for Thermal Power Generation	9.1	4.6	5.1	4.7	na	-20.2%	9.8%	-8.2%	na
Solids	4.8	2.7	3.1	2.9	na	-17.2%	13.4%	-6.2%	na
Oil	1.4	1.6	1.4	0.9	na	5.8%	-18.0%	-35.2%	na
Gas	3.0	0.3	0.7	0.9	na	-55.2%	154.6%	35.2%	na
Geothermal	0.0	0.0	0.0	0.0	na	-	-	-	na
Biomass	0.0	0.0	0.0	0.0	na	-	-100.0%	-	na
Average Thermal Efficiency in %	28.5	21.6	20.0	20.3	na	-8.9%	-7.0%	1.4%	na
Non-Energy Uses	2.0	0.2	0.5	0.7	na	-50.7%	131.3%	29.3%	na
Total Final Energy Demand	19.0	12.3	11.3	10.4	na	-13.3%	-8.4%	-8.0%	na
Solids	2.0	0.6	0.5	0.4	na	-	-9.0%	-25.6%	na
Oil	6.2	4.2	3.9	3.7	na	-12.5%	-6.7%	-4.8%	na
Gas	1.5	1.1	0.8	0.8	na	-10.7%	-19.7%	-3.8%	na
Electricity	2.4	1.4	1.4	1.3	na	-16.8%	-0.2%	-3.1%	na
Heat	5.9	4.3	3.7	3.4	na	-9.8%	-15.1%	-8.0%	na
Renewable energy sources	1.1	0.9	1.1	0.8	na	-5.4%	17.4%	-20.8%	na
CO_2 Emissions in Mt of CO_2	75.9	47.1	45.3	42.6	40.2	-14.7%	-3.7%	-5.9%	-5.6%
Indicators									
Population (Million)	7.96	7.84	7.77	7.73	7.68	-0.5%	-0.9%	-0.5%	-0.6%
GDP (index 1985=100)	116.4	67.4	67.4	68.2	70.5	-16.7%	0.0%	1.1%	3.4%
Gross Inl Cons./GDP (toe/1990 MECU)	1249.7	1343.5	1247.7	1234.4	1226.1	2.4%	-7.1%	-1.1%	-0.7%
Gross Inl Cons./Capita (toe/inhabitant)	3.95	2.49	2.34	2.35	2.43	-14.2%	-6.3%	0.6%	3.4%
Electricity Generated/Capita (kWh/inhabitant)	6562	3465	3005	3388	na	-19.2%	-13.3%	12.8%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	9.5	6.0	5.8	5.5	5.2	-14.3%	-2.9%	-5.4%	-5.0%
Import Dependency %	62.0	55.6	59.5	59.0	57.7	-3.6%	7.0%	-0.8%	-2.1%

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

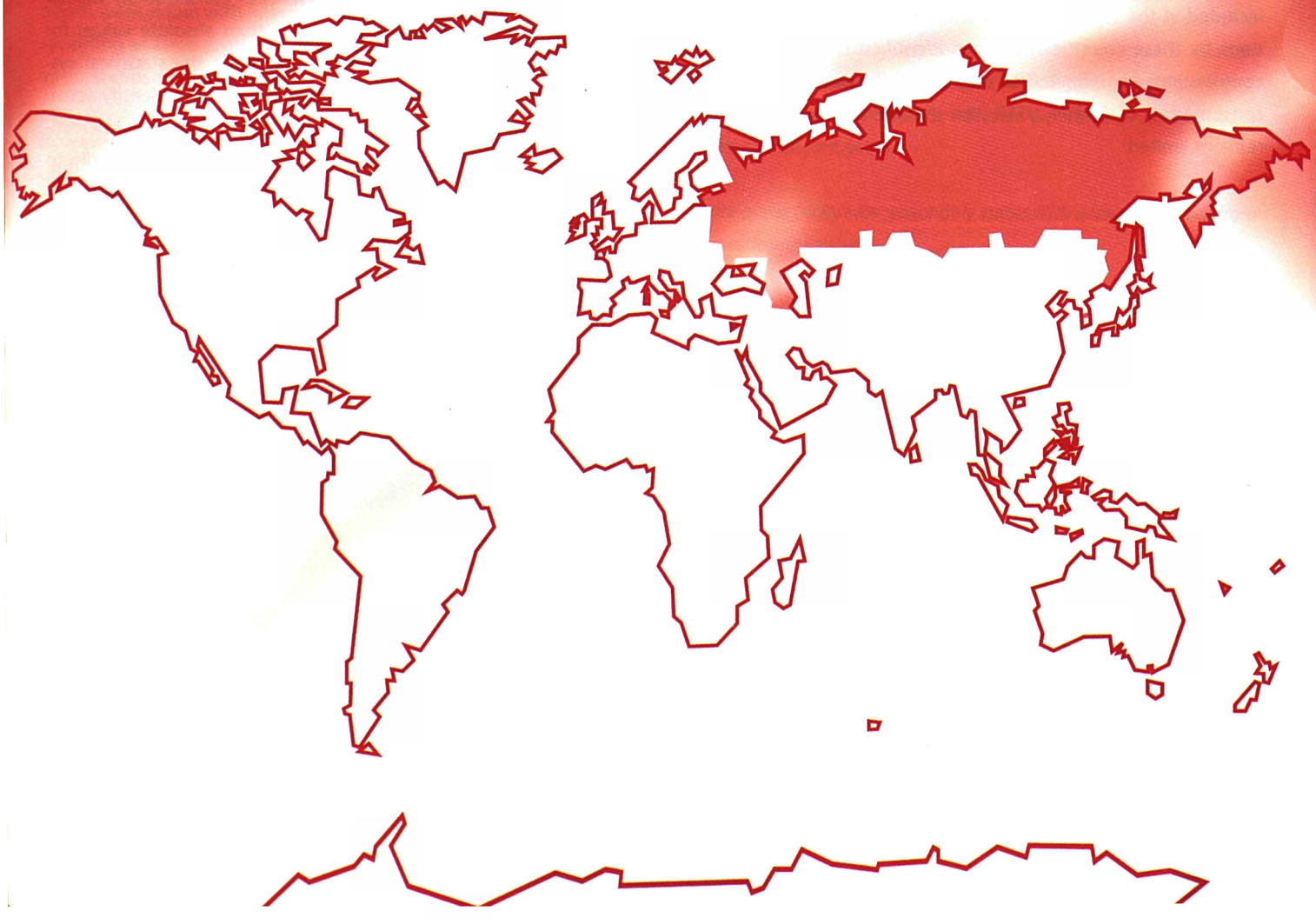
BALTIC COUNTRIES : MAIN INDICATORS

	1990	1993	1994	1995	93/90	94/93	95/94
Gross Inland Consumption (Mtoe)	31.4	19.6	18.2	18.2	-14.6%	-7.1%	0.1%
Public Thermal Power Generation	9.0	4.6	4.8	4.3	-20.3%	5.4%	-10.2%
Autoprod. Thermal Power Generation	0.1	0.1	0.3	0.3	-15.8%	318.5%	26.8%
Energy Branch	1.0	1.2	1.3	1.7	4.7%	11.9%	25.4%
Final Energy Consumption	19.8	12.4	11.4	10.8	-14.5%	-7.4%	-5.8%
industry	6.2	3.3	3.0	3.0	-18.7%	-9.0%	-2.6%
Transport	2.2	2.0	1.9	2.4	-1.9%	-5.1%	21.8%
Tertiary-Domestic	11.4	7.0	6.5	5.5	-15.1%	-7.3%	-15.6%
Energy Intensity (toe/1990 MECU)	1249.7	1343.5	1247.7	1234.4	2.4%	-7.1%	-1.1%
Public Thermal Power Generation	358.8	314.3	331.4	294.2	-4.3%	5.4%	-11.2%
Autoprod. Thermal Power Generation	4.3	4.5	18.7	23.4	1.0%	318.5%	25.4%
Industry	247.1	229.2	208.5	200.9	-2.5%	-9.0%	-3.7%
Transport	85.9	140.0	132.9	160.1	17.7%	-5.1%	20.4%
Tertiary-Domestic	453.4	480.0	444.7	371.3	1.9%	-7.3%	-16.5%
Energy per Capita (Kgoe/inhabitant)	3948	2494	2337	2351	-14.2%	-6.3%	0.6%
Industry	781	426	391	383	-18.3%	-8.2%	-2.1%
Transport	271	260	249	305	-1.4%	-4.2%	22.4%
Tertiary-Domestic	1432	891	833	707	-14.6%	-6.5%	-15.1%
Electricity Share (%)							
Final Energy Consumption	12.0%	11.0%	11.9%	12.2%	-2.7%	7.8%	2.9%
Industry	16.1%	15.3%	17.0%	17.4%	-1.6%	10.8%	2.6%
Transport	3.1%	2.0%	2.0%	1.5%	-14.2%	2.7%	-26.3%
Tertiary-Domestic	11.5%	11.6%	12.5%	14.1%	0.5%	7.1%	12.9%
Total Renewable Consumption (Mtoe)	1.5	1.2	1.4	1.1	-6.7%	14.4%	-18.5%
Hydro	0.4	0.3	0.3	0.3	-12.7%	14.9%	-11.8%
Biomass	1.1	0.9	1.1	0.8	-4.5%	14.3%	-20.5%
Other renewable energy sources	0.0	0.0	0.0	0.0	-	-	-
Renewable intensity (toe/1990MECU)	58.9	82.6	94.5	76.2	11.9%	14.4%	-19.4%
Renewable per capita (Kgoe/inhabitant)	186.1	153.3	177.0	145.0	-6.3%	15.5%	-18.1%
CO_2Emissions (Mt of CO_2)	75.9	47.1	45.3	42.6	-14.7%	-3.7%	-5.9%
Public Thermal Power Generation	30.1	16.2	17.1	15.3	-18.7%	5.6%	-10.5%
Autoprod. Thermal Power Generation	0.4	0.2	0.8	1.0	-22.3%	387.3%	25.1%
Energy Branch	1.0	1.7	2.2	3.4	18.8%	25.4%	55.8%
Industry	5.4	3.2	3.1	2.6	-15.8%	-3.3%	-15.2%
Transport	6.4	6.1	5.8	7.1	-1.6%	-4.9%	22.3%
Tertiary-Domestic	18.7	8.3	7.1	5.1	-23.7%	-14.1%	-27.9%
Carbon Intensity (tn of CO_2/toe)	2.4	2.4	2.5	2.3	-0.1%	3.6%	-5.9%
Public Power Generation	2.2	2.0	2.4	2.0	-2.8%	19.0%	-16.8%
Public Thermal Power Generation	3.3	3.5	3.5	3.5	2.0%	0.1%	-0.4%
Autoprod. Power Generation	3.3	2.6	3.0	3.0	-7.7%	16.5%	-1.4%
Autoprod. Thermal Power Generation	3.3	2.6	3.0	3.0	-7.7%	16.5%	-1.4%
Energy Branch	1.0	1.5	1.7	2.1	13.4%	12.1%	24.2%
Industry	0.9	1.0	1.0	0.9	3.6%	6.3%	-13.0%
Transport	3.0	3.0	3.0	3.0	0.3%	0.2%	0.4%
Tertiary-Domestic	1.6	1.2	1.1	0.9	-10.2%	-7.3%	-14.6%
CO_2 per Capita (kg of CO_2/inhabitant)	9529	6003	5831	5517	-14.3%	-2.9%	-5.4%
Industry	672	408	398	339	-15.4%	-2.4%	-14.8%
Transport	807	781	750	921	-1.1%	-4.0%	22.9%
Tertiary-Domestic	2352	1060	919	666	-23.3%	-13.3%	-27.6%
CO2 per unit of GDP (tn of CO2/1990 MECU)	3016	3233	3113	2897	2.3%	-3.7%	-6.9%
Public Thermal Power Generation	1198	1112	1174	1039	-2.5%	5.6%	-11.5%
Autoprod. Thermal Power Generation	14	12	56	70	-6.8%	387.3%	23.7%
Energy Branch	41	120	150	231	42.5%	25.4%	54.0%
Industry	213	220	212	178	1.0%	-3.3%	-16.1%
Transport	255	421	400	484	18.1%	-4.9%	20.9%
Tertiary-Domestic	745	571	491	350	-8.5%	-14.1%	-28.7%

SUMMARY ENERGY BALANCE	ESTONIA				LATVIA				LITHUANIA			
Mtoe	**1991**	**1994**	**1995**	**1996**	**1991**	**1994**	**1995**	**1996**	**1991**	**1994**	**1995**	**1996**
Primary Production	5,0	3,7	3,5	3,0	1,2	1,0	0,7	0,6	4,8	2,5	3,6	4,2
Solids	4,8	3,4	3,1	2,6	0,4	0,1	0,1	0,1	0,0	0,0	0,0	0,0
Oil	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,1
Natural gas	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Nuclear	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	4,4	2,1	3,1	3,8
Hydro & Wind	0,0	0,0	0,0	0,0	0,3	0,3	0,3	0,2	0,0	0,0	0,0	0,0
Geothermal	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Other renewable energy sources	0,2	0,3	0,3	0,4	0,5	0,6	0,4	0,4	0,3	0,2	0,2	0,2
Net Imports	4,1	2,2	2,0	2,3	6,4	3,6	3,4	3,3	13,4	5,2	5,5	5,3
Solids	0,8	0,4	0,3	0,5	0,4	0,2	0,1	0,1	0,6	0,2	0,1	0,2
Oil	2,5	1,3	1,1	1,2	3,2	2,5	2,1	2,1	9,0	3,2	3,6	3,4
Crude oil	0,0	0,0	0,0	na	0,0	0,0	0,0	na	11,8	3,6	3,2	na
Oil products	2,5	1,3	1,1	na	3,2	2,5	2,1	na	-2,8	-0,4	0,4	na
Natural gas	1,2	0,5	0,6	0,6	2,5	0,8	1,0	0,9	4,8	1,7	2,0	1,9
Electricity	-0,4	-0,1	-0,1	-0,1	0,4	0,2	0,2	0,2	-1,1	0,1	-0,2	-0,2
Gross Inland Consumption	9,5	5,7	5,4	5,2	7,6	4,6	4,0	3,9	18,2	7,8	8,7	9,5
Solids	5,9	3,8	3,6	3,1	0,8	0,3	0,2	0,1	0,7	0,2	0,2	0,3
Oil	2,6	1,2	1,0	1,2	3,2	2,5	2,0	2,1	9,0	3,4	3,3	3,6
Natural gas	1,2	0,5	0,6	0,6	2,5	0,8	1,0	0,9	4,8	1,7	2,0	1,9
Other (1)	-0,2	0,2	0,3	0,3	1,2	1,0	0,7	0,8	3,7	2,4	3,2	3,8
Electricity Generation in TWh	14,6	9,2	8,7	na	5,6	4,4	4,0	na	29,4	9,8	13,5	na
Nuclear	0,0	0,0	0,0	na	0,0	0,0	0,0	na	17,0	7,7	11,8	na
Hydro & wind	0,0	0,0	0,0	na	3,3	3,3	2,9	na	0,3	0,5	0,4	na
Thermal	14,6	9,1	8,7	na	2,4	1,1	1,0	na	12,0	1,6	1,3	na
Generation Capacity in GWe	3,4	3,3	3,3	na	2,1	2,0	2,1	na	5,3	5,7	5,7	na
Nuclear	0,0	0,0	0,0	na	0,0	0,0	0,0	na	2,5	2,4	2,4	na
Hydro & wind	0,0	0,0	0,0	na	1,5	1,5	1,5	na	0,1	0,7	0,7	na
Thermal	3,4	3,3	3,3	na	0,6	0,5	0,6	na	2,7	2,6	2,6	na
Average Load Factor in %	48,9	31,8	30,2	na	30,8	24,9	22,0	na	63,4	19,5	27,1	na
Fuel Inputs for Thermal Power Generation	5,1	3,2	3,0	na	1,1	0,7	0,6	na	3,2	1,1	1,0	na
Solids	4,3	3,0	2,8	na	0,0	0,1	0,1	na	0,0	0,0	0,0	na
Oil	0,5	0,1	0,1	na	0,3	0,5	0,3	na	1,2	0,7	0,6	na
Gas	0,3	0,1	0,1	na	0,7	0,2	0,3	na	2,0	0,4	0,5	na
Geothermal	0,0	0,0	0,0	na	0,0	0,0	0,0	na	0,0	0,0	0,0	na
Biomass	0,0	0,0	0,0	na	0,0	0,0	0,0	na	0,0	0,0	0,0	na
Average Thermal Efficiency in %	24,7	24,5	24,6	na	18,7	13,1	15,1	na	31,9	12,1	10,9	na
Non-Energy Uses	0,3	0,2	0,2	na	0,0	0,0	0,0	na	1,9	0,3	0,5	na
Total Final Energy Demand	5,0	2,7	2,6	na	6,2	4,0	3,3	na	9,9	4,7	4,6	na
Solids	0,4	0,1	0,1	na	0,6	0,2	0,1	na	0,6	0,2	0,2	na
Oil	1,4	0,8	0,7	na	2,1	1,6	1,3	na	4,1	1,5	1,7	na
Gas	0,2	0,1	0,1	na	0,6	0,3	0,3	na	0,7	0,4	0,4	na
Electricity	0,6	0,4	0,4	na	0,7	0,4	0,4	na	1,0	0,6	0,5	na
Heat	2,1	1,0	0,9	na	1,7	1,0	0,9	na	3,2	1,7	1,6	na
Renewable energy sources	0,2	0,3	0,3	na	0,5	0,5	0,3	na	0,3	0,2	0,2	na
CO_2 Emissions in Mt of CO_2	31,6	18,1	17,0	na	19,4	11,1	9,6	na	34,7	16,1	16,0	na
Indicators												
Population (Million)	1,6	1,5	1,5	1,5	2,7	2,6	2,5	2,5	3,7	3,7	3,7	3,7
GDP (index 1985=100)	84,9	59,0	60,3	62,7	110,0	63,5	62,5	64,2	110,5	77,5	79,6	82,4
Gross Inl Cons./GDP (toe/1985 MECU)	1967,5	1700,4	1583,8	1461,9	860,1	906,0	794,8	763,3	2086,6	1282,9	1393,4	1462,5
Gross Inl Cons./Capita (toe/inhabitant)	6,1	3,8	3,7	3,5	2,8	1,8	1,6	1,6	4,9	2,1	2,4	2,6
Electricity Generated/Capita (Kwh/inhabitant)	9316,6	6100,7	5834,2	na	2115,0	1741,2	1579,0	na	7851,1	2622,3	3634,4	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	20,1	12,1	11,4	na	7,3	4,3	3,8	na	9,3	4,3	4,3	na
Import Dependency %	42,1	36,6	35,8	43,4	83,8	76,5	81,8	82,3	73,5	66,4	63,3	55,8

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

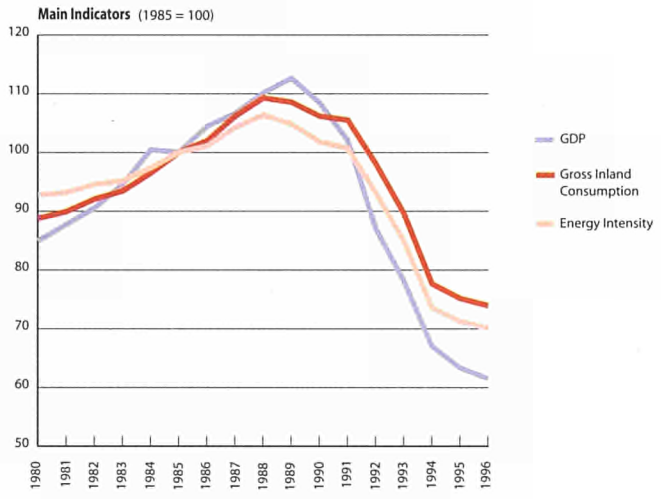
PART V CIS



CIS: Major trends (1985-1996)

- Substantial differences between statistical energy and economic data sources
- Total decline of GDP by about 40% between 1990 and 1996
- Final energy demand fell by about 20% between 1990 and 1995
- Since 1990 tertiary-domestic energy demand increased by 8% when transport and industry decreased by 45%
- Share of electricity was reasonably stable with a large potential from domestic appliances
- Gross inland energy consumption, 50% of which is covered by natural gas, stabilised in 1996
- CIS remained the second biggest energy producer in the world
- Coal industry as a whole remained relatively inefficient
- Crude oil production remained stable
- CIS remained the world's largest gas producer and exporter under the leadership of Gazprom
- Electricity generation dominated by thermal power and more specifically natural gas
- The power sector has continued to experience a payments crisis
- Refining industry in need of rationalisation and upgrading
- Energy intensity increased by 23% since 1990
- CO_2 emissions reduced by 34% since 1990
- Energy exports peaked in 1996 under the pressure of increasing gas exports

The Community of Independent States (CIS) includes the following twelve republics: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan. In addition, as consolidated energy balances do not exist for Baltic countries before 1992, they are included in the total energy balances; if available, the contributions by these countries has been identified explicitly. As the contributions were limited to only 2% of the total gross inland consumption of former USSR, the impact of this aggregation remains limited.



Substantial differences between statistical energy and economic data source…

Energy and macroeconomic data for all these republics available from main sources (OECD , PlanEcon, BP, US Department of Energy, ...) present substantial differences. Consequently we will comment on significant trends rather than absolute values for drawing analytical conclusions. In particular, the statistical systems of the republics are ill-equipped at present to identify activity in the private sector. This has two effects: firstly, to underestimate the level of aggregate economic activity and, secondly, to understate the share of activity taken up by the service sector. In addition, some statistical series presented major time disruptions and discrepancies still remaining between the sum of all the Republics and statistical data for the CIS as a whole, even for recent years.

Total decline of GDP by about 40% between 1990 and 1996…

The Russian Federation and other independent States, apart from the Baltics, have had a difficult time recovering from their economic transitions. Their economies remain in the doldrums, with negative or only slightly positive economic growth. Russia, whose economy dominates the CIS, accounting for slightly more than 67%, still demonstrated a modest decline in GDP in 1996, or a total decline by about 40% between 1990 and 1996. Ukraine, the second largest economy with just 13% of total GDP, will lag behind Russia with a 10% decline in 1996 and a 57% decline since 1990. In general, Russia and the other Republics appear to have stopped the decline of their economic output but, they are not yet showing clear signs of recovery.

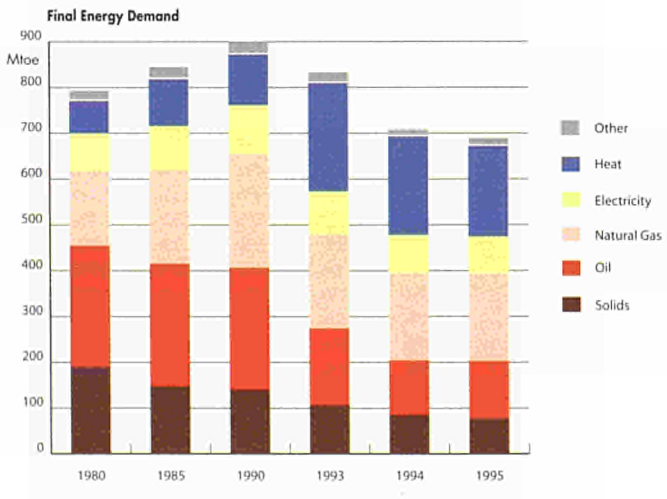
ENERGY OUTLOOK

Final energy demand fell by about 20% between 1990 and 1995…

Final Energy demand peaked in 1989 with a level of 908 Mtoe, and since then followed an accelerated decline down to 687 Mtoe by 1995, a fall by more than 24% over 6 years. But this observation needs to be put into perspective. In fact statistical series caused some disruption because the accounting of heat generation by local plants has improved since 1992. As a result of this, since 1992 heat consumption was accounted for, at the final demand level, in place of the oil products, natural gas and solid fuels consumed to produce it and, as a consequence, production losses were reported from that time instead of in the transformation sector. The volume of concerned heat averaged 130 Mtoe that corresponded to about 30 Mtoe of losses. Considering this, final energy demand demonstrates a decline by about 20% between 1990 and 1995.

With the modification of heat accounting since 1992 it is difficult to evaluate precisely the evolution of consumption by fuels since 1990. In the period 1992-1995 for which consistent data was available, the reduction of consumption approached 24% and was mainly concentrated on oil products (82 Mtoe or 39% reduction), followed by distributed heat (46 Mtoe or 19%), solids (37 Mtoe or 32%), electricity (22 Mtoe or 21%) and gas (10 Mtoe or 5%). These trends were in line with internal energy policies, which advocated exporting as large a volume of oil as possible and concentrating internal consumption on gas.

However, as energy consumption fell more slowly than GDP during the decline, it is expected to rise more slowly when the economies will begin to grow. When the region's economies will rebuild, they are expected to reduce inefficiency in energy use through the use of more efficient technology and the rationalisation of the energy system by moving towards a system of pricing which properly reflects the market costs of the fuel, in contrast to the artificially low subsidised prices that have characterised the region before 1990.



Since 1990 tertiary-domestic energy demand increased by 8% when transport and industry decreased by about 45%…

In 1990, the last year of Soviet energy data system, industry represented about 48% of total final energy demand, buildings 24%, transport 15% and agriculture and other uses 13%. Since then, considering lack of coherent data, it can be considered that industry and transport contributions have been reduced respectively by about 40% and 50% approximately, whereas, residential increased by about 8%. Demand in the residential sector tends to be unresponsive to price change partly due to the absence of monitoring and control equipment and the lack of debt enforcement. Furthermore, residential energy demand appears to be virtually unresponsive to falls in income. As a consequence, in 1994 the tertiary-domestic sector largely dominated the final demand of energy with about 54% of total consumption, compared to 36% for industry and only 10% for transport. In 1993,it was estimated that there were less than 18 million private cars in the CIS, or about 60 cars per 1000 inhabitants. There has been a rapid expansion of the car fleet over the past few years but passenger car ownership remained considerably less than in the OECD countries. In addition, data on kilometres driven per vehicle in this region suggested that the average distance travelled per vehicle had drastically fallen over recent years.

Share of electricity was reasonably stable with a large potential from domestic appliances….

The electricity share in final consumption has been reasonably stable since 1985; but development in the residential sector remained limited. Household appliances such as televisions and refrigerators are already widely used. Other devices such as video recorders and freezers are more rare, while other appliances such as fully automated washing machines, dryers and dish washers are virtually unknown. There is great scope for the introduction of these products with the improvement of living standards, but still now it is subject to space constraints in households. The low level of power available in some apartments presently restricts the development of larger electrical appliances. About 85% of electric connections require modernisation to accommodate larger electricaly rated items such as washing machines. Much of the housing stock is limited to a maximum demand of 1.3 kW per apartment. To overcome this will take considerable investment and time.

Gross inland energy consumption, 50% of which is covered by natural gas, stabilised in 1996…

Gross inland energy consumption, after a peak of 1394 Mtoe in 1988, fell to reach only 943.2 Mtoe in 1996 or a 32% total drop over 8 years. This decline, very rapid between 1991 and 1994 with a reduction by about 10% each year on average, slowed down these last two years with a decline of 3.2% in 1995 and only 1.6% in 1996. The reduction however was not the same for all primary fuels as already illustrated by the evolution of final consumption. While solids and oil demand decreased systematically since 1980, and then very rapidly after the reforms of 1990 (-7.4% on average per year for solid fuels and -10.2% for oil), natural gas consumption has steadily increased from 1980 until 1990 (5.9% per year on average) to become largely the first source of energy by 1990 with more than 40% of gross inland consumption of energy. Since then it also dropped by 4% per year on average until 1995 but increased by 1% in 1996. This means that the share of gas has continued to increase to reach about 50% in 1996. Other forms of energy consumption covered mainly nuclear energy with limited contribution of both hydro and renewable energy. Nuclear energy saw a significant increase in consumption between 1980 and 1988 then stagnated until 1993, fell by 15.5% in 1994 but recovered gradually to its 1993 level in 1996. Contribution of hydro has been stable since 1985 at about 20 Mtoe, although large potential for expansion still exists.

CIS remained the second biggest energy producer in the world…

CIS as a whole remains the second biggest **energy producer** in the world after the United States and is the world's leading producer and exporter of natural gas. CIS republics produce all forms of primary fossil fuels, but not equally distributed as Russia largely dominates. Russia accounted in 1996 for 78% of total energy production but 58% of solid fuels production, 86% of oil production, 82% of gas production, 53 % of nuclear electricity and 71% of hydro. Other major producers are Ukraine (solids, oil, natural gas and nuclear), Kazakhstan (solids, oil and gas) and Uzbekistan (oil and gas).

Coal industry as a whole remained relatively inefficient…

For **solid fuels** CIS (177 Mtoe in 1996) is now the third largest producer in the world after China (686 Mtoe) and the United States (546 Mtoe). Solid fuels production has decreased since 1980

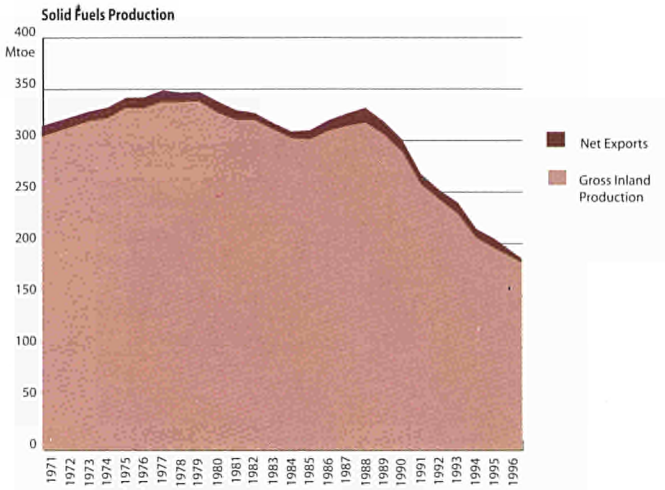
CIS(1) : TOTAL ENERGY

Mtoe	1980	1985	1990	1993	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
Total Production	1358.9	1517.0	1631.6	1349.4	1228.3	1194.7	1190.9	2.2%	1.5%	-6.9%	-2.7%	-0.3%
Armenia	1.3	1.5	0.1	0.4	0.3	0.2	0.7	3.6%	-38.4%	22.4%	-19.2%	197.1%
Azerbaijan	26.1	24.7	20.4	16.1	14.9	14.7	15.0	-1.1%	-3.8%	-7.5%	-1.4%	1.7%
Belarus	3.1	4.9	3.9	3.0	3.1	3.0	2.9	9.6%	-4.7%	-5.2%	-5.0%	-3.6%
Georgia	4.9	1.9	1.6	0.8	0.6	0.5	0.5	-17.4%	-3.2%	-23.5%	-5.1%	3.4%
Kazakhstan	79.6	82.9	85.9	79.3	72.0	63.6	62.6	0.8%	0.7%	-4.3%	-11.6%	-1.7%
Kyrgyzstan	2.5	2.5	2.6	1.9	1.9	1.7	1.7	0.0%	1.2%	-7.4%	-12.2%	2.9%
Moldova	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-5.5%	-4.2%	0.9%	0.0%	0.1%
Russia	978.7	1137.6	1260.1	1038.5	962.2	939.4	933.7	3.1%	2.1%	-6.5%	-2.4%	-0.6%
Tajikistan	2.2	2.0	1.9	1.7	1.5	1.3	1.2	-1.4%	-1.8%	-4.8%	-13.5%	-8.0%
Turkmenistan	65.1	73.3	74.5	58.3	32.6	32.5	37.2	2.4%	0.3%	-18.7%	-0.1%	14.4%
Ukraine	154.3	143.1	130.0	97.7	84.8	79.7	75.3	-1.5%	-1.9%	-10.1%	-6.1%	-5.5%
Uzbekistan	32.8	32.1	38.5	42.6	46.0	49.0	51.2	-0.4%	3.7%	4.5%	6.7%	4.5%
Baltics (2)	8.3	10.4	12.4	9.0	8.3	8.7	8.8	4.5%	3.6%	-9.6%	5.3%	0.6%
Total Net Import	-212.21	-219.18	-259.97	-196.03	-227.25	-244.11	-260.95	0.6%	3.5%	-3.3%	7.4%	6.9%
Total Gross Inland Consumption	1133.0	1276.5	1354.8	1143.1	990.6	958.9	943.2	2.4%	1.2%	-7.5%	-3.2%	-1.6%
Armenia	5.7	4.5	7.7	2.3	1.4	1.7	2.3	-4.4%	11.2%	-34.5%	17.9%	40.0%
Azerbaijan	19.2	20.1	19.2	16.3	16.1	13.0	13.5	1.0%	-0.9%	-4.4%	-19.0%	3.2%
Belarus	18.5	33.5	41.5	30.8	26.1	24.0	24.0	12.6%	4.4%	-10.9%	-8.3%	0.1%
Georgia	10.2	7.5	10.6	4.6	3.1	1.9	1.7	-6.0%	7.1%	-26.3%	-39.3%	-8.4%
Kazakhstan	77.0	77.2	73.6	65.6	61.3	54.4	56.1	0.0%	-0.9%	-4.5%	-11.2%	3.0%
Kyrgyzstan	4.9	4.9	6.0	4.2	3.2	2.6	2.8	-0.1%	4.3%	-14.4%	-19.0%	5.9%
Moldova	6.5	7.9	9.6	5.8	4.8	4.2	5.2	3.9%	4.1%	-16.0%	-12.1%	23.4%
Russia	728.1	778.7	843.2	736.8	630.6	614.6	596.1	1.4%	1.6%	-7.0%	-2.5%	-3.0%
Tajikistan	4.0	4.2	5.2	6.4	3.3	3.3	3.2	0.7%	4.5%	-10.7%	-0.4%	-1.6%
Turkmenistan	8.4	69.2	18.5	11.6	13.3	13.7	13.7	52.4%	-23.2%	-8.0%	3.6%	-0.6%
Ukraine	198.7	196.7	243.7	191.6	163.8	159.9	152.9	-0.2%	4.4%	-9.5%	-2.4%	-4.4%
Uzbekistan	26.8	40.4	44.6	47.1	45.4	46.5	53.0	8.5%	2.0%	0.4%	2.4%	14.0%
Baltics (1)	24.8	31.9	31.4	19.5	18.2	18.3	18.7	5.2%	-0.3%	-12.7%	0.5%	1.9%

(1) Including Baltics only for statistical reasons
(2) Including oil shale

when the annual production was 339 Mtoe, loosing more than 8% per year on average since 1990. The production is mainly concentrated in Russia (58% in 1996), Ukraine (20%) and Kazakhstan (19%). The bulk of the production is used domestically, mainly by the power industry and by the steel industry which uses coking coal. The coal industry continued to experience financial difficulty because large consumer debts which have resulted in a lack of investment, inefficient mining, decreased productivity, labour unrest and dangerous working conditions. Labour unrest and strikes have increased because of lay-offs and defaults on salary payments. The most recent disturbance occurred in December 1996 when up to 400.000 Russian miners staged a strike that effectively closed half of Russia's coal mines. To date, the World Bank has provided $900 million in loan assistance to the Russian coal industry. The World Bank estimated that the "viable core" of Russia's coal industry was only about two-thirds of its present size and that it could only provide employment for half of its 900.000 miners.

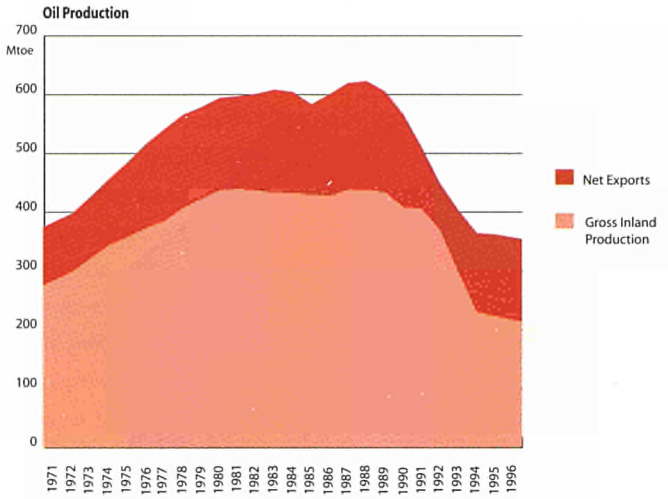
In addition, local conditions reinforced inefficiency of the coal industry. In Russia as most of the working mine capacity is located in Siberia (about 80%), most of the coal has to be transported over long distances to reach the consumers in the west of the State or to ports for export. In Ukraine main production takes place at depths of over 1000 metres in association with unfavourable geological conditions. In Kazakhstan where the majority of coal was extracted by open cast mining, due to infrastructure problems, the potential market is limited to local demand.



CIS(1) : SOLID FUELS

Mtoe	1980	1985	1990	1993	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
Total Production	338.7	312.5	300.5	237.8	210.5	192.2	177.2	-1.6%	-0.8%	-8.5%	-8.7%	-7.8%
Armenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Azerbaijan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Belarus	0.0	2.4	1.3	0.6	0.7	0.6	0.6	-	-11.2%	-15.3%	-9.6%	-0.9%
Georgia	0.9	0.7	0.4	0.1	0.0	0.0	0.0	-5.3%	-10.3%	-56.7%	20.1%	48.7%
Kazakhstan	56.8	55.0	54.1	50.0	47.0	37.4	34.1	-0.6%	-0.3%	-3.4%	-20.4%	-8.8%
Kyrgyzstan	1.5	1.4	1.3	0.7	0.5	0.3	0.2	-1.3%	-2.2%	-21.9%	-37.9%	-19.5%
Moldova	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Russia	172.2	155.5	154.4	123.5	109.9	107.1	103.4	-2.0%	-0.1%	-8.2%	-2.5%	-3.5%
Tajikistan	0.5	0.2	0.1	0.2	0.0	0.0	0.0	-19.7%	-2.2%	-29.7%	-64.8%	-25.7%
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Ukraine	96.0	88.8	81.3	58.0	47.5	42.5	35.4	-1.5%	-1.8%	-12.6%	-10.6%	-16.7%
Uzbekistan	2.8	1.8	2.1	1.3	1.3	1.1	0.8	-8.8%	3.6%	-11.1%	-18.5%	-25.5%
Baltics (2)	8.0	6.8	5.4	3.5	3.5	3.2	2.7	-3.2%	-4.4%	-10.1%	-9.9%	-16.6%
Total Net Import	-11.05	-8.80	-11.72	-10.67	-8.67	-9.21	-3.70	-4.5%	5.9%	-7.2%	6.2%	-59.8%
Total Gross Inland Consumption	326.8	301.1	288.8	229.0	205.6	195.3	181.6	-1.6%	-0.8%	-8.1%	-5.0%	-7.0%
Armenia	0.0	0.2	0.2	0.0	0.0	0.0	0.0	-	2.4%	-48.9%	-81.4%	-0.5%
Azerbaijan	0.0	0.1	0.1	0.0	0.0	0.0	0.0	-	2.3%	-56.7%	-33.8%	-52.6%
Belarus	0.0	3.5	2.9	1.6	1.4	1.3	1.4	-	-3.5%	-16.9%	-8.6%	13.1%
Georgia	0.9	0.7	0.5	0.1	0.1	0.1	0.1	-5.2%	-6.2%	-30.1%	-9.6%	-10.8%
Kazakhstan	53.9	52.5	39.1	36.1	36.1	32.4	32.2	-0.5%	-5.7%	-2.0%	-10.3%	-0.5%
Kyrgyzstan	1.5	1.4	1.7	0.9	1.0	0.4	0.4	-1.2%	4.1%	-12.4%	-56.1%	-0.5%
Moldova	0.0	2.2	1.9	1.0	0.9	0.6	0.4	-	-2.8%	-15.7%	-39.3%	-22.6%
Russia	176.9	148.3	155.5	120.9	110.7	105.1	99.8	-3.5%	1.0%	-8.2%	-5.1%	-5.0%
Tajikistan	0.5	0.2	0.3	0.1	0.0	0.0	0.0	-19.6%	12.1%	-40.1%	-65.1%	-0.5%
Turkmenistan	0.0	0.0	0.0	0.1	0.0	0.0	0.0	-	-	-	-	-
Ukraine	81.5	82.8	76.0	62.2	49.4	50.2	42.4	0.3%	-1.7%	-10.2%	1.6%	-15.5%
Uzbekistan	2.7	1.7	3.0	1.5	1.6	1.2	1.2	-8.7%	12.0%	-14.9%	-21.9%	-0.5%
Baltics (1)	9.0	7.7	7.7	4.5	4.3	4.0	3.5	-3.0%	-0.2%	-13.4%	-7.0%	-13.1%

(1) Including Baltics only for statistical reasons
(2) Including oil shale



Crude oil production reasonably stable…

Crude oil production has decreased since 1980 (606 Mtoe) to reach only 349 Mtoe in 1996, with an accelerating trend (more than -10% per year) between 1990 and 1994. Production almost stabilised in 1996. Russia represented more than 86 % of the total production, remaining the world's third largest producer after Saudi Arabia (436 Mtoe) and the United States (399 Mtoe). The dramatic production decline experienced since 1988 resulted from several factors including natural reservoir depletion, insufficient investment, stalled implementation of tax reforms and poor technical management. Activity by foreign companies is currently restricted to a number of joint ventures that will have some impact on total oil production. However, negotiations are under way for larger projects that will support the expected rebound of oil production in the near future. As a consequence of Russian energy policy promoting gas use, oil exports have registered a 75% increase since 1992 but are still about 25% below the 1988 peak.

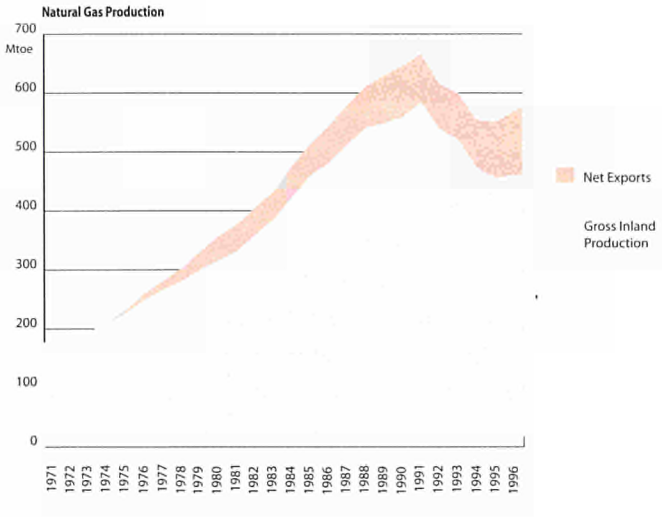
CIS : OIL

Mtoe	1980	1985	1990	1993	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
Total Production	606.2	598.2	573.5	402.4	362.8	353.9	349.2	-0.3%	-0.8%	-10.8%	-2.4%	-1.3%
Armenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Azerbaijan	14.7	13.2	12.3	10.3	9.6	9.2	9.2	-2.1%	-1.5%	-5.9%	-4.2%	0.0%
Belarus	2.6	2.0	2.1	2.0	2.0	1.9	1.8	-4.5%	0.2%	-0.6%	-3.4%	-5.3%
Georgia	3.2	0.6	0.2	0.1	0.1	0.0	0.0	-29.5%	-18.4%	-22.1%	-36.5%	0.0%
Kazakhstan	18.7	23.0	25.3	23.1	20.4	20.5	22.7	4.2%	1.9%	-5.2%	0.8%	10.4%
Kyrgyzstan	0.2	0.2	0.2	0.1	0.1	0.1	0.1	-2.7%	-3.4%	-14.1%	0.0%	0.0%
Moldova	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Russia	549.5	546.6	519.6	353.3	317.3	306.6	299.7	-0.1%	-1.0%	-11.6%	-3.4%	-2.3%
Tajikistan	0.4	0.4	0.2	0.1	0.0	0.0	0.1	-0.1%	-12.4%	-36.4%	-24.2%	100.0%
Turkmenistan	8.0	6.1	5.6	5.2	3.4	3.5	3.8	-5.4%	-1.5%	-12.0%	4.1%	8.6%
Ukraine	7.5	4.1	5.3	4.3	4.2	4.1	3.9	-11.5%	5.2%	-5.5%	-3.4%	-4.7%
Uzbekistan	1.3	2.0	2.8	4.0	5.5	7.7	7.8	8.3%	7.2%	18.3%	40.0%	1.1%
Baltics	0.0	0.0	0.0	0.1	0.1	0.1	0.1	-	-	-	38.7%	0.0%
Total Net Import	-156.93	-153.10	-158.37	-105.14	-134.66	-139.18	-140.50	-0.5%	0.7%	-4.0%	3.4%	1.0%
Total Gross Inland Consumption	437.5	430.7	408.3	298.2	230.0	223.2	213.9	-0.3%	-1.1%	-13.4%	-2.9%	-4.2%
Armenia	2.2	3.1	3.7	1.2	0.4	0.3	0.3	7.1%	3.4%	-42.8%	-28.8%	17.4%
Azerbaijan	7.6	8.5	8.2	8.5	8.7	7.0	7.2	2.3%	-0.7%	1.6%	-19.7%	3.4%
Belarus	14.7	29.0	26.6	14.3	12.1	10.4	10.3	14.6%	-1.7%	-17.9%	-13.8%	-1.3%
Georgia	5.4	5.9	4.5	0.8	0.4	0.0	0.1	1.8%	-5.4%	-45.9%	-87.8%	17.7%
Kazakhstan	16.1	18.9	20.8	16.0	14.2	10.4	12.1	3.3%	1.9%	-9.1%	-26.9%	16.7%
Kyrgyzstan	2.2	2.9	2.3	1.2	0.4	0.3	0.4	5.7%	-4.8%	-34.4%	-23.1%	16.7%
Moldova	6.2	6.2	4.7	2.1	1.1	1.0	1.0	0.0%	-5.6%	-29.7%	-8.2%	0.0%
Russia	310.4	259.5	249.9	200.1	149.6	149.5	137.2	-3.5%	-0.7%	-12.0%	0.0%	-8.2%
Tajikistan	1.9	2.6	1.9	3.7	1.2	1.2	1.2	6.5%	-6.2%	-10.4%	0.7%	0.0%
Turkmenistan	1.3	2.1	6.7	4.0	2.9	2.7	2.6	10.1%	25.9%	-19.0%	-5.3%	-3.1%
Ukraine	52.1	66.4	57.5	29.2	23.8	25.3	24.4	5.0%	-2.8%	-19.8%	6.2%	-3.3%
Uzbekistan	7.0	10.3	10.6	9.4	8.1	8.7	10.2	8.0%	0.5%	-6.5%	7.6%	17.4%
Baltics (1)	10.4	15.3	11.1	7.7	7.2	6.4	6.9	8.0%	-6.2%	-10.3%	-11.2%	7.5%

(1) Including Baltics olly for statistical reasons

CIS remained the world's largest gas producer under the leadership of Gazprom…

Production of **natural gas** steadily increased to reach a maximum in 1991 (from 360 Mtoe in 1980 to 659 Mtoe in 1991) but had lost about 12% of its value since then even when production rebounded in 1996. Russia, in particular West Siberia, was the largest gas producer (82 % of the total CIS production). Production from all of Russia's major gas fields, with the exception of Yamburg, is declining. Attention is now focused on new fields in the Yamal Peninsula and the Far East's Sakha region. Historically, Turkmenistan is the second largest gas producer, although more recently the level of gas production has fallen below that of Uzbekistan. The country depends however, on a transit route though Russia for its gas exportation. For many years Russia has been disputing with the United States as the role of largest world producer. In any case it remains the primary exporter with about 36% of the world exchanges by pipeline.



CIS : NATURAL GAS

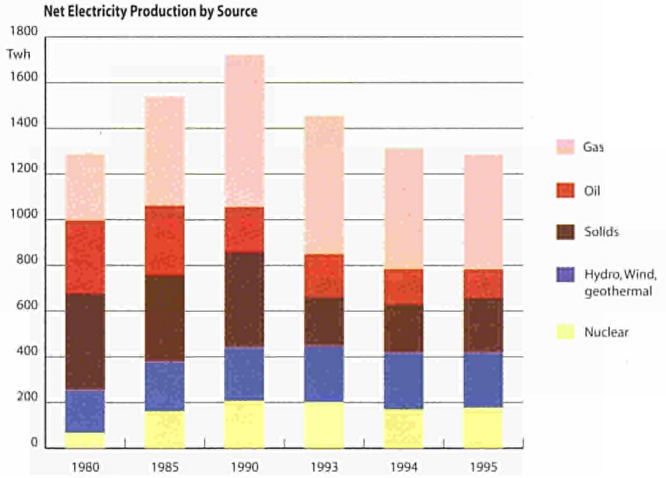
Mtoe	1980	1985	1990	1993	1994	1995	1996	85/80	90/85	94/90	95/94	96/95
								Annual % Change				
Total Production	359.7	520.1	656.3	613.9	572.0	564.5	577.2	7.7%	4.8%	-3.4%	-1.3%	2.2%
Armenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Azerbaijan	11.3	11.3	8.0	5.5	5.2	5.4	5.6	0.1%	-6.7%	-10.5%	4.1%	4.5%
Belarus	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-4.7%	0.4%	0.3%	-9.4%	0.2%
Georgia	0.2	0.1	0.0	0.0	0.0	0.0	0.0	-22.2%	-6.8%	-26.0%	-33.3%	0.2%
Kazakhstan	3.5	4.4	5.7	5.4	3.7	4.8	4.8	4.7%	5.5%	-10.7%	31.8%	0.2%
Kyrgyzstan	0.1	0.1	0.1	0.0	0.0	0.0	0.0	-1.5%	-3.4%	-20.7%	-6.4%	0.2%
Moldova	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Russia	212.9	372.8	516.6	497.0	479.9	470.5	476.2	11.9%	6.7%	-1.8%	-2.0%	1.2%
Tajikistan	0.2	0.2	0.1	0.0	0.0	0.0	0.0	4.1%	-17.9%	-26.2%	18.5%	0.2%
Turkmenistan	57.1	67.1	68.8	53.2	29.2	29.0	33.4	3.3%	0.5%	-19.3%	-0.5%	15.1%
Ukraine	45.9	35.5	22.6	14.9	14.2	13.9	14.4	-5.0%	-8.6%	-11.0%	-1.6%	3.4%
Uzbekistan	28.2	27.9	33.0	36.7	38.5	39.6	41.4	-0.2%	3.4%	3.9%	2.9%	4.5%
Baltics (1)	0.0	0.4	1.0	0.9	1.1	1.0	1.0	-	21.1%	1.9%	-12.7%	0.7%
Total Net Import	-42.6	-54.8	-86.9	-79.0	-83.1	-94.9	-115.9	5.2%	9.7%	-1.1%	14.2%	22.2%
Total Gross Inland Consumption	315.9	460.9	559.4	521.2	472.5	456.5	461.3	7.8%	3.9%	-4.1%	-3.4%	1.0%
Armenia	2.4	0.0	3.6	0.7	0.7	1.1	1.3	-100.0%	-	-33.4%	61.9%	12.3%
Azerbaijan	11.3	11.4	11.0	7.6	7.2	5.9	6.0	0.2%	-0.7%	-10.2%	-18.5%	3.1%
Belarus	3.7	0.2	11.0	14.1	12.2	11.5	11.5	-44.2%	122.9%	2.6%	-5.6%	0.0%
Georgia	3.6	0.1	4.4	3.0	2.1	1.2	1.1	-51.2%	113.2%	-17.0%	-41.7%	-13.5%
Kazakhstan	6.4	4.4	11.7	12.2	8.9	10.2	10.2	-7.2%	21.6%	-6.6%	14.2%	0.0%
Kyrgyzstan	0.9	0.1	1.5	1.1	0.7	0.7	0.7	-35.6%	71.9%	-16.9%	-1.4%	0.0%
Moldova	0.8	0.0	3.3	2.7	2.6	2.5	3.6	-100.0%	-	-5.8%	-4.0%	44.9%
Russia	196.0	307.8	368.7	352.5	316.9	306.4	306.4	9.4%	3.7%	-3.7%	-3.3%	0.0%
Tajikistan	0.9	0.2	1.4	1.2	0.6	0.7	0.8	-26.0%	47.6%	-17.5%	12.6%	10.3%
Turkmenistan	7.2	67.4	12.2	7.8	10.6	11.2	11.2	56.4%	-28.9%	-3.5%	5.4%	0.0%
Ukraine	61.7	34.7	91.8	79.8	71.7	65.4	64.6	-10.9%	21.5%	-6.0%	-8.8%	-1.2%
Uzbekistan	16.5	28.0	30.7	35.6	35.2	36.0	40.4	11.2%	1.9%	3.5%	2.3%	12.3%
Baltics (1)	4.5	6.6	8.1	3.1	3.1	3.6	3.5	8.0%	4.1%	-21.4%	18.0%	-5.0%

(1) Including Baltics only for statistical reasons

Although the move to a market economy involved the privatisation of much of Russia's industry, the gas sector remained intact under the Gazprom gas monopoly until recently. Gazprom controls more than 95% of Russia's gas production, owns and operates 140.000 km of gas pipeline and runs 26 trading houses and marketing joint ventures in 13 European countries. The company controls one-fifth of the world's natural gas reserves. In April 1994, the government took the first steps towards privatising Gazprom, allocating 15% of shares to employees and retired employees. However, the first stock offering did not occur until October 1996 when 1% of the company's stock sold on international markets for $373 million. Gazprom is planning to use this revenue to aid financing of the Yamal pipeline. The Russian government has stated that it will ultimately sell up to 15% of its stake in Gazprom.

Electricity generation dominated by thermal power and more specifically natural gas…

Electricity generation peaked in 1990, and has decreased continuously since then to return in 1995 to the 1980 level. Although it shows a continuous decrease since 1990 (-32%), thermal generation has dominated electricity production, with about two-thirds of the total generation in 1995 (three-quarters in 1990). Hydropower output increased regularly since 1980 but represented only 18% of electricity production in 1995 in spite of the large existing potential. Nuclear production, which tripled its contribution from 1980 to 1990, fluctuated from 1993 with the progressive decommissioning of obsolete and unsafe nuclear power plants which were compensated by the commissioning of new units (Ukraine) or the reopening of cocooned units (Armenia). The ability of CIS countries to complete their aggressive plans to build new nuclear capacity will depend on obtaining financial support and improving safety at existing units.



Fuel mix varied by region according to primary energy production levels and importation facilities. The use of solid fuels in thermal power stations remained reasonably stable in the eighties but declined significantly from then on (-28%); its share dropping progressively from 40% in 1980 to only 27% in 1995. The use of coal was limited to units close to coal fields where it remained the most economic fuel. Gas became the most important fuel for power generation from 1983 (35% of total) and continued to grow in volume until 1991 (57% of total). Its contribution has remained constant since 1990 at a level of about 220-240 Mtoe/year, corresponding to a share of 57% in 1995. Gas is projected to remain the dominant means of generating electricity due mainly to the more favourable economics of gas-fired generation. The consumption of oil for electricity production has been decreasing between 1980 and 1995 by about 50%, as a result of the penetration of natural gas into the power market.

The development of renewable energy sources has been almost exclusively limited, as in the Eastern Countries, to improvements to existing hydro and small projects for other renewables such as geothermal and wind. Hydroelectric facilities were being repaired and upgraded in attempts to improve output from existing plants with very modest plans for new investment, despite large potential for development. The Ukrainian government has passed a resolution to promote development of the country's geothermal resources. Over the next decade, there are plans to construct geothermal power stations with an aggregate capacity of 6 GWe, although the government has not yet secured the financing for all of them. Even if the development of wind energy is fairly difficult because of the weak economies, the prospects in Russia are potentially strong. Wind systems are particularly attractive in the far northern reaches of Russia because of high expense and low reliability of fossil fuel alternatives.

The power sector has continued to experience a payments crisis…

In most of the Independent States, the power sector has continued to experience a payments crisis, which has led to widespread and severe power cuts during the past several years. This has also led to an inability of power companies to pay for fuel to run their plants. Payment problems have been especially acute in central Russia which relies on natural gas for 70% of its power production. In late 1995, Gazprom halved its gas supplies to major power plants. Subsequently, the Unified Power Grid was forced to shut down about 20% of its generators for lack of fuel. This led to debilitating power shortages nationwide and included cuts at several industrial complexes.

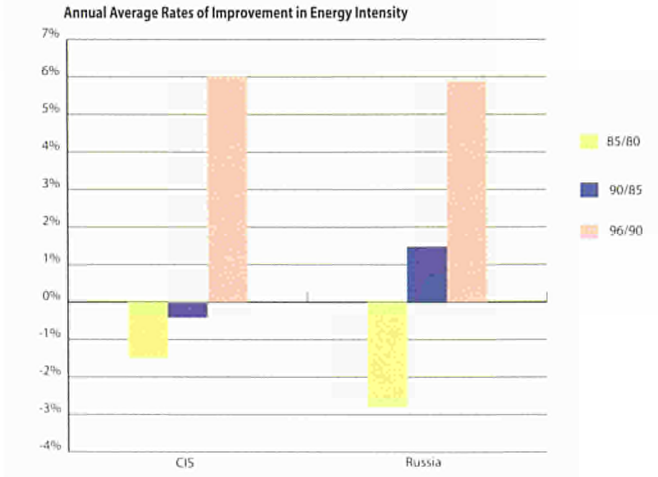
Refining industry in need of rationalisation and upgrading…

In 1996, the **refinery capacity** (10.3 millions barrels day) represented 13% of the world capacity (16% in 1985). Since 1985,the capacity declined by 1.5% per year under Russian leadership. Most of the refineries were constructed in the 40s and 50s and are relatively unsophisticated. In addition the product mix from refineries is not geared towards producing light products, such as gasoline. Catalytic cracking accounted for only 4% of primary distillation capacity. Heavy fuel oil now accounts for about half of refinery output. In addition, low investment levels have resulted in poor maintenance and working conditions, resulting in inefficient and dangerous operations. The utilisation rate of refineries decreased sharply from 79% in 1985 to only 45% in 1996. In 1993, a 5-year refinery modernisation program began with funding acquired from both domestic and foreign sources. However, as reported by oil experts, this program spreads financial resources too thinly and lacks discrimination between viable refineries and those that probably will not survive the ongoing economic transition. The most important recent trend for the petroleum industry in Russia was vertical integration into companies which combine crude production, refining, distribution and retailing under one integrated structure.

COMPETITIVENESS

Energy intensity increased by 23% since 1990…

From 1980 to 1990, the **energy intensity** decreased by about 0.6% per year. Before the start of its economic collapse, the Former Soviet Union had the highest energy intensity in the world (bearing in mind all the necessary precautions when determining GDP). Inefficiency was the result of policies in which domestic energy prices were kept below world market prices. The artificially low energy prices encouraged development of an industrial base that used energy very inefficiently. In general the economy has been weighted heavily towards industry with a relatively small service sector. In industry, the rise has occurred as many inefficient industrial enterprises have not closed but remained operational at a lower level of activity. With the decline in its economic activities, the energy intensity index rose substantially over the past several years even as energy consumption declined from1989, because GDP declined even faster. The energy intensity increased sharply by 4.3% between 1990 and 1994, by 2.4% in 1995 and approached stabilisation in 1996



Capital shortage makes it difficult to reform any energy economies within the industrial sector. Although progress towards price reform has been made, much more is necessary to moderate the subsidisation of energy use throughout the economy. Another reason is that industry, as is the same for Asian developing countries, accounts for a substantial share of total economic activity as the region has a relatively small service sector. The future evolution of energy intensity in industry will depend on the level of investment in new capital equipment in energy intensive industries with energy use characteristics more in line with the practices in the main industrialised countries. It also depends on the relative rate of growth of less-intensive industrial activities.

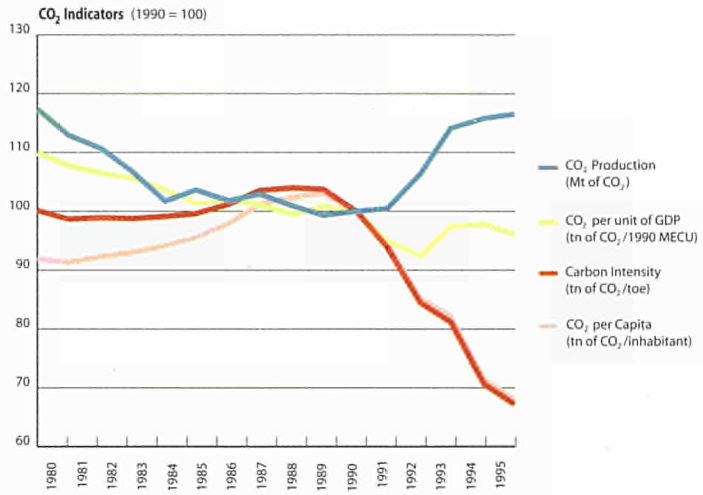
Concerning the residential-tertiary sector it must be underlined that energy distribution systems are not geared to metering and pricing which would to encourage the rational use of energy. Residences frequently do not have energy meters or control equipment, so that energy use in the residential sector is inflexible in respect to both energy price and income.

The **gross inland consumption per capita** that culminated at 4.8 toe/capita in 1988 slowed down to only 3.2 toe/capita in 1996, below the European level. Large discrepancies exist between republics with higher consumption per capita in Russia (4.1 toe/capita in 1996) and quite lower levels, largely below 1 toe/capita in some cases, in the Central Asian Republics.

ENVIRONMENT

CO_2 emissions reduced by 34% since 1990…

The **CO_2 emissions** in CIS increased from 3190 Mt in 1980 to 3486 Mt in 1990 and then dropped down to 2299 Mt in 1996 (-34% since 1990) in line with the evolution of gross inland consumption. CIS as a whole benefited substantially from the increasing contribution of natural gas to reduce CO_2 emissions.



But it is expected that, with the forthcoming rebound of the economy, coal and mainly oil will increase their contribution to gross inland consumption, especially in relation with the expected growth of consumption for transportation. This means that the carbon intensity of fossil fuels can increase by about 5-10% over the next ten years and as a consequence accelerate the growth of CO_2 emissions. The global evolution must be put in perspective. Although CO_2 emissions per capita closely followed the evolution of total emissions since 1980, CO_2 intensity per unit of GDP has been increasing substantially since 1990 to return in 1996 almost to the 1980 level in relation to the increasing energy intensity of the economy.

The power sector was the largest contributor to CO_2 emissions. After a maximum level reached in 1991 with 1410 Mt, emissions declined until 1995 to the 1980 level and represented about 47% of total emissions (34% in 1980). All the sectors contributed to reduction recorded since 1990 but at varying amplitudes: energy branch emissions declined by 77%, industry and transport by 58%, power sector by 16% and tertiary-domestic by only 10%.

But energy also has an impact on the environment due to losses, even if these sources of emissions are not yet really included in the statistics. It is estimated that 5 to 7% of CIS's oil production is lost due to accidental leakage, mainly shipping oil lost through weak and over-used segments of Russian pipelines. At the same time, Gazprom currently is undertaking an extensive renovation of its gas trunkline system and compressor stations. About half of Gazprom's pipeline network is more than 30 years old and has outlived its original design life. Even with repair work, mainly financed by European banks, accident rates are high. About 25% of mishaps occur because of poor construction work, and smaller incidences happen because of external pipeline corrosion linked to inadequate insulation. Gas losses are not statistically accounted for, but it is generally considered that they represent a fair percentage of the total transported. These CH4 emissions are determinant as their impact on the atmosphere is considerably more important than CO_2 .

GLOBAL MARKETS

Energy exports peaked in 1996 under the pressure of increasing gas exports…

Export of energy has always been very important for the economy of the former USSR until 1990 and for Russia, as a major component since then, being a source of hard currency mainly from Western Europe. Exports of energy represented about 22% of energy production in 1996 against 16% in 1990 due to the reduction of both production and gross inland consumption. Total exported volumes increased to 260 Mtoe until 1990 from 212 Mtoe in 1980. They dropped by 22% between 1990 and 1992, but they recovered to the 1990 level in 1996. This evolution is mainly due to oil exports, the main exported energy form, which dropped by 50% between 1990 and 1992 but has recovered about 75 % of its losses since then. The main markets for oil exports are respectively Western Europe (92 Mtoe in 1996) and Central Europe (32 Mtoe in 1996)

Exports of natural gas also reached a peak in 1990 (87 Mtoe) and then decreased by about 5% per year between 1990 and 1992. The slowing trend stopped in 1993, while figures revealed a dynamic increase to reach a new absolute peak of about 116 Mtoe in 1996. These variations are connected to the export policy of Russia who currently exports about 20% of its natural gas production. Of this amount, about 60% is destined for European Union markets and the remainder for Eastern Countries. Western Europe relies on Russian gas to meet about a quarter of its needs. Trade among the CIS Republics has been in decline because of non-payment for supplies and the subsequent amassing of enormous debts for natural gas, causing reluctance on the part of shippers to provide more gas until payments are made.

Gas infrastructure expansion within the CIS is underway in order to serve expanding European markets. The most significant undertaking is the development of the Yamal gas fields in northern Siberia and the construction of the Yamal-Europe pipeline through Belarus and Poland. This project is being constructed from the market backwards, with the earliest stage designed to deliver gas to Germany and Poland from fields where the infrastructure is already in place. Work is underway on sections crossing Poland and Belarus, which will help reduce Gazprom's near-total dependency on Ukraine for moving its gas to Europe.

CIS(1) : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(4)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	1358.9	1517.0	1631.6	1228.3	1194.7	1190.9	2.2%	1.5%	-6.9%	-2.7%	-0.3%
Solids	338.7	312.5	300.5	210.5	192.2	177.2	-1.6%	-0.8%	-8.5%	-8.7%	-7.8%
Oil	606.2	598.2	573.5	362.8	353.9	349.2	-0.3%	-0.8%	-10.8%	-2.4%	-1.3%
Natural gas	359.6	520.1	656.3	572.0	564.5	577.2	7.7%	4.8%	-3.4%	-1.3%	2.2%
Nuclear	19.0	43.5	55.1	45.9	47.9	54.5	18.0%	4.8%	-4.4%	4.3%	13.8%
Hydro & Wind	15.9	18.4	20.0	21.3	20.6	18.7	3.0%	1.7%	1.5%	-3.1%	-9.1%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	20.8%	20.0%
Other renewable energy sources	19.5	24.3	26.1	15.9	15.5	14.0	4.5%	1.4%	-11.7%	-2.5%	-9.8%
Net Imports	-212.2	-219.2	-260.0	-227.2	-244.1	-261.0	0.6%	3.5%	-3.3%	7.4%	6.9%
Solids	-11.1	-8.8	-11.7	-8.7	-9.2	-3.7	-4.5%	5.9%	-7.2%	6.2%	-59.8%
Oil	-156.9	-153.1	-158.4	-134.7	-139.2	-140.5	-0.5%	0.7%	-4.0%	3.4%	1.0%
Crude oil	-116.1	-105.1	-108.5	-96.6	-97.8	na	-2.0%	0.6%	-2.9%	1.2%	na
Oil products	-40.9	-48.0	-49.8	-38.0	-41.4	na	3.3%	0.8%	-6.5%	8.9%	na
Natural gas	-42.6	-54.8	-86.9	-83.1	-94.9	-115.9	5.2%	9.7%	-1.1%	14.2%	22.2%
Electricity	-1.6	-2.5	-3.0	-0.8	-0.8	-0.8	8.6%	3.9%	-28.0%	3.2%	0.0%
Gross Inland Consumption	1133.0	1276.5	1354.8	990.6	958.9	943.2	2.4%	1.2%	-7.5%	-3.2%	-1.6%
Solids	326.8	301.1	288.8	205.6	195.3	181.6	-1.6%	-0.8%	-8.1%	-5.0%	-7.0%
Oil	437.5	430.7	408.3	230.0	223.2	213.9	-0.3%	-1.1%	-13.4%	-2.9%	-4.2%
Natural gas	315.9	460.9	559.4	472.5	456.5	461.3	7.8%	4.0%	-4.1%	-3.4%	1.0%
Other (2)	52.8	83.8	98.2	82.5	83.9	86.4	9.7%	3.2%	-4.3%	1.7%	3.1%
Electricity Generation in TWh	1294.0	1544.0	1727.0	1325.4	1292.7	na	3.6%	2.3%	-6.4%	-2.5%	na
Nuclear	73.0	167.0	211.5	174.4	182.2	na	18.0%	4.8%	-4.7%	4.5%	na
Hydro & wind	184.7	214.4	233.0	247.1	239.4	na	3.0%	1.7%	1.5%	-3.1%	na
Thermal	1036.3	1162.6	1282.5	903.9	871.2	na	2.3%	2.0%	-8.4%	-3.6%	na
Generation Capacity in GWe	266.8	319.3	343.7	345.4	342.6	na	3.7%	1.5%	0.1%	-0.8%	na
Nuclear	14.0	28.1	37.9	37.1	37.9	na	15.0%	6.2%	-0.5%	2.2%	na
Hydro & wind	52.5	61.3	65.0	66.1	66.1	na	3.1%	1.2%	0.4%	0.1%	na
Thermal	200.2	229.9	240.8	242.2	238.6	na	2.8%	0.9%	0.1%	-1.5%	na
Average Load Factor in %	55.4	55.2	57.4	43.8	43.1	na	-0.1%	0.8%	-6.5%	-1.7%	na
Fuel Inputs for Thermal Power Generation	342.6	397.9	439.3	404.5	381.0	na	3.0%	2.0%	-2.0%	-5.8%	na
Solids	138.4	129.6	142.7	92.7	103.4	na	-1.3%	1.9%	-10.2%	11.5%	na
Oil	107.2	104.6	67.8	71.0	56.1	na	-0.5%	-8.3%	1.2%	-21.0%	na
Gas	97.0	163.7	228.8	237.2	219.2	na	11.0%	6.9%	0.9%	-7.6%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	8.3%	na
Biomass	0.0	0.0	0.0	3.5	2.4	na	-	-	-	-31.8%	na
Average Thermal Efficiency in %	26.0	25.1	25.1	19.2	19.7	na	-0.7%	0.0%	-6.5%	2.3%	na
Non-Energy Uses	62.2	65.5	75.3	32.9	36.0	na	1.1%	2.8%	-18.7%	9.3%	na
Total Final Energy Demand	790.8	843.1	899.0	706.1	687.0	na	1.3%	1.3%	-5.9%	-2.7%	na
Solids	189.2	148.6	141.3	86.0	76.7	na	-4.7%	-1.0%	-11.7%	-10.7%	na
Oil	265.7	266.9	265.5	118.5	126.1	na	0.1%	-0.1%	-18.3%	6.4%	na
Gas	162.6	203.9	248.0	190.3	190.8	na	4.6%	4.0%	-6.4%	0.3%	na
Electricity	82.9	97.5	107.3	84.4	81.6	na	3.3%	1.9%	-5.8%	-3.3%	na
Heat (3)	71.0	101.9	110.8	214.3	197.9	na	7.5%	1.7%	17.9%	-7.6%	na
Renewable energy sources	19.5	24.3	26.1	12.6	13.8	na	4.5%	1.4%	-16.7%	9.6%	na
CO_2 Emissions in Mt of CO_2	3253.2	3381.8	3539.4	2532.2	2408.1	2299.3	0.8%	0.9%	-8.0%	-4.9%	-4.5%
Indicators											
Population (Million)	265.78	277.73	289.56	293.20	293.08	292.65	0.9%	0.8%	0.3%	0.0%	-0.1%
GDP (index 1985=100)	84.9	100.0	108.4	67.0	63.3	61.5	3.3%	1.6%	-11.3%	-5.5%	-2.9%
Gross Inl Cons./GDP (toe/1990 MECU)	1997.1	1911.2	1870.9	2213.5	2267.7	2297.5	-0.9%	-0.4%	4.3%	2.4%	1.3%
Gross Inl Cons./Capita (toe/inhabitant)	4.26	4.60	4.68	3.38	3.27	3.22	1.5%	0.4%	-7.8%	-3.2%	-1.5%
Electricity Generated/Capita (kWh/inhabitant)	4869	5559	5964	4521	4411	na	2.7%	1.4%	-6.7%	-2.4%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	12.2	12.2	12.2	8.6	8.2	7.9	-0.1%	0.1%	-8.3%	-4.9%	-4.4%
Import Dependency %	-18.7	-17.1	-19.1	-22.9	-25.5	-27.7	-1.7%	2.2%	4.7%	11.0%	8.6%

(1) Includes Baltic countries for statistical reasons.
(2) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.
(3) Disruption in statistical series in 1993
(4) Estimates

CIS (1) : MAIN INDICATORS

	1980	1985	1990	1994	1995	85/80	90/85	94/90	95/94
						Annual % Change			
Gross Inland Consumption (Mtoe)	1133.0	1276.5	1354.8	990.6	958.9	2.4%	1.2%	-7.5%	-3.2%
Public Thermal Power Generation	325.4	380.5	422.5	387.1	354.4	3.2%	2.1%	-2.2%	-8.4%
Autoprod. Thermal Power Generation	17.2	17.4	16.8	17.4	26.6	0.2%	-0.7%	0.9%	53.2%
Energy Branch	96.3	130.4	131.5	51.6	47.4	6.2%	0.2%	-20.9%	-8.1%
Final Energy Consumption	790.8	843.1	899.0	704.0	684.7	1.3%	1.3%	-5.9%	-2.7%
Industry	399.7	386.1	413.5	264.7	245.6	-0.7%	1.4%	-10.6%	-7.2%
Transport	123.8	134.1	139.9	65.5	66.1	1.6%	0.9%	-17.3%	1.0%
Tertiary-Domestic	267.3	322.9	345.6	373.9	373.0	3.9%	1.4%	2.0%	-0.2%
Energy Intensity (toe/1990 MECU)	1997.1	1911.2	1870.9	2213.5	2267.7	-0.9%	-0.4%	4.3%	2.4%
Public Thermal Power Generation	573.6	569.7	583.5	864.9	838.0	-0.1%	0.5%	10.3%	-3.1%
Autoprod. Thermal Power Generation	30.3	26.1	23.2	38.8	63.0	-3.0%	-2.3%	13.8%	62.2%
Industry	704.5	578.0	571.0	591.5	580.9	-3.9%	-0.2%	0.9%	-1.8%
Transport	218.2	200.7	193.2	146.3	156.3	-1.7%	-0.8%	-6.7%	6.8%
Tertiary-Domestic	471.2	483.5	477.3	835.4	882.1	0.5%	-0.3%	15.0%	5.6%
Energy per Capita (Kgoe/inhabitant)	4263	4596	4679	3378	3272	1.5%	0.4%	-7.8%	-3.2%
Industry	1504	1390	1428	903	838	-1.6%	0.5%	-10.8%	-7.2%
Transport	466	483	483	223	226	0.7%	0.0%	-17.5%	1.0%
Tertiary-Domestic	1006	1163	1194	1275	1273	2.9%	0.5%	1.7%	-0.2%
Electricity Share (%)									
Final Energy Consumption	10.5%	11.6%	11.9%	12.0%	11.9%	2.0%	0.6%	0.1%	-0.6%
Industry	13.9%	16.5%	16.5%	15.7%	15.6%	3.5%	-0.1%	-1.1%	-1.0%
Transport	5.3%	5.3%	5.3%	11.7%	11.0%	-0.1%	0.3%	21.6%	-5.7%
Tertiary-Domestic	7.7%	8.2%	9.2%	9.4%	9.7%	1.3%	2.1%	0.6%	2.9%
Total Renewable Consumption (Mtoe)	35.4	42.7	46.1	37.4	36.8	3.8%	1.5%	-5.1%	-1.5%
Hydro	15.9	18.4	20.0	21.3	20.6	3.0%	1.7%	1.5%	-3.1%
Biomass	19.5	24.3	26.1	16.1	16.2	4.5%	1.4%	-11.4%	0.6%
Other renewable energy sources	0.0	0.0	0.0	0.0	0.0	-	-	-	20.8%
Renewable intensity (toe/1990MECU)	62.4	64.0	63.7	83.5	87.0	0.5%	-0.1%	7.0%	4.2%
Renewable per capita (Kgoe/inhabitant)	133.1	153.9	159.3	127.4	125.5	2.9%	0.7%	-5.4%	-1.5%
CO_2 Emissions (Mt of CO_2)	3253.2	3381.8	3539.4	2532.2	2408.1	0.8%	0.9%	-8.0%	-4.9%
Public Thermal Power Generation	1061.9	1187.8	1291.4	1139.5	1053.0	2.3%	1.7%	-3.1%	-7.6%
Autoprod. Thermal Power Generation	55.4	54.6	53.1	39.3	76.6	-0.3%	-0.5%	-7.3%	94.9%
Energy Branch	166.7	222.6	199.9	51.8	45.6	5.9%	-2.1%	-28.6%	-12.0%
Industry	987.1	866.1	919.3	403.2	390.6	-2.6%	1.2%	-18.6%	-3.1%
Transport	364.6	392.6	406.6	170.2	173.4	1.5%	0.7%	-19.6%	1.9%
Tertiary-Domestic	617.4	658.1	669.1	606.7	604.3	1.3%	0.3%	-2.4%	-0.4%
Carbon Intensity (tn of CO_2/toe)	2.9	2.6	2.6	2.6	2.5	-1.6%	-0.3%	-0.5%	-1.8%
Public Power Generation	2.9	2.7	2.6	2.5	2.5	-1.9%	-0.7%	-0.8%	-0.7%
Public Thermal Power Generation	3.3	3.1	3.1	2.9	3.0	-0.9%	-0.4%	-0.9%	0.9%
Autoprod. Power Generation	3.2	3.1	3.2	2.3	2.9	-0.5%	0.2%	-8.1%	27.3%
Autoprod. Thermal Power Generation	3.2	3.1	3.2	2.3	2.9	-0.5%	0.2%	-8.1%	27.2%
Energy Branch	1.7	1.7	1.5	1.0	1.0	-0.3%	-2.3%	-9.8%	-4.3%
Industry	2.5	2.2	2.2	1.5	1.6	-1.9%	-0.2%	-9.0%	4.4%
Transport	2.9	2.9	2.9	2.6	2.6	-0.1%	-0.1%	-2.8%	0.9%
Tertiary-Domestic	2.3	2.0	1.9	1.6	1.6	-2.5%	-1.0%	-4.3%	-0.2%
CO_2 per Capita (kg of CO_2/inhabitant)	12240	12176	12223	8637	8217	-0.1%	0.1%	-8.3%	-4.9%
Industry	3714	3118	3175	1375	1333	-3.4%	0.4%	-18.9%	-3.1%
Transport	1372	1414	1404	580	592	0.6%	-0.1%	-19.8%	2.0%
Tertiary-Domestic	2323	2370	2311	2069	2062	0.4%	-0.5%	-2.7%	-0.4%
CO_2 per unit of GDP (tn of CO_2/1990 MECU)	5734	5063	4888	5658	5695	-2.5%	-0.7%	3.7%	0.6%
Public Thermal Power Generation	1872	1778	1783	2546	2490	-1.0%	0.1%	9.3%	-2.2%
Autoprod. Thermal Power Generation	98	82	73	88	181	-3.5%	-2.1%	4.6%	106.2%
Energy Branch	294	333	276	116	108	2.5%	-3.7%	-19.5%	-6.9%
Industry	1740	1297	1270	901	924	-5.7%	-0.4%	-8.2%	2.5%
Transport	643	588	561	380	410	-1.8%	-0.9%	-9.3%	7.9%
Tertiary-Domestic	1088	985	924	1356	1429	-2.0%	-1.3%	10.1%	5.4%

(1) Includes baltic Countries for statistical reasons

RUSSIA : SUMMARY ENERGY BALANCE

Mtoe	1990	1991	1994	1995	1996(2)	94/90	95/94	96/95
						Annual % Change		
Primary Production	1269.3	1192.4	965.8	942.6	937.0	-6.6%	-2.4%	-0.6%
Solids	164.9	154.5	112.4	109.5	106.6	-9.1%	-2.6%	-2.6%
Oil	518.8	460.5	317.3	306.6	299.7	-11.6%	-3.4%	-2.3%
Natural gas	516.1	509.3	480.9	471.3	476.2	-1.8%	-2.0%	1.0%
Nuclear	30.8	31.3	25.9	26.3	28.8	-4.2%	1.5%	9.5%
Hydro & Wind	14.3	14.5	15.1	15.2	13.3	1.3%	0.2%	-12.3%
Geothermal	0.0	0.0	0.0	0.0	0.0	-1.0%	20.8%	20.0%
Other	24.3	22.3	14.1	13.8	12.3	-12.7%	-2.4%	-10.7%
Net Imports	-449.4	-345.2	-315.1	-314.2	-336.7	-8.5%	-0.3%	7.2%
Solids	-0.6	4.1	1.0	-2.9	-2.8	-	-	-2.4%
Oil	-262.0	-210.6	-165.6	-157.6	-162.4	-10.8%	-4.8%	3.0%
Crude oil	-204.3	-162.7	-122.5	-114.4	na	-12.0%	-6.6%	na
Oil products	-57.7	-47.9	-43.1	-43.2	na	-7.0%	0.3%	na
Natural gas	-186.5	-137.6	-148.8	-152.0	-169.8	-5.5%	2.2%	11.7%
Electricity	-0.4	-1.0	-1.8	-1.7	-1.7	46.0%	-4.4%	0.0%
Gross Inland Consumption	826.3	844.9	633.9	618.2	600.2	-6.4%	-2.5%	-2.9%
Solids	167.0	149.4	113.8	108.7	103.8	-9.1%	-4.5%	-4.5%
Oil	264.6	249.9	149.6	149.5	137.2	-13.3%	0.0%	-8.2%
Natural gas	325.5	378.5	316.9	306.4	306.4	-0.7%	-3.3%	0.0%
Other (1)	69.2	67.0	53.7	53.6	52.8	-6.1%	-0.2%	-1.5%
Electricity Generation in TWh	1150.2	1105.0	874.9	880.6	na	-6.6%	0.7%	na
Nuclear	118.3	120.0	97.8	99.5	na	-4.6%	1.8%	na
Hydro & wind	166.8	168.1	175.9	176.3	na	1.3%	0.2%	na
Thermal	865.1	816.9	601.1	604.8	na	-8.7%	0.6%	na
Generation Capacity in GWe	213.1	213.1	214.7	210.8	na	0.2%	-1.8%	na
Nuclear	20.2	20.2	21.2	21.2	na	1.2%	0.0%	na
Hydro & wind	43.3	43.3	43.8	43.8	na	0.3%	-0.1%	na
Thermal	149.5	149.5	149.7	145.8	na	0.0%	-2.6%	na
Average Load Factor in %	61.6	59.2	46.5	47.7	na	-6.8%	2.5%	na
Fuel Inputs for Thermal Power Generation	266.7	268.4	295.5	276.8	na	2.6%	-6.3%	na
Solids	65.2	57.6	46.7	55.1	na	-8.0%	17.9%	na
Oil	47.1	46.2	57.5	45.0	na	5.1%	-21.8%	na
Gas	154.4	164.5	191.3	176.7	na	5.5%	-7.6%	na
Geothermal	0.0	0.0	0.0	0.0	na	-1.0%	8.3%	na
Other	0.0	0.0	0.0	0.0	na	-	-	na
Average Thermal Efficiency in %	27.9	26.2	17.5	18.8	na	-11.0%	7.4%	na
Non-Energy Uses	10.8	29.1	26.6	30.3	na	25.5%	13.8%	na
Total Final Energy Demand	714.1	674.3	470.9	463.7	na	-9.9%	-1.5%	na
Solids	67.5	64.8	44.8	42.5	na	-9.7%	-5.2%	na
Oil	176.8	147.0	65.1	74.7	na	-22.1%	14.8%	na
Gas	166.8	161.9	106.9	107.6	na	-10.5%	0.7%	na
Electricity	74.2	70.4	54.6	53.2	na	-7.4%	-2.7%	na
Heat	204.3	207.8	185.1	171.9	na	-2.4%	-7.1%	na
Other	24.4	22.3	14.4	13.8	na	-12.4%	-4.1%	na
CO_2 Emissions in Mt of CO_2	2415.7	2118.1	1573.4	1496.6	na	-10.2%	-4.9%	na
Indicators								
Population (Million)	148.29	148.62	148.35	148.20	147.70	0.0%	-0.1%	-0.3%
GDP (index 1985=100)	108.4	103.0	70.3	67.5	65.6	-10.3%	-4.0%	-2.8%
Gross Inl Cons./GDP (toe/1990 MECU)	1909.4	1955.1	2150.2	2184.3	2181.5	3.0%	1.6%	-0.1%
Gross Inl Cons./Capita (toe/inhabitant)	5.86	5.68	4.27	4.17	4.06	-7.6%	-2.4%	-2.6%
Electricity Generated/Capita (kWh/inhabitant)	7756	7435	5897	5942	na	-6.6%	0.8%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	16.3	14.3	10.6	10.1	na	-10.2%	-4.8%	na
Import Dependency %	-46.8	-40.9	-49.7	-50.8	-56.1	1.5%	2.2%	10.4%

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

UKRAINE : SUMMARY ENERGY BALANCE

Mtoe	1990	1991	1994	1995	1996(2)	94/90	95/94	96/95
						Annual % Change		
Primary Production	135.4	114.5	86.0	80.7	76.4	-10.7%	-6.2%	-5.3%
Solids	86.8	69.9	48.6	43.4	36.5	-13.5%	-10.7%	-16.0%
Oil	5.3	5.0	4.2	4.1	3.9	-5.4%	-3.4%	-4.7%
Natural gas	22.6	19.0	14.2	14.0	14.4	-11.0%	-1.6%	3.2%
Nuclear	19.9	19.6	17.9	18.4	20.8	-2.5%	2.4%	13.4%
Hydro & Wind	0.9	1.0	1.1	0.9	0.8	3.6%	-17.6%	-6.9%
Geothermal	0.0	0.0	0.0	0.0	0.0	-	-	-
Other renewable energy sources	0.0	0.0	0.0	0.0	0.0	-	-	-
Net Imports	119.8	132.5	75.3	80.9	77.7	-11.0%	7.4%	-3.9%
Solids	-5.8	-2.6	2.2	8.5	7.7	-	286.9%	-10.0%
Oil	54.6	61.5	19.6	21.2	20.1	-22.6%	8.2%	-5.1%
Crude oil	53.4	49.4	15.9	13.4	na	-26.1%	-15.8%	na
Oil products	1.2	12.1	3.7	7.8	na	31.5%	111.4%	na
Natural gas	73.5	74.9	53.6	51.4	50.2	-7.6%	-4.1%	-2.4%
Electricity	-2.4	-1.3	-0.1	-0.3	-0.3	-56.3%	185.4%	0.0%
Gross Inland Consumption	252.6	250.6	165.2	161.6	154.6	-10.1%	-2.2%	-4.3%
Solids	81.6	68.5	50.8	51.9	44.1	-11.2%	2.3%	-15.0%
Oil	60.9	67.8	23.8	25.3	24.4	-20.9%	6.2%	-3.3%
Natural gas	91.8	95.0	71.7	65.4	64.6	-6.0%	-8.8%	-1.2%
Other (1)	18.3	19.3	18.9	19.0	21.4	0.8%	0.4%	12.7%
Electricity Generation in TWh	298.8	278.7	202.9	194.0	na	-9.2%	-4.4%	na
Nuclear	76.2	75.1	68.8	70.5	na	-2.5%	2.4%	na
Hydro & wind	10.7	11.9	12.3	10.2	na	3.6%	-17.7%	na
Thermal	212.0	191.6	121.7	113.3	na	-12.9%	-6.9%	na
Generation Capacity in GWe	54.3	54.3	54.2	54.3	na	0.0%	0.0%	na
Nuclear	12.8	12.8	12.8	12.8	na	0.0%	0.0%	na
Hydro & wind	4.7	4.7	4.7	4.7	na	0.1%	0.2%	na
Thermal	36.8	36.8	36.7	36.7	na	-0.1%	0.0%	na
Average Load Factor in %	62.8	58.5	42.7	40.8	na	-9.2%	-4.4%	na
Fuel Inputs for Thermal Power Generation	94.2	80.4	32.0	33.8	na	-23.7%	5.8%	na
Solids	26.6	19.5	17.8	22.5	na	-9.5%	26.4%	na
Oil	22.0	19.0	2.8	2.8	na	-40.3%	0.0%	na
Gas	45.6	41.9	11.4	8.5	na	-29.3%	-25.0%	na
Geothermal	0.0	0.0	0.0	0.0	na	-	-	na
Biomass	0.0	0.0	0.0	0.0	na	-	-	na
Average Thermal Efficiency in %	19.3	20.5	32.8	28.8	na	14.1%	-12.0%	na
Non-Energy Uses	3.7	6.5	1.4	1.1	na	-22.0%	-20.9%	na
Total Final Energy Demand	180.0	176.7	109.9	104.7	na	-11.6%	-4.8%	na
Solids	45.6	42.5	26.1	22.6	na	-13.0%	-13.5%	na
Oil	42.6	40.1	17.3	18.9	na	-20.2%	9.4%	na
Gas	34.5	44.2	40.4	39.9	na	4.1%	-1.3%	na
Electricity	19.2	17.3	12.9	12.3	na	-9.5%	-4.5%	na
Heat	38.2	32.5	13.2	11.0	na	-23.4%	-16.7%	na
Renewable energy sources	0.0	0.0	0.0	0.0	na	-	-	na
CO_2 Emissions in Mt of CO_2	720.7	667.4	424.4	419.7	na	-12.4%	-1.1%	na
Indicators								
Population (Million)	51.89	52.00	51.92	51.55	51.00	0.0%	-0.7%	-1.1%
GDP (index 1985=100)	109.6	100.4	59.5	52.5	47.2	-14.2%	-11.8%	-10.0%
Gross Inl Cons./GDP (toe/1990 MECU)	2039.3	2208.3	2455.8	2723.8	2895.5	4.8%	10.9%	6.3%
Gross Inl Cons./Capita (toe/inhabitant)	4.87	4.82	3.18	3.13	3.03	-10.1%	-1.5%	-3.3%
Electricity Generated/Capita (kWh/inhabitant)	5759	5359	3908	3764	na	-9.2%	-3.7%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	13.9	12.8	8.2	8.1	na	-12.4%	-0.4%	na
Import Dependency %	47.4	52.9	45.6	50.1	50.3	-1.0%	9.8%	0.5%

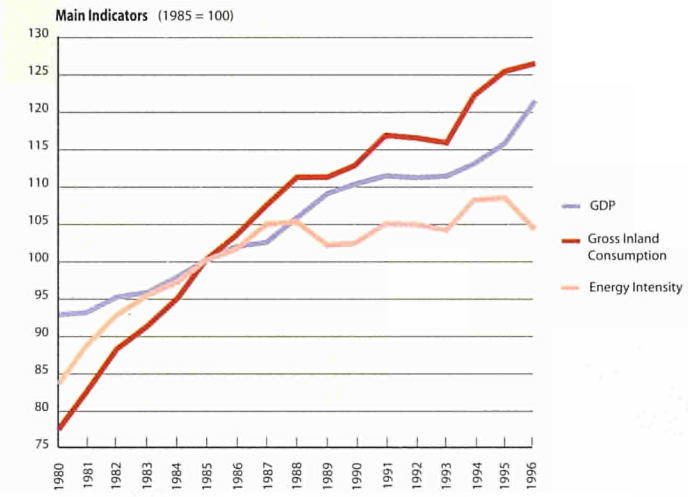
(1) Includes nuclear. hydro and wind. net imports of electricity. and other energy sources.
(2) Estimates

PART VI AFRICA

AFRICA: Recent trends (1985-1996)

- First sign of economic retrieval in 1995 and 1996
- Final energy demand largely dominated by the tertiary-domestic sector as a result of rural economy prevailing in sub-Saharan Africa
- Biomass covers the greatest part of the final demand except in North Africa where oil dominated
- Growth of gross inland consumption slowed down continuously since 1980, but rebounded in 1995 and 1996
- Sub-Saharan oil production almost equivalent in 1996 to North Africa
- Since 1980, coal covered 50% of electricity generation
- The refinery capacity, stable since 1988, represented only 3.7% of world capacity
- First improvement of energy intensity observed in 1996
- Gross inland consumption per capita was declining since 1985 and equivalent to only 13% of EU average
- CO_2 emissions have increased by 12% since 1990 with an acceleration in 1995 and 1996
- Africa became an increasing exporter of energy with North Africa and sub-Saharan Africa contributing equally

Africa is a vast continent with a natural geographic separation, the Sahara desert which runs between the North along the Mediterranean Sea and all other countries. Besides geography, there are other, more profound differences in terms of energy production, trade and use, as well as economic structures, stages of development, culture and life style. Moreover, special links exist between North African countries and the European Union, particularly concerning oil and gas supplies. For the analysis, two regions are explicitly considered: North Africa including Algeria, Egypt, Libya, Morocco and Tunisia, and, on the other hand, sub-Saharan Africa which includes all other countries.



First sign of economic retrieval since 1995...

Between 1980 and 1996 the African population grew regularly by about 2.7% per annum with about 82% concentrated in sub-Saharan Africa. However, an annual average GDP growth of only 1.7% has been observed over the same period, marked by economic stagnation between 1990 and 1993 with a more sustained evolution since then. But it must be stressed that GDP is largely underestimated as a large fraction of the population lives in autarky. As a consequence, the per capita GDP dropped by about 15% since 1980 with a limited decrease by only 12% in North Africa. Africa still hosts some of the poorest and least developed countries in the world.

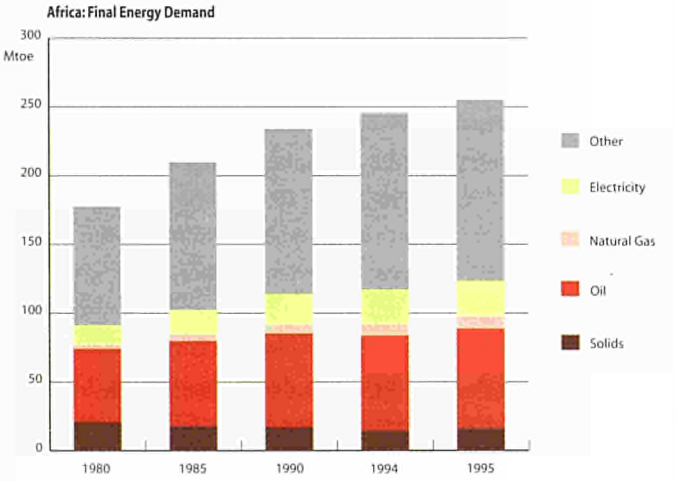
ENERGY OUTLOOK

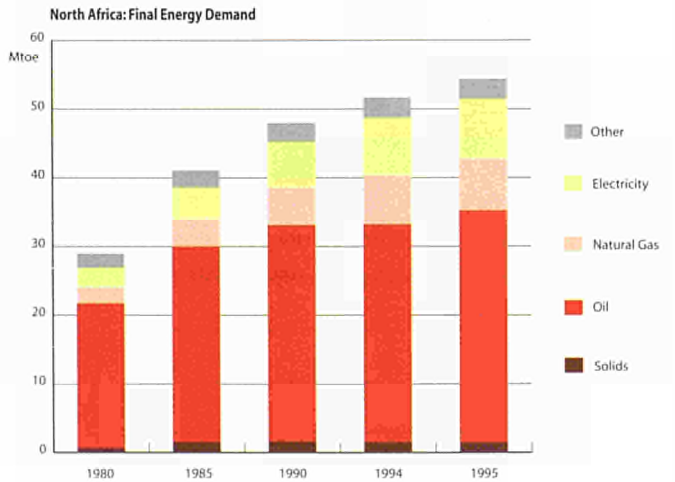
Final energy demand largely dominated by the tertiary-domestic sector as a result of rural economy prevailing in sub-Saharan Africa...

The growth of **Final Energy Demand** slowed down regularly between 1980 and 1994, but rebounded in 1995. Globally, for the whole continent, the domestic and tertiary share in the final energy demand is from far the most important, and this trend is accentuated with time, going from 59% in 1980 to 66% in 1995. The share of industry fell from 24% to 18% over the same period, while the contribution of transport decreased from 17% to 16%, corresponding to a slight erosion of industrial and transport infrastructures. This is a result of the rural economy, excluding almost all forms of industrial activity, prevailing in sub-Saharan Africa, with the exclusion of South Africa. In this region, accounting more than 550 millions inhabitants, industrial energy demand remained lower than 10 Mtoe until 1996. Looking more specifically at North Africa, final energy demand was increasing from 28.9 to 54.4 Mtoe over the period 1980-1995, but the structure of demand was closer to industrialised countries with 33% for industry, 24% for transport and 43% for tertiary-domestic sector in 1995.

Biomass covers the greatest part of the final demand except in North Africa where oil dominated...

Biomass remained largely the largest contributor to the final energy with a share of about 50% of energy needs, while oil contribution reached the ceiling of 30% in line with the limited increase of transportation fuel consumption. African car ownership remains one of the lowest in the world with only 20 cars per 1000 inhabitants. The electricity share increased from 8% to 10% over the period, while the solid fuels dropped from 12% to 6%. It must be stressed that the electricity share remained globally very low compared to industrialised countries. Consumption of the whole continent remained lower than the whole of French consumption in 1995. It revealed the fact that a large part of Central Africa was not yet electrified. In 1995, South Africa consumed just below 50% of Africa's total electricity supply, North Africa 33% and sub-Saharan Africa (excluding South Africa) 17%. In per capita terms, the contrast is dramatic: South Africa consumed 4500 kWh per capita, North Africa 883 kWh per capita and sub-Saharan Africa only 103 kWh per capita. In North Africa, the final energy demand is mainly focused on oil (62%), electricity (16%) and gas (14%). While the sub-Saharan region biomass covers 64% of the needs, oil (19%) and to a lesser extend electricity (9%) and solid fuels (7%) almost covering the remaining demand.



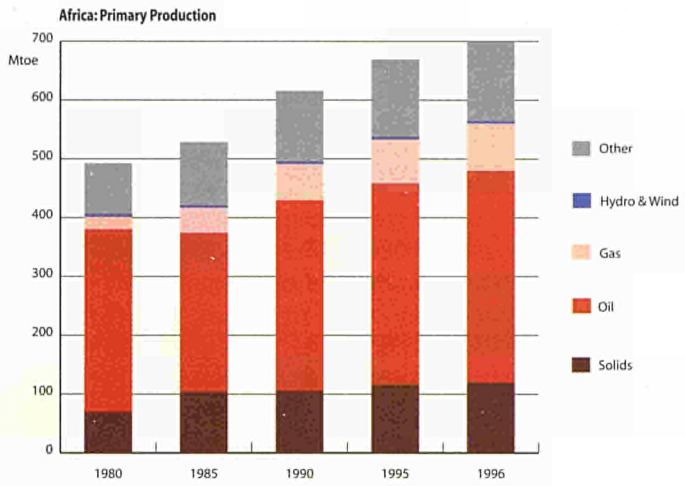


Growth of gross inland consumption slowed down continuously since 1980, but rebounded in 1995 and 1996...

Gross inland energy consumption closely followed the evolution of final demand, with an average annual increase of almost 3.2% since 1980, but only 2.2% since 1990 even if energy consumption growth recovered to a level of 2.6% in 1995 and 1996 in line with the economic rebound. There was a general increase for all primary fuels, with large regional discrepancies. Gas, mainly consumed in North Africa where the production is located, grew on average by 8% per year since 1980. Ninety percent of all natural gas consumption in Africa is concentrated in only four countries: Algeria, Egypt, Libya and Nigeria. On the contrary, solids that increased by about 3.0% on average since 1980, but only 1.8% since 1990 are mainly consumed in South Africa, the major producer in Africa. About 50% of solids consumption are absorbed by power generation. Oil for its part grew on average by about 3.8% per year in North Africa and by only 1.6% in sub-Saharan Africa. At the opposite of world trends, the share of transport in oil products consumption declines from 46% in 1980 to 40% in 1995. Finally, Biomass, the major energy source for sub-Saharan Africa grew 2.8% per year for the African continent as a whole. In 1996, renewable energy accounted for 39% of total gross inland consumption for Africa, but 51% for sub-Saharan Africa. The shares of the other fossil fuels in gross consumption were respectively: oil with 27%, solids with 23% and gas with 11%.

Sub-Saharan oil production almost equivalent in 1996 to North Africa...

Indigenous energy production in Africa increased by almost 42% over the period 1980 to 1996, considering the uncertanties related to statistical accounting of biomass production. Over the period oil remained the major contributor, although its share in primary production decreased from 63% to about 52%. Although the major producers are still located in North Africa it must be stressed that Sub-Saharan production increased more rapidly to reach, in 1996, almost the same level as North Africa. Enhanced subsea technologies continues to contribute to significant optimism about the long term potential for offshore oil production. Vast areas of offshore West Africa are now considered to be promising sites for future development. Natural gas, mainly produ-



ced in North Africa, saw its production multiply by about 4. Solid fuels increased by two-thirds their contribution since 1980, 95% of the production being located in South Africa with about 111 Mtoe in 1996, 67% of which was routed to domestics markets and the remainder to exports. South Africa holds the distinction of being the world's larger producer of coal-based synthetic liquid fuel. In 1996, about one-fifth of the coal consumed in South Africa was used to produce coal-based synthetic fuels, which in turn accounted for approximately one-third of all liquid fuels consumed in South Africa during the year. Nuclear, hydro and wind, as well as geothermal, remain marginal and show no significant evolution since 1990. Considering that in some sub-Saharan regions biomass remained the only energy source accessible to people, it's use continued to be developed so that biomass remained the second energy source, covering 17% of primary production in 1996. It must be stressed that the raw material for biomass is ancillary to forest clearing. Therefore, an equivalent volume of wood is not replanted and a net addition of carbon dioxide and methane to atmospheric inventories occurs.

Since 1980, coal covered 50% of electricity generation...

Electricity generation in Africa grew by almost 5% per year during the 80's and by only half of this during the 90's. But the world lowest electricity consumption per capita, only about 520 kWh /inhabitant, demonstrated the large potential for future development. With the exception of some nuclear in South Africa, all the incremental production has been covered by thermal units. They have seen their output more than double since 1980. Thermal power units are mainly fed with oil and gas in North Africa and by solids in sub-Saharan Africa. Between 1980 and 1996, coal covered 50% of electricity generation. Both oil and gas are also important generation fuels, particularly among those nations with large petroleum reserves. Despite an increase of 50% in hydropower capacity since 1980, hydro production remained relatively flat due to climatic conditions and political situations in some sub-Saharan countries, some interregional wires being destroyed by local civil wars.

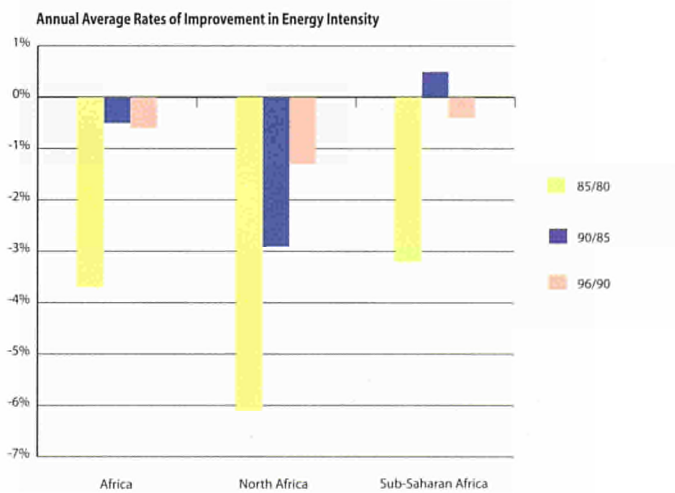
The refinery capacity, stable since 1988, represented only 3.7% of world capacity...

In 1996, the **refinery capacity**, stable since 1988, (2.9 millions barrels day) represented only 3.7% of world capacity (2.5% in 1980). Since 1980,the capacity grew by 2.1% per year. At the same time, the utilisation rate of the refineries increased from 71% to 85%, remaining during all the period below the world average, except in 1996. This improvement of the rate of utilisation is necessary to guarantee sufficient rates of return on investment and consequently to attract foreign investment of which contributions remained very limited, in particular in the sub-Saharan region.

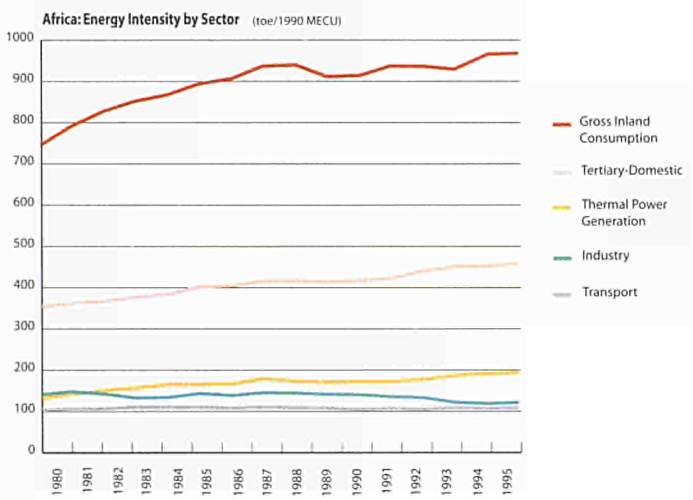
COMPETITIVENESS

First improvement of energy intensity observed in 1996...

Energy intensity for the continent as a whole has increased by roughly 1.8% per year on average between 1980 and 1995, but improved by 2.1% in 1996, a new trend to be confirmed in the future. The major increases occurred in North Africa with a growth of about 3.3% per year on average since 1980 while sub-Saharan Africa grew by only 1% on average with improvement occurring already in 1995. As in the Middle East, the evolution of the GDP in North Africa has been deeply marked by the conditions on the oil market, resulting in a limited GDP growth of only 1.6% per year on average since 1980.



The weight of the various sectors in the energy intensity is also changing dramatically from region to region. The domestic and tertiary sector plays a key role. In north Africa, the weight of domestic sector, industry and public thermal power generation is evenly distributed, each of them accounting for about 25% since 1980. In the sub-Saharan countries, the weight of domestic and tertiary sector climbs to 50% and even to 85% in some smaller countries. Renewable intensity that increased rapidly in the first half of the 80's, remained quite stable while the renewable consumption per capita in 1996 is almost equivalent to the level reached in 1980.



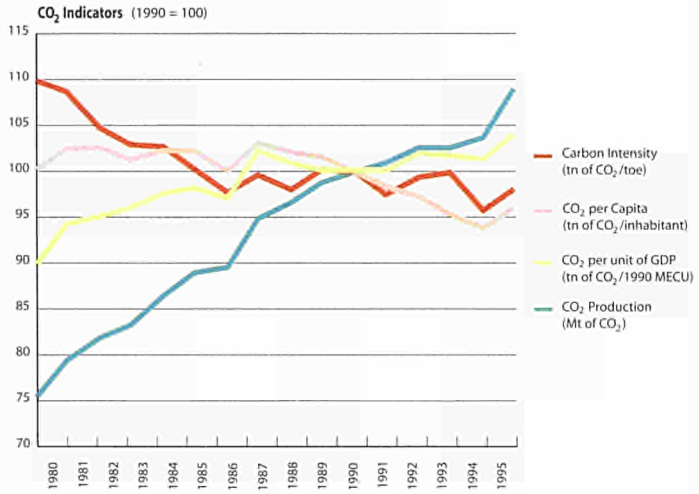
Gross inland consumption per capita was declining since 1985 and equivalent to only 13% of EU average...

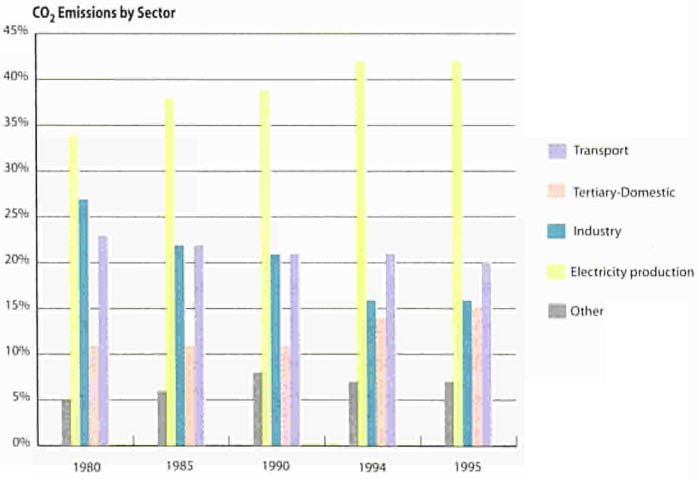
The **gross inland consumption per capita** remained very low in Africa, fluctuating between 0.47 and 0.53 Toe/inhabitant between 1980 and 1995, about 13% of the average EU level. The figures show a slight but continuous decrease since 1985 driven by sub-Saharan Africa where life styles are generally declining over the last ten years, while consumption per capita increased in North Africa. The main contribution comes largely from domestic and tertiary applications that stabilised its contribution to about 48% of total consumption per capita in the period 1980-1995. The contributions of industry and transport have declined continuously since 1980 and represented, in 1995, 13 and 11% respectively. On the other hand, contribution by the power sector was increasing to reach 19% in 1995, compared to 16% in 1980.

ENVIRONMENT

CO_2 emissions have increased by 12% since 1990 with a acceleration in 1995 and 1996...

CO_2 emissions in Africa increased by 44% since 1980 to reach 619 Mt of CO_2 in 1996. The fastest growing sources are power generation and the tertiary-domestic sector (76% and 92% growth respectively over the period). However most of the increase for power stations occurred during the first half of the 80's, while for the tertiary-domestic sector the increase accelerated after 1990 due to the increasing consumption of oil products. Contribution from industry, stable during the 80's, declined sharply between 1990 and 1994 due to the economic recession but rebounded in 1995. Emissions from the transport sector grew by only 30% since 1980.





North Africa contributed 40% of the total emissions from Africa, with public power stations emitting 31% of the total production, the domestic sector, industry and the transport sector contributing equally at one-fifth. In the sub-Saharan region the structure of emissions is quite different in relation with the major role played by biomass in the tertiary-domestic sector. Power generation was responsible for 48% of total emissions, transport for 22%, industry for 14% and tertiary-domestic sector only 12%.

CO_2 emissions per capita decreased over the period by 4%. While the contribution of industry decreased much faster (43%) and of transport more slowly (14%), the contribution of the tertiary sector and power generation increased slightly since 1980. As gross inland energy consumption, based on fossil fuels, increased more rapidly than the GDP, it implies that the CO_2 content per unit of GDP also increased in the whole period.

GLOBAL MARKETS

Africa became an increasing exporter of energy with North Africa and sub-Saharan Africa contributing equally...

Africa became an increasing **exporter of energy**. Between 1980 and 1996, the energy exports grew from 260 Mtoe to 330 Mtoe with North Africa and sub-Saharan Africa contributing almost equally in 1996. Oil is by far the major component of this energy export, representing 78% of the total energy exports in 1996. Solid fuel and natural gas with comparable volumes representing the rest of energy exports. But, if coal exports were stabilised since 1985, gas exports have almost doubled since then. The volume of energy exported is globally comparable to the gross inland energy consumption. North Africa exports about two thirds of its oil and gas production, mainly to the European market. Sub-Saharan Africa exports almost as much oil as North Africa, more than 70% of its production. Coal was exported almost exclusively from South Africa (33% of its production).

Gas export infrastructures have been recently extended with the doubling of the Transmed pipeline from Algeria to Italy. The Magreb pipeline which runs from Hassi R'Mel field in Algeria to Seville, Spain (through Morocco), was completed in October 1996, and an extension from Spain to Portugal was completed in February 1997. Although several African LNG projects to supply Europe and the United States have been under consideration for years, the Nigerian Bonny LNG project is the farthest advanced. First deliveries are scheduled to begin in 2000. Main contracts, already signed, concern Spain, Turkey, France and Italy.

AFRICA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	492.6	530.1	618.3	652.2	672.9	700.6	1.5%	3.1%	1.3%	3.2%	4.1%
Solids	69.8	103.8	105.7	110.4	115.8	116.0	8.3%	0.4%	1.1%	4.9%	0.2%
Oil	310.8	270.5	323.9	337.3	342.7	361.9	-2.7%	3.7%	1.0%	1.6%	5.6%
Natural gas	20.4	42.5	61.5	68.3	74.7	80.3	15.8%	7.7%	2.6%	9.3%	7.6%
Nuclear	0.0	1.4	2.2	2.5	2.9	3.1	-	9.7%	3.5%	16.5%	4.4%
Hydro & Wind	5.2	4.2	4.6	4.8	4.8	5.0	-4.2%	1.7%	1.0%	1.3%	2.5%
Geothermal	0.0	0.0	0.3	0.3	0.3	0.2	30.4%	47.1%	-4.4%	9.6%	-19.4%
Other renewable energy sources	86.4	107.6	120.0	128.6	131.6	134.0	4.5%	2.2%	1.7%	2.3%	1.9%
Net Imports	-260.4	-240.6	-295.3	-299.1	-309.6	-330.2	-1.6%	4.2%	0.3%	3.5%	6.6%
Solids	-18.4	-30.0	-31.1	-32.1	-34.5	-33.1	10.4%	0.7%	0.8%	7.6%	-4.2%
Oil	-233.9	-189.8	-234.5	-236.5	-239.5	-258.8	-4.1%	4.3%	0.2%	1.2%	8.1%
Crude oil	-231.4	-177.6	-212.6	-213.2	-216.3	na	-5.2%	3.7%	0.1%	1.4%	na
Oil products	-2.5	-12.2	-21.8	-23.3	-23.2	na	37.3%	12.4%	1.6%	-0.7%	na
Natural gas	-8.2	-20.8	-29.6	-30.4	-35.5	-38.2	20.6%	7.3%	0.6%	17.0%	7.7%
Electricity	0.0	0.0	-0.1	-0.1	-0.1	-0.1	32.0%	-	19.8%	-16.5%	0.0%
Gross Inland Consumption	220.6	285.2	321.5	348.1	357.3	367.1	5.3%	2.4%	2.0%	2.6%	2.7%
Solids	51.6	73.5	74.7	78.5	81.6	83.0	7.4%	0.3%	1.2%	4.0%	1.6%
Oil	65.2	76.7	87.8	95.6	96.9	99.7	3.3%	2.7%	2.2%	1.4%	2.8%
Natural gas	12.2	21.7	31.9	38.0	39.2	42.1	12.1%	8.0%	4.4%	3.1%	7.5%
Other (1)	91.6	113.3	127.1	136.1	139.6	142.3	4.3%	2.3%	1.7%	2.6%	2.0%
Electricity Generation in TWh	197.6	262.5	320.0	356.5	366.6	na	5.8%	4.0%	2.7%	2.8%	na
Nuclear	0.0	5.3	8.4	9.7	11.3	na	-	9.7%	3.5%	16.5%	na
Hydro & wind	60.9	49.1	53.4	55.5	56.2	na	-4.2%	1.7%	1.0%	1.3%	na
Thermal	136.7	208.2	258.1	291.3	299.1	na	8.8%	4.4%	3.1%	2.7%	na
Generation Capacity in GWe	45.4	62.9	82.4	94.4	94.8	na	6.8%	5.6%	3.5%	0.4%	na
Nuclear	0.0	1.0	1.8	1.8	1.8	na	-	13.8%	0.0%	0.0%	na
Hydro & wind	14.5	17.6	20.4	21.5	21.5	na	4.0%	3.0%	1.3%	0.1%	na
Thermal	30.9	44.3	60.2	71.1	71.4	na	7.5%	6.3%	4.2%	0.5%	na
Average Load Factor in %	49.7	47.7	44.3	43.1	44.2	na	-0.9%	-1.4%	-0.7%	2.5%	na
Fuel Inputs for Thermal Power Generation	39.1	53.0	61.3	69.5	72.2	na	6.3%	2.9%	3.2%	3.8%	na
Solids	27.6	34.1	38.9	41.4	43.8	na	4.3%	2.7%	1.5%	5.8%	na
Oil	7.4	10.6	11.8	13.1	12.8	na	7.4%	2.2%	2.5%	-2.3%	na
Gas	4.1	8.2	10.1	14.8	15.3	na	15.2%	4.2%	9.9%	3.7%	na
Geothermal	0.0	0.0	0.3	0.3	0.3	na	30.4%	47.1%	-4.4%	9.6%	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	30.0	33.8	36.2	36.0	35.6	na	2.4%	1.4%	-0.2%	-1.1%	na
Non-Energy Uses	4.3	6.8	8.2	11.1	12.7	na	9.4%	3.9%	7.8%	14.0%	na
Total Final Energy Demand	177.5	210.0	234.1	245.6	255.1	na	3.4%	2.2%	1.2%	3.9%	na
Solids	21.0	18.0	17.5	14.6	16.2	na	-3.0%	-0.6%	-4.4%	11.0%	na
Oil	53.0	61.6	67.5	68.8	72.3	na	3.0%	1.9%	0.5%	5.1%	na
Gas	3.0	5.1	6.8	8.6	9.0	na	11.4%	6.0%	6.1%	3.6%	na
Electricity	14.2	17.7	22.2	25.0	26.0	na	4.5%	4.7%	3.0%	4.3%	na
Heat	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Renewable energy sources	86.4	107.6	120.0	128.6	131.6	na	4.5%	2.2%	1.7%	2.3%	na
CO_2 Emissions in Mt of CO_2	416.8	491.7	552.4	573.0	602.4	618.9	3.4%	2.4%	0.9%	5.1%	2.7%
Indicators											
Population (Million)	468.04	540.76	621.37	686.77	705.13	722.92	2.9%	2.8%	2.5%	2.7%	2.5%
GDP (index 1985=100)	92.7	100.0	110.2	112.9	115.6	121.3	1.5%	2.0%	0.6%	2.4%	4.9%
Gross Inl Cons./GDP (toe/1990 MECU)	746.6	894.7	915.2	967.0	969.4	948.9	3.7%	0.5%	1.4%	0.2%	-2.1%
Gross Inl Cons./Capita (toe/inhabitant)	0.47	0.53	0.52	0.51	0.51	0.51	2.3%	-0.4%	-0.5%	0.0%	0.2%
Electricity Generated/Capita (kWh/inhabitant)	422	486	515	519	520	na	2.8%	1.2%	0.2%	0.2%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	0.9	0.9	0.9	0.8	0.9	0.9	0.4%	-0.4%	-1.6%	2.4%	0.2%
Import Dependency %	-115.3	-82.9	-90.1	-84.0	-84.7	-88.1	-6.4%	1.7%	-1.7%	0.7%	4.0%

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

AFRICA : MAIN INDICATORS

	1980	1985	1990	1993	1994	1995	85/80	90/85	94/90	95/94
							Annual % Change			
Gross Inland Consumption (Mtoe)	220.6	285.2	321.5	330.1	348.1	357.3	5.3%	2.4%	2.0%	2.6%
Public Thermal Power Generation	35.4	49.7	58.1	63.8	66.1	68.6	7.0%	3.2%	3.3%	3.7%
Autoprod. Thermal Power Generation	3.7	3.3	2.8	3.1	3.1	3.3	-2.4%	-3.2%	2.8%	6.9%
Energy Branch	9.2	13.3	18.6	18.5	18.5	19.5	7.6%	6.9%	-0.1%	5.0%
Final Energy Consumption	177.5	210.0	234.1	242.7	245.6	255.1	3.4%	2.2%	1.2%	3.9%
Industry	42.0	46.2	49.7	43.8	43.3	45.3	1.9%	1.5%	-3.4%	4.6%
Transport	30.8	35.5	37.4	38.7	39.1	40.5	2.9%	1.1%	1.1%	3.7%
Tertiary-Domestic	104.7	128.4	146.9	160.3	163.2	169.3	4.2%	2.7%	2.7%	3.7%
Energy Intensity (toe/1990 MECU)	746.6	894.7	915.2	930.7	967.0	969.4	3.7%	0.5%	1.4%	0.2%
Public Thermal Power Generation	119.8	155.8	165.4	179.8	183.7	186.0	5.4%	1.2%	2.7%	1.2%
Autoprod. Thermal Power Generation	12.6	10.4	8.0	8.6	8.7	9.1	-3.8%	-5.1%	2.1%	4.4%
Industry	142.2	144.8	141.6	123.3	120.3	122.9	0.4%	-0.4%	-4.0%	2.1%
Transport	104.1	111.4	106.6	109.2	108.5	109.9	1.4%	-0.9%	0.4%	1.3%
Tertiary-Domestic	354.5	402.7	418.2	451.8	453.4	459.4	2.6%	0.8%	2.0%	1.3%
Energy per Capita (Kgoe/inhabitant)	471	527	517	494	507	507	2.3%	-0.4%	-0.5%	0.0%
Industry	90	85	80	65	63	64	-1.0%	-1.3%	-5.8%	1.8%
Transport	66	66	60	58	57	57	0.0%	-1.7%	-1.4%	1.0%
Tertiary-Domestic	224	237	236	240	238	240	1.2%	-0.1%	0.1%	1.0%
Electricity Share (%)										
Final Energy Consumption	8.0%	8.4%	9.5%	10.1%	10.2%	10.2%	1.0%	2.4%	1.7%	0.4%
Industry	20.3%	21.9%	23.9%	28.2%	28.7%	28.4%	1.6%	1.7%	4.6%	-0.8%
Transport	1.2%	1.2%	1.0%	1.0%	1.1%	1.0%	-1.1%	-2.6%	1.4%	-4.2%
Tertiary-Domestic	5.1%	5.6%	6.8%	7.4%	7.4%	7.5%	1.9%	4.0%	2.4%	1.1%
Total Renewable Consumption (Mtoe)	91.6	111.9	125.0	130.6	133.6	136.7	4.1%	2.2%	1.7%	2.3%
Hydro	5.2	4.2	4.6	4.6	4.8	4.8	-4.2%	1.7%	1.0%	1.3%
Biomass	86.4	107.6	120.0	125.6	128.6	131.6	4.5%	2.2%	1.7%	2.3%
Other	0.0	0.0	0.3	0.3	0.3	0.3	30.4%	47.1%	-4.4%	9.6%
Renewable intensity (toe/1990MECU)	310.0	351.0	355.7	368.1	371.2	370.9	2.5%	0.3%	1.1%	-0.1%
Renewable per capita (Kgoe/inhabitant)	195.8	206.9	201.1	195.2	194.6	193.9	1.1%	-0.6%	-0.8%	-0.4%
CO_2 Emissions (Mt of CO_2)	416.8	491.7	552.4	566.8	573.0	602.4	3.4%	2.4%	0.9%	5.1%
Public Thermal Power Generation	127.7	175.4	204.8	221.3	228.7	237.7	6.5%	3.2%	2.8%	3.9%
Autoprod. Thermal Power Generation	14.1	12.2	10.2	11.3	11.5	12.4	-2.7%	-3.5%	3.0%	7.6%
Energy Branch	22.3	31.1	44.0	42.3	42.5	44.2	6.9%	7.2%	-0.9%	3.9%
Industry	111.9	110.6	115.8	93.2	91.6	96.1	-0.2%	0.9%	-5.7%	4.9%
Transport	94.3	108.3	113.9	117.5	118.4	122.8	2.8%	1.0%	1.0%	3.7%
Tertiary-Domestic	46.5	53.9	63.5	81.2	80.2	89.3	3.0%	3.3%	6.0%	11.3%
Carbon Intensity (tn of CO_2/toe)	1.9	1.7	1.7	1.7	1.6	1.7	-1.8%	-0.1%	-1.1%	2.4%
Public Power Generation	3.2	3.2	3.2	3.2	3.1	3.1	0.1%	-0.3%	-0.3%	-0.1%
Public Thermal Power Generation	3.6	3.5	3.5	3.5	3.5	3.5	-0.4%	0.0%	-0.5%	0.3%
Autoprod. Power Generation	3.4	3.2	3.3	3.2	3.2	3.3	-1.0%	0.3%	-0.2%	1.4%
Autoprod. Thermal Power Generation	3.8	3.7	3.6	3.7	3.7	3.7	-0.4%	-0.3%	0.2%	0.7%
Energy Branch	2.4	2.3	2.4	2.3	2.3	2.3	-0.6%	0.3%	-0.8%	-1.0%
Industry	2.7	2.4	2.3	2.1	2.1	2.1	-2.1%	-0.6%	-2.4%	0.3%
Transport	3.1	3.0	3.0	3.0	3.0	3.0	-0.1%	-0.1%	-0.1%	0.0%
Tertiary-Domestic	0.4	0.4	0.4	0.5	0.5	0.5	-1.1%	0.6%	3.2%	7.3%
CO_2 per Capita (kg of CO_2/inhabitant)	891	909	889	848	834	854	0.4%	-0.4%	-1.6%	2.4%
Industry	239	204	186	139	133	136	-3.1%	-1.8%	-8.0%	2.2%
Transport	202	200	183	176	172	174	-0.1%	-1.8%	-1.5%	1.0%
Tertiary-Domestic	99	100	102	121	117	127	0.1%	0.5%	3.4%	8.4%
CO_2 per unit of GDP (tn of CO_2/1990 MECU)	1411	1542	1573	1598	1592	1634	1.8%	0.4%	0.3%	2.7%
Public Thermal Power Generation	432	550	583	624	635	645	4.9%	1.2%	2.2%	1.5%
Autoprod. Thermal Power Generation	48	38	29	32	32	34	-4.2%	-5.4%	2.3%	5.1%
Energy Branch	75	98	125	119	118	120	5.3%	5.1%	-1.5%	1.5%
Industry	379	347	330	263	254	261	-1.7%	-1.0%	-6.3%	2.5%
Transport	319	340	324	331	329	333	1.2%	-0.9%	0.4%	1.3%
Tertiary-Domestic	158	169	181	229	223	242	1.4%	1.4%	5.4%	8.7%

NORTH AFRICA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	205.5	199.2	238.3	244.9	254.4	264.4	-0.6%	3.6%	0.7%	3.9%	3.9%
Solids	0.4	0.4	0.3	0.4	0.4	0.4	1.3%	-7.8%	5.0%	0.0%	0.0%
Oil	182.9	156.0	177.7	178.8	181.9	186.1	-3.1%	2.6%	0.2%	1.7%	2.3%
Natural gas	19.1	39.4	56.6	61.8	68.2	73.8	15.6%	7.5%	2.2%	10.4%	8.2%
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Hydro & Wind	1.0	0.9	1.0	0.9	1.0	1.0	-3.1%	2.7%	-0.7%	5.6%	1.7%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	2.1	2.5	2.8	3.0	3.0	3.1	4.0%	1.8%	2.0%	1.8%	2.0%
Net Imports	-157.0	-131.3	-158.9	-158.3	-161.0	-168.5	-3.5%	3.9%	-0.1%	1.7%	4.6%
Solids	0.6	1.9	2.3	2.5	2.8	3.0	27.6%	3.7%	1.7%	13.4%	5.7%
Oil	-149.4	-112.4	-131.6	-130.4	-128.3	-133.2	-5.5%	3.2%	-0.2%	-1.6%	3.8%
Crude oil	-140.8	-93.6	-105.5	-102.1	-100.6	na	-7.8%	2.4%	-0.8%	-1.5%	na
Oil products	-8.6	-18.8	-26.1	-28.3	-27.7	na	16.8%	6.8%	2.0%	-2.0%	na
Natural gas	-8.2	-20.8	-29.6	-30.4	-35.5	-38.2	20.6%	7.3%	0.6%	17.0%	7.7%
Electricity	0.0	0.0	0.0	0.0	0.0	0.0	-	-7.8%	-100.0%	-	0.0%
Gross Inland Consumption	44.0	65.3	80.3	86.2	91.4	95.5	8.2%	4.2%	1.8%	6.1%	4.5%
Solids	1.1	2.2	2.7	2.9	3.2	3.3	14.7%	4.2%	1.5%	11.3%	2.3%
Oil	28.9	41.1	46.9	47.9	51.5	52.6	7.3%	2.7%	0.5%	7.4%	2.2%
Natural gas	10.9	18.6	26.9	31.4	32.7	35.5	11.2%	7.7%	3.9%	4.0%	8.8%
Other (1)	3.1	3.4	3.7	3.9	4.0	4.1	1.9%	2.0%	1.3%	2.9%	1.9%
Electricity Generation in TWh	39.1	66.9	91.5	107.4	111.9	na	11.4%	6.5%	4.1%	4.1%	na
Nuclear	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Hydro & wind	11.6	9.9	11.3	11.0	11.6	na	-3.1%	2.7%	-0.6%	5.4%	na
Thermal	27.5	57.0	80.2	96.4	100.2	na	15.7%	7.1%	4.7%	4.0%	na
Generation Capacity in GWe	10.9	17.7	23.9	31.9	32.2	na	10.2%	6.2%	7.4%	0.9%	na
Nuclear	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Hydro & wind	3.4	3.4	3.7	4.0	4.0	na	0.2%	1.6%	1.9%	0.2%	na
Thermal	7.6	14.3	20.2	27.9	28.2	na	13.6%	7.2%	8.4%	1.0%	na
Average Load Factor in %	40.8	43.1	43.7	38.5	39.7	na	1.1%	0.3%	-3.1%	3.2%	na
Fuel Inputs for Thermal Power Generation	9.0	15.0	18.6	24.4	25.2	na	10.8%	4.4%	7.1%	3.1%	na
Solids	0.4	0.3	0.7	0.8	1.4	na	-1.1%	15.4%	3.0%	72.5%	na
Oil	5.5	8.2	9.6	10.6	10.2	na	8.4%	3.1%	2.5%	-3.3%	na
Gas	3.1	6.4	8.3	13.0	13.6	na	15.5%	5.2%	12.0%	4.1%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	26.2	32.6	37.1	33.9	34.2	na	4.5%	2.6%	-2.2%	0.8%	na
Non-Energy Uses	1.7	2.8	3.0	4.6	4.7	na	9.8%	1.3%	11.7%	2.6%	na
Total Final Energy Demand	28.9	41.2	48.0	51.7	54.4	na	7.3%	3.1%	1.9%	5.2%	na
Solids	0.7	1.6	1.7	1.6	1.5	na	18.9%	0.7%	-0.5%	-9.9%	na
Oil	21.0	28.4	31.4	31.6	33.7	na	6.2%	2.1%	0.1%	6.8%	na
Gas	2.4	4.1	5.5	7.1	7.5	na	11.6%	5.7%	6.9%	4.5%	na
Electricity	2.8	4.5	6.6	8.4	8.7	na	10.3%	8.0%	6.0%	4.2%	na
Heat	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Renewable energy sources	2.1	2.5	2.8	3.0	3.0	na	4.0%	1.8%	2.0%	1.8%	na
CO_2 Emissions in Mt of CO_2	115.4	169.9	206.5	219.0	229.4	na	8.1%	4.0%	1.5%	4.8%	na
Indicators											
Population (Million)	88.35	101.10	114.19	124.35	126.72	129.69	2.7%	2.5%	2.2%	1.9%	2.3%
GDP (index 1985=100)	90.6	100.0	106.6	110.2	111.3	117.2	2.0%	1.3%	0.8%	1.0%	5.3%
Gross Inl Cons./GDP (toe/1990 MECU)	414.1	556.9	642.7	667.4	701.0	695.6	6.1%	2.9%	1.0%	5.0%	-0.8%
Gross Inl Cons./Capita (toe/inhabitant)	0.50	0.65	0.70	0.69	0.72	0.74	5.3%	1.7%	-0.4%	4.1%	2.1%
Electricity Generated/Capita (kWh/inhabitant)	442	662	802	864	883	na	8.4%	3.9%	1.9%	2.2%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	1.3	1.7	1.8	1.8	1.8	na	5.2%	1.5%	-0.7%	2.8%	na
Import Dependency %	-345.4	-195.5	-192.6	-177.8	-170.7	-171.5	-10.8%	-0.3%	-2.0%	-4.0%	0.5%

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

NORTH AFRICA : MAIN INDICATORS

	1980	1985	1990	1993	1994	1995	85/80	90/85	94/90	95/94
							Annual % Change			
Gross Inland Consumption (Mtoe)	44.0	65.3	80.3	87.7	86.2	91.4	8.2%	4.2%	1.8%	6.1%
Public Thermal Power Generation	8.4	14.3	17.7	22.0	23.6	24.4	11.1%	4.4%	7.4%	3.4%
Autoprod. Thermal Power Generation	0.6	0.8	0.9	0.7	0.8	0.8	5.0%	2.6%	-1.4%	-3.6%
Energy Branch	6.4	9.2	14.6	11.7	11.5	12.0	7.7%	9.6%	-5.7%	4.3%
Final Energy Consumption	28.9	41.2	48.0	51.1	51.7	54.4	7.3%	3.1%	1.9%	5.3%
Industry	10.7	14.8	17.8	17.3	16.4	17.8	6.7%	3.7%	-2.0%	8.8%
Transport	8.9	12.8	12.7	12.1	12.8	13.3	7.7%	-0.2%	0.2%	4.1%
Tertiary-Domestic	9.3	13.5	17.5	21.7	22.5	23.3	7.7%	5.3%	6.6%	3.4%
Energy Intensity (toe/1990 MECU)	414.1	556.9	642.7	692.6	667.4	701.0	6.1%	2.9%	1.0%	5.0%
Public Thermal Power Generation	79.4	121.9	142.0	173.6	183.0	187.3	8.9%	3.1%	6.5%	2.4%
Autoprod. Thermal Power Generation	5.5	6.4	6.8	5.9	6.2	6.0	2.9%	1.3%	-2.2%	-4.5%
Industry	101.0	126.4	142.2	136.6	126.8	136.6	4.6%	2.4%	-2.8%	7.7%
Transport	83.5	109.6	101.5	95.7	98.9	101.9	5.6%	-1.5%	-0.7%	3.0%
Tertiary-Domestic	87.6	115.3	140.0	171.6	174.6	178.7	5.6%	4.0%	5.7%	2.3%
Energy per Capita (Kgoe/inhabitant)	498	645	703	719	693	721	5.3%	1.7%	-0.4%	4.1%
Industry	121	146	156	142	132	141	3.8%	1.2%	-4.1%	6.8%
Transport	100	127	111	99	103	105	4.8%	-2.6%	-2.0%	2.1%
Tertiary-Domestic	105	134	153	178	181	184	4.9%	2.8%	4.3%	1.4%
Electricity Share (%)										
Final Energy Consumption	9.5%	10.9%	13.8%	15.6%	16.2%	16.0%	2.8%	4.8%	4.0%	-1.0%
Industry	13.3%	12.5%	14.0%	18.8%	20.8%	20.0%	-1.2%	2.3%	10.4%	-4.0%
Transport	0.1%	0.2%	0.3%	0.4%	0.4%	0.4%	9.7%	13.1%	1.6%	4.6%
Tertiary-Domestic	14.2%	19.5%	23.4%	21.4%	21.8%	21.9%	6.5%	3.8%	-1.8%	0.6%
Total Renewable Consumption (Mtoe)	3.1	3.4	3.7	3.8	3.9	4.0	1.9%	2.1%	1.3%	2.7%
Hydro	1.0	0.9	1.0	0.9	0.9	1.0	-3.1%	2.7%	-0.7%	5.6%
Biomass	2.1	2.5	2.8	2.9	3.0	3.0	4.0%	1.8%	2.0%	1.8%
Other renewable energy sources	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-
Renewable intensity (toe/1990MECU)	28.9	28.8	29.9	30.4	30.5	31.0	-0.1%	0.8%	0.5%	1.7%
Renewable per capita (Kgoe/inhabitant)	34.8	33.3	32.7	31.6	31.6	31.9	-0.8%	-0.4%	-0.8%	0.8%
CO_2 Emissions (Mt of CO_2)	115.4	169.9	206.5	214.3	219.0	229.4	8.1%	4.0%	1.5%	4.8%
Public Thermal Power Generation	24.4	40.5	50.4	61.4	65.9	68.6	10.6%	4.5%	6.9%	4.0%
Autoprod. Thermal Power Generation	1.8	2.3	2.6	2.3	2.5	2.4	5.0%	2.6%	-1.4%	-3.6%
Energy Branch	16.0	23.3	36.7	29.7	29.4	30.5	7.7%	9.6%	-5.4%	3.9%
Industry	28.0	39.2	46.0	41.8	39.0	42.7	7.0%	3.2%	-4.1%	9.7%
Transport	27.2	39.3	38.8	36.7	38.8	40.3	7.7%	-0.3%	0.0%	4.0%
Tertiary-Domestic	17.9	25.3	31.9	42.3	43.5	44.9	7.1%	4.8%	8.0%	3.3%
Carbon Intensity (tn of CO_2/toe)	2.6	2.6	2.6	2.4	2.5	2.5	-0.1%	-0.3%	-0.3%	-1.2%
Public Power Generation	2.6	2.7	2.7	2.7	2.7	2.7	0.7%	0.1%	-0.1%	0.5%
Public Thermal Power Generation	2.9	2.8	2.8	2.8	2.8	2.8	-0.4%	0.0%	-0.5%	0.6%
Autoprod. Power Generation	3.1	3.1	3.1	3.1	3.1	3.1	0.0%	0.0%	0.0%	0.0%
Autoprod. Thermal Power Generation	3.1	3.1	3.1	3.1	3.1	3.1	0.0%	0.0%	0.0%	0.0%
Energy Branch	2.5	2.5	2.5	2.6	2.5	2.5	0.0%	-0.1%	0.3%	-0.3%
Industry	2.6	2.6	2.6	2.4	2.4	2.4	0.3%	-0.5%	-2.1%	0.8%
Transport	3.1	3.1	3.1	3.0	3.0	3.0	0.0%	0.0%	-0.2%	-0.1%
Tertiary-Domestic	1.9	1.9	1.8	1.9	1.9	1.9	-0.6%	-0.5%	1.4%	-0.1%
CO_2 per Capita (kg of CO_2/inhabitant)	1306	1681	1809	1758	1761	1811	5.2%	1.5%	-0.7%	2.8%
Industry	317	388	403	343	313	337	4.1%	0.8%	-6.1%	7.7%
Transport	308	389	340	301	312	318	4.8%	-2.7%	-2.1%	2.1%
Tertiary-Domestic	203	250	280	347	350	354	4.2%	2.3%	5.7%	1.3%
CO_2 per unit of GDP (tn of CO_2/1990 MECU)	1087	1450	1653	1693	1696	1759	5.9%	2.6%	0.6%	3.8%
Public Thermal Power Generation	230	346	404	486	511	526	8.5%	3.1%	6.0%	3.0%
Autoprod. Thermal Power Generation	17	20	21	18	19	18	2.9%	1.3%	-2.2%	-4.5%
Energy Branch	151	199	294	235	227	234	5.6%	8.2%	-6.2%	2.9%
Industry	264	335	368	330	302	328	4.9%	1.9%	-4.9%	8.6%
Transport	256	336	311	290	300	309	5.6%	-1.5%	-0.8%	3.0%
Tertiary-Domestic	169	216	255	334	337	344	5.0%	3.4%	7.1%	2.3%

SUB-SAHARAN AFRICA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	287.1	330.8	380.0	407.3	418.5	436.4	2.9%	2.8%	1.7%	2.8%	4.3%
Solids	69.4	103.3	105.4	110.0	115.5	115.7	8.3%	0.4%	1.1%	4.9%	0.2%
Oil	127.9	114.5	146.2	158.4	160.9	175.8	-2.2%	5.0%	2.0%	1.5%	9.3%
Natural gas	1.3	3.1	5.0	6.6	6.5	6.6	18.7%	9.9%	7.1%	-0.9%	1.1%
Nuclear	0.0	1.4	2.2	2.5	2.9	3.1	-	9.7%	3.5%	16.5%	4.4%
Hydro & Wind	4.2	3.4	3.6	3.8	3.8	3.9	-4.5%	1.4%	1.4%	0.2%	2.7%
Geothermal	0.0	0.0	0.3	0.3	0.3	0.2	30.4%	47.1%	-4.4%	9.6%	-19.4%
Other renewable energy sources	84.3	105.1	117.3	125.6	128.5	131.0	4.5%	2.2%	1.7%	2.3%	1.9%
Net Imports	-103.4	-109.4	-136.4	-140.8	-148.6	-161.7	1.1%	4.5%	0.8%	5.5%	8.8%
Solids	-18.9	-32.0	-33.4	-34.6	-37.3	-36.0	11.1%	0.9%	0.8%	8.1%	-3.5%
Oil	-84.5	-77.4	-102.9	-106.2	-111.1	-125.6	-1.7%	5.9%	0.8%	4.7%	13.0%
Crude oil	-90.6	-84.0	-107.1	-111.1	-115.7	na	-1.5%	5.0%	0.9%	4.1%	na
Oil products	6.1	6.6	4.2	5.0	4.6	na	1.5%	-8.5%	4.1%	-8.0%	na
Natural gas	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Electricity	0.0	0.0	-0.1	-0.1	-0.1	-0.1	27.2%	-	17.5%	-11.7%	0.0%
Gross Inland Consumption	176.7	220.0	241.2	261.9	265.9	271.5	4.5%	1.9%	2.1%	1.5%	2.1%
Solids	50.4	71.3	71.9	75.6	78.4	79.7	7.2%	0.2%	1.2%	3.8%	1.6%
Oil	36.3	35.6	40.9	47.7	45.5	47.1	-0.4%	2.8%	3.9%	-4.6%	3.5%
Natural gas	1.3	3.1	5.0	6.6	6.5	6.6	18.7%	9.9%	7.1%	-0.9%	1.3%
Other (1)	88.6	110.0	123.4	132.1	135.5	138.2	4.4%	2.3%	1.7%	2.6%	2.0%
Electricity Generation in TWh	158.6	195.6	228.4	249.0	254.7	na	4.3%	3.1%	2.2%	2.3%	na
Nuclear	0.0	5.3	8.4	9.7	11.3	na	-	9.7%	3.5%	16.5%	na
Hydro & wind	49.3	39.2	42.0	44.4	44.6	na	-4.5%	1.4%	1.4%	0.3%	na
Thermal	109.2	151.1	177.9	194.9	198.9	na	6.7%	3.3%	2.3%	2.0%	na
Generation Capacity in GWe	34.4	45.2	58.5	62.6	62.6	na	5.6%	5.3%	1.7%	0.1%	na
Nuclear	0.0	1.0	1.8	1.8	1.8	na	-	13.8%	0.0%	0.0%	na
Hydro & wind	11.1	14.2	16.7	17.5	17.5	na	5.0%	3.3%	1.2%	0.1%	na
Thermal	23.3	30.0	40.0	43.2	43.2	na	5.2%	5.9%	2.0%	0.1%	na
Average Load Factor in %	52.6	49.4	44.6	45.4	46.4	na	-1.2%	-2.1%	0.5%	2.2%	na
Fuel Inputs for Thermal Power Generation	30.1	38.0	42.7	45.1	47.0	na	4.8%	2.3%	1.4%	4.2%	na
Solids	27.3	33.8	38.2	40.6	42.4	na	4.4%	2.5%	1.5%	4.5%	na
Oil	1.9	2.4	2.3	2.5	2.5	na	4.3%	-1.1%	2.7%	1.8%	na
Gas	0.9	1.8	1.8	1.7	1.8	na	14.2%	0.4%	-1.4%	0.1%	na
Geothermal	0.0	0.0	0.3	0.3	0.3	na	30.4%	47.1%	-4.4%	9.6%	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	31.2	34.2	35.9	37.2	36.4	na	1.9%	1.0%	0.9%	-2.1%	na
Non-Energy Uses	2.6	4.0	5.2	6.5	7.9	na	9.0%	5.6%	5.4%	22.2%	na
Total Final Energy Demand	148.6	168.9	186.1	193.9	200.7	na	2.6%	2.0%	1.0%	3.5%	na
Solids	20.3	16.4	15.8	13.0	14.7	na	-4.2%	-0.7%	-4.8%	13.6%	na
Oil	32.0	33.2	36.1	37.2	38.6	na	0.7%	1.7%	0.8%	3.7%	na
Gas	0.6	1.0	1.4	1.5	1.5	na	10.5%	7.1%	2.7%	-0.5%	na
Electricity	11.4	13.2	15.6	16.6	17.3	na	2.9%	3.4%	1.6%	4.3%	na
Heat	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Renewable energy sources	84.3	105.1	117.3	125.6	128.5	na	4.5%	2.2%	1.7%	2.3%	na
CO_2 Emissions in Mt of CO_2	301.5	321.8	345.9	354.0	373.0	na	1.3%	1.5%	0.6%	5.4%	na
Indicators											
Population (Million)	379.69	439.66	507.18	562.42	578.41	593.23	3.0%	2.9%	2.6%	2.8%	2.6%
GDP (index 1985=100)	93.9	100.0	112.2	114.5	118.1	123.7	1.3%	2.3%	0.5%	3.2%	4.7%
Gross Inl Cons./GDP (toe/1990 MECU)	933.1	1091.0	1065.7	1134.5	1116.4	1088.4	3.2%	-0.5%	1.6%	-1.6%	-2.5%
Gross Inl Cons./Capita (toe/inhabitant)	0.47	0.50	0.48	0.47	0.46	0.46	1.5%	-1.0%	-0.5%	-1.3%	-0.4%
Electricity Generated/Capita (kWh/inhabitant)	418	445	450	443	440	na	1.3%	0.2%	-0.4%	-0.5%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	0.8	0.7	0.7	0.6	0.6	na	-1.6%	-1.4%	-2.0%	2.5%	na
Import Dependency %	-57.3	-49.0	-55.6	-52.8	-54.8	-58.5	-3.1%	2.6%	-1.3%	3.8%	6.8%

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

SUB-SAHARAN AFRICA : MAIN INDICATORS

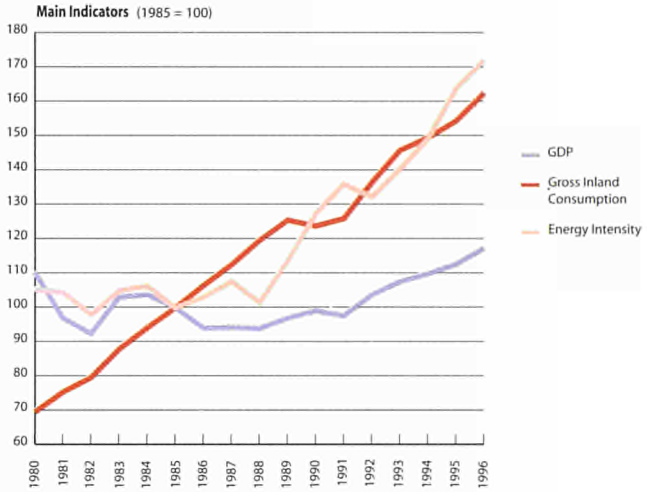
	1980	1985	1990	1993	1994	1995	85/80	90/85	94/90	95/94
							Annual % Change			
Gross Inland Consumption (Mtoe)	176.7	220.0	241.2	242.5	261.9	265.9	4.5%	1.9%	2.1%	1.5%
Public Thermal Power Generation	27.0	35.4	40.4	41.8	42.5	44.1	5.6%	2.7%	1.3%	3.8%
Autoprod. Thermal Power Generation	3.1	2.6	2.0	2.3	2.3	2.6	-4.0%	-5.2%	4.4%	10.5%
Energy Branch	2.9	4.1	4.0	6.8	7.0	7.4	7.4%	-0.7%	15.2%	6.1%
Final Energy Consumption	148.6	168.9	186.1	191.6	193.9	200.7	2.6%	2.0%	1.0%	3.5%
Industry	31.3	31.3	32.0	26.5	26.9	27.5	0.0%	0.4%	-4.2%	2.0%
Transport	21.9	22.7	24.8	26.6	26.3	27.2	0.7%	1.8%	1.5%	3.5%
Tertiary-Domestic	95.4	114.9	129.4	138.5	140.7	146.0	3.8%	2.4%	2.1%	3.8%
Energy Intensity (toe/1990 MECU)	933.1	1091.0	1065.7	1062.8	1134.5	1116.4	3.2%	-0.5%	1.6%	-1.6%
Public Thermal Power Generation	142.5	175.6	178.4	183.3	184.1	185.3	4.3%	0.3%	0.8%	0.6%
Autoprod. Thermal Power Generation	16.6	12.7	8.6	10.2	10.1	10.8	-5.2%	-7.4%	3.9%	7.1%
Industry	165.3	155.4	141.3	116.0	116.7	115.3	-1.2%	-1.9%	-4.7%	-1.2%
Transport	115.7	112.4	109.4	116.7	113.9	114.3	-0.6%	-0.5%	1.0%	0.3%
Tertiary-Domestic	504.1	569.6	571.8	607.3	609.3	613.1	2.5%	0.1%	1.6%	0.6%
Energy per Capita (Kgoe/inhabitant)	465	500	476	443	466	460	1.5%	-1.0%	-0.5%	-1.3%
Industry	82	71	63	48	48	47	-2.9%	-2.4%	-6.6%	-0.8%
Transport	58	52	49	49	47	47	-2.2%	-1.1%	-1.1%	0.6%
Tertiary-Domestic	251	261	255	253	250	252	0.8%	-0.5%	-0.5%	0.9%
Electricity Share (%)										
Final Energy Consumption	7.7%	7.8%	8.4%	8.7%	8.6%	8.6%	0.3%	1.4%	0.6%	0.8%
Industry	22.6%	26.4%	29.4%	34.3%	33.4%	33.9%	3.1%	2.2%	3.3%	1.5%
Transport	1.7%	1.7%	1.4%	1.3%	1.4%	1.4%	0.5%	-4.4%	1.0%	-5.2%
Tertiary-Domestic	4.2%	3.9%	4.5%	5.2%	5.1%	5.2%	-1.2%	2.8%	3.3%	1.7%
Total Renewable Consumption (Mtoe)	88.5	108.5	121.2	126.7	129.7	132.7	4.2%	2.2%	1.7%	2.3%
Hydro	4.2	3.4	3.6	3.7	3.8	3.8	-4.5%	1.4%	1.4%	0.2%
Biomass	84.3	105.1	117.3	122.7	125.6	128.5	4.5%	2.2%	1.7%	2.3%
Other renewable energy sources	0.0	0.0	0.3	0.3	0.3	0.3	30.4%	47.1%	-4.4%	9.6%
Renewable intensity (toe/1990MECU)	467.7	538.3	535.6	555.4	561.8	557.0	2.8%	-0.1%	1.2%	-0.8%
Renewable per capita (Kgoe/inhabitant)	233.2	246.9	239.0	231.7	230.6	229.4	1.1%	-0.6%	-0.9%	-0.5%
CO_2 Emissions (Mt of CO_2)	301.5	321.8	345.9	352.6	354.0	373.0	1.3%	1.5%	0.6%	5.4%
Public Thermal Power Generation	103.3	134.8	154.4	159.8	162.8	169.1	5.5%	2.7%	1.3%	3.9%
Autoprod. Thermal Power Generation	12.2	9.9	7.6	9.0	9.0	10.0	-4.1%	-5.2%	4.3%	10.7%
Energy Branch	6.3	7.9	7.3	12.6	13.2	13.7	4.7%	-1.5%	15.9%	3.8%
Industry	83.9	71.3	69.8	51.4	52.7	53.4	-3.2%	-0.4%	-6.8%	1.3%
Transport	67.2	68.9	75.1	80.8	79.6	82.5	0.5%	1.7%	1.5%	3.6%
Tertiary-Domestic	28.6	28.6	31.6	39.0	36.7	44.4	0.0%	2.0%	3.8%	20.8%
Carbon Intensity (tn of CO_2/toe)	1.7	1.5	1.4	1.5	1.4	1.4	-3.0%	-0.4%	-1.5%	3.8%
Public Power Generation	3.4	3.4	3.3	3.4	3.3	3.3	0.3%	-0.3%	0.0%	-0.3%
Public Thermal Power Generation	3.8	3.8	3.8	3.8	3.8	3.8	-0.1%	0.1%	0.0%	0.1%
Autoprod. Power Generation	3.4	3.3	3.3	3.3	3.3	3.3	-1.1%	0.5%	-0.3%	1.5%
Autoprod. Thermal Power Generation	3.9	3.9	3.9	3.9	3.9	3.9	-0.1%	0.0%	-0.1%	0.2%
Energy Branch	2.2	1.9	1.8	1.8	1.9	1.8	-2.5%	-0.9%	0.6%	-2.2%
Industry	2.7	2.3	2.2	1.9	2.0	1.9	-3.2%	-0.8%	-2.7%	-0.6%
Transport	3.1	3.0	3.0	3.0	3.0	3.0	-0.2%	-0.1%	0.0%	0.1%
Tertiary-Domestic	0.3	0.2	0.2	0.3	0.3	0.3	-3.6%	-0.4%	1.7%	16.4%
CO_2 per Capita (kg of CO_2/inhabitant)	794	732	682	645	629	645	-1.6%	-1.4%	-2.0%	2.5%
Industry	221	162	138	94	94	92	-6.0%	-3.3%	-9.2%	-1.5%
Transport	177	157	148	148	142	143	-2.4%	-1.1%	-1.1%	0.7%
Tertiary-Domestic	75	65	62	71	65	77	-2.9%	-0.9%	1.2%	17.5%
CO_2 per unit of GDP (tn of CO_2/1990 MECU)	1592	1596	1528	1545	1533	1566	0.0%	-0.9%	0.1%	2.1%
Public Thermal Power Generation	546	669	682	700	705	710	4.2%	0.4%	0.8%	0.7%
Autoprod. Thermal Power Generation	65	49	34	39	39	42	-5.3%	-7.4%	3.8%	7.3%
Energy Branch	33	39	32	55	57	57	3.4%	-3.8%	15.3%	0.6%
Industry	443	354	308	225	228	224	-4.4%	-2.7%	-7.3%	-1.8%
Transport	355	342	332	354	345	346	-0.7%	-0.6%	1.0%	0.4%
Tertiary-Domestic	151	142	140	171	159	186	-1.2%	-0.3%	3.3%	17.1%

Part VII MIDDLE EAST

MIDDLE EAST: Major trends (1985-1996)

- Economic development remained mainly influenced by the oil market. in both volumes and prices
- Despite weak GDP final energy demand has more than doubled since 1980
- Tertiary-domestic demand has quintupled since 1980. but consumption per capita has been declining since 1993
- Electricity contribution in final energy consumption varied tremendously between countries
- Oil products continued to dominate the energy market even if gas contribution reached 36% in 1996
- Oil production with one thousand Mtoe is on the way to reaching it's 70's peak
- First step for private investment in power generation
- Oil refineries largely dedicated to exports
- Energy intensity increased continuously. but growth rate slowed since the 90's
- CO_2 emissions are increasing by more than 5% per year since 1990
- The Middle East, the world's primary net exporter of energy, more focused to Asian markets

This region includes 13 different countries: Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates and Yemen. These countries represent together a population of 157 million inhabitants, growing by more than 3% per year over the last 6 years. Over this period, the region has undergone several wars, involving two or more countries (Lebanon, Iran-Iraq, Gulf war. ...) with severe hits on basic industrial or energy infrastructure targets. The situation has become progressively more peaceful and clear progress in welfare and industrial activity is noticeable. The region is also a region of contrast, including some developing countries and some others that exhibit characteristics of highly-industrialised countries. Some very small states, having a few hundred thousand inhabitants are neighbours to very large and powerful countries.



Economic development remained mainly influenced by the oil market, in both volumes and prices...

Economic development in this region continues to be mainly influenced by crude oil prices and production as many of these economies rely heavily on production and exportation of a single commodity. In other words, oil price fluctuations do not translate only into the rate of inflation but rather to significant changes in terms of trade and export incomes. Between 1980 and 1985, GDP fell some 10% together with declining oil production. The rapid slowdown of oil prices in 1986 by more than 50% was coupled with a GDP declining by about 5.5%. After three years of stagnation, the GDP started to increase regularly in 1989 at an average yearly rate of 1.6% until 1995, and then peaked up to 4.2% in 1996. At the same time oil prices remained quite low even during the Gulf War but production increased regularly to retrieve the historical maximum of the 70's, in 1996.

The cost to produce a barrel of oil in Persian Gulf OPEC nations ranges between 1$ and 1.5$ per barrel, depending on field size. The capital investment required to increase production capacity by 1 barrel per day in Persian Gulf OPEC nations ranges between 2.5$ and 4.9$, also depending on field size. Assuming a world price of 15$ per barrel and only mid-size fields, total development and operating costs expressed as a percentage of gross revenues only range between 15 and 20%. Thus, for the Persian Gulf Producers, the total cost of capacity expansion is a relatively small percentage of projected revenue even in low oil price circumstances. Thus, sustained economic development can be supported by increasing oil production compensating low oil prices.

ENERGY OUTLOOK

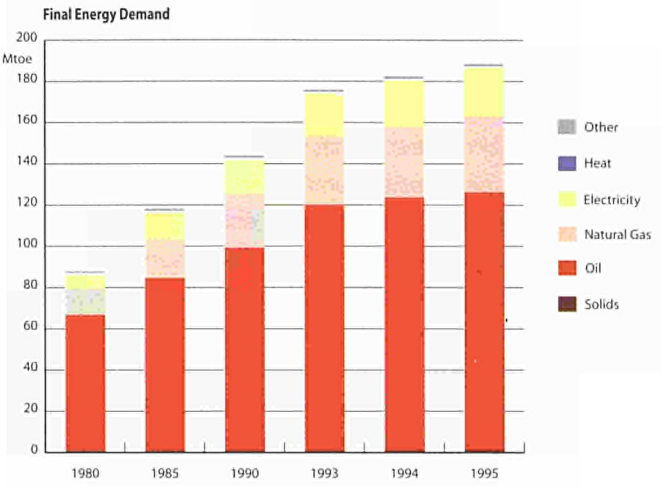
Despite weak GDP final energy demand has more than doubled since 1980…

Despite a weak GDP, **final energy demand** has more than doubled since 1980 under the pressure of increasing population and industrial development. With the exception of the Gulf War period, this growth appears quite regular, however, this evolution is not uniform over the whole region. Progressively, the growth of final energy demand is slowing down in Saudi Arabia, despite a rebound by about 9% in 1995 due to the doubling of industrial consumption. But it continued to increase by about 10% per year on average in Iran between 1990 and 1994, but stabilised in 1995, as a result of industrial restarting after the Iran-Iraq war. These two countries represented 63% of total final demand in the region in 1995 (58% in 1980).

MIDDLE EAST : FINAL ENERGY DEMAND (MTOE)

	1980	1985	1990	1993	1994	1995
Middle East	87.4	117.7	143.6	175.6	181.9	188.1
Industry	36.4	40.4	32.6	40.4	41.4	47.2
Transport	33.2	46.9	48.2	54.3	56.8	56.5
Tertiary-Domestic	17.9	30.4	62.9	81.0	83.7	84.4
Iran	28.5	43.2	47.7	68.3	70.0	69.4
Industry	12.0	19.2	12.7	19.2	19.4	19.6
Transport	7.7	11.0	14.1	17.4	17.8	16.9
Tertiary-Domestic	8.9	12.9	20.9	31.6	32.8	33.0
Saudi Arabia	22.3	26.5	38.3	43.7	44.2	48.2
Industry	12.6	6.7	4.7	4.8	4.3	8.8
Transport	7.6	12.5	9.9	11.3	12.3	12.1
Tertiary-Domestic	2.1	7.2	23.7	27.6	27.7	27.3

Consumption per fuels showed the major contribution of hydrocarbons and electricity, the share of both solid fuels and biomass being limited to less than 1% of total final demand. Since1980, the incremental energy demand, about 100 Mtoe, was covered first by oil products at 59%, second by natural gas at 24% and finally by electricity at 16%. During the same period, the consumption of oil products doubled, those of natural gas tripled and those of electricity increased fourfold approximately. This means that the contribution of oil products in final demand was declining slowly. In 1995, oil accounted for 67%, gas for 20% and electricity for 12%. Since several years, national governments were developing indigenous gas consumption, for the substitution of oil products, to increase their oil revenues.



Tertiary-domestic demand has quintupled since 1980, but consumption per capita has been declining since 1993...

The evolution of final demand by sectors was largely dominated by the tertiary-domestic sector that has quintupled its consumption since 1980, even if recent evolution demonstrated a marked slowdown of this evolution with an annual growth below 2% since 1990. As a consequence its share increased from 20% in 1980 to 44% in 1990 and about 45% in 1995. If this is a result from the phenomena of rapidly increasing living standards during the 80's in a region where some countries represented the highest world income per capita, the case of Saudi Arabia where the consumption has increased more than tenfold since 1980 must be underlined. Since 1993, this trend resulted only from increasing population, as the consumption per capita of this sector was slowly declining. Industrial energy consumption was deeply marked by the Gulf War that reduced in 1990 energy demand to only 90% of the 1980 level, grew by 3.5% on average since 1991, sustained by industrial development in the region. Energy consumption for transport has almost doubled since 1980, driven by Iranian demand.

The contribution of electricity in Final energy consumption varied tremendously between countries...

The electricity share in final consumption reached 12.4% in 1995 from 7.7% in 1980. Both in industrial and domestic sectors, the shared evolution demonstrated a wide fluctuation, even if any explanation must be prudent in relation to statistical uncertanties about repartition of electricity consumption over the period 1980-1992. In any case, it can be underlined that the share of elec-

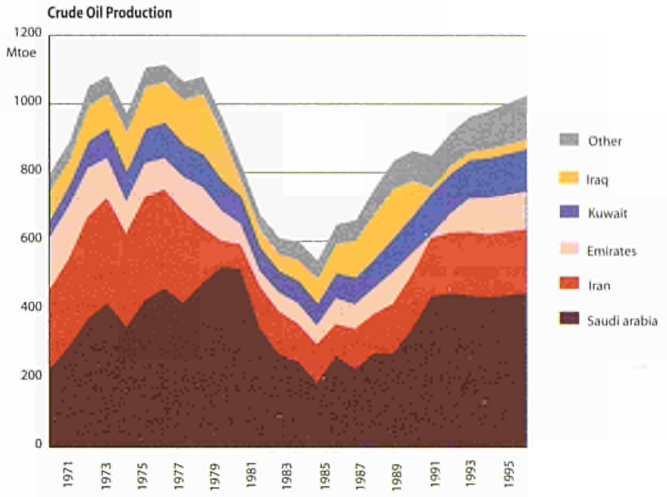
tricity in industry increased with the development and modernisation of industrial infrastructures. In addition the contribution of electricity in the final energy demand varied widely, depending on the prosperity, the geographical situation and the economic activity of the countries. Highest levels were observed in rich countries developed around big cities: Kuwait (31%), Oman (27%), United Arab Emirates (20%) and Qatar (19%). Among other well-industrialised countries, Israel (24%) and Saudi Arabia (13%) demonstrated contrasting contributions. The lowest levels were Iran (8%) and Yemen (5%).

Oil products continued to dominate the energy market even if gas contribution reached 36% in 1996…

Gross inland energy consumption has been growing in the period 1980-1996 by about 5.4% on average. Oil products dominated the energy market even if their contribution diminished in favour of natural gas, the share of which increased from 25% in 1980 to 36% in 1996. Hydrocarbons together covered about 98% of all energy requirements in 1996. Electricity generation still consumes the major part of natural gas in the region, because of its clean-firing qualities, convenience of use and moderate costs relative to oil. Energy policy trends are promoting further diversification of supply, substituting gas for oil so that oil can be exported. Solids contributed a little less than 2%. Israel and Iran accounted for most of the 5.5 Mtoe of coal consumed in 1996, mainly for power generation. Renewable energy, mainly limited to hydro, represented less than 0.5%. Only two countries, Iran and Syria generated about 90% of the region's hydroelectricity.

Oil production, with one thousand Mtoe, is on the way to reaching its 70's peak…

Indigenous energy production is dominated by oil with 89% of total production in 1995 (96% in 1980). This production has largely fluctuated these last 25 years in relation to the world economic environment and local circumstances (Iran-Iraq War and Gulf War). Peaking in 1974 at a level of 1106 Mtoe in 1974, the production has been reduced to 548 Mtoe in 1985, or 51% below the peak. Since then, a sustained increase, except a drop of 1.5% in 1991 (losses in Iraq and Kuwait are not totally compensated by strong increases in Iran and Saudi Arabia), was observed reaching a production level of about one thousand Mtoe in 1996. Historically, Saudi Arabia has assumed the role of swing producer, thus showing significantly more important fluctuations than those observed at regional level. But since 1991 the output from the three main producers, Saudi Arabia, Iran and Emirates remained stable, all the increases coming from Kuwait and the more marginal producers.

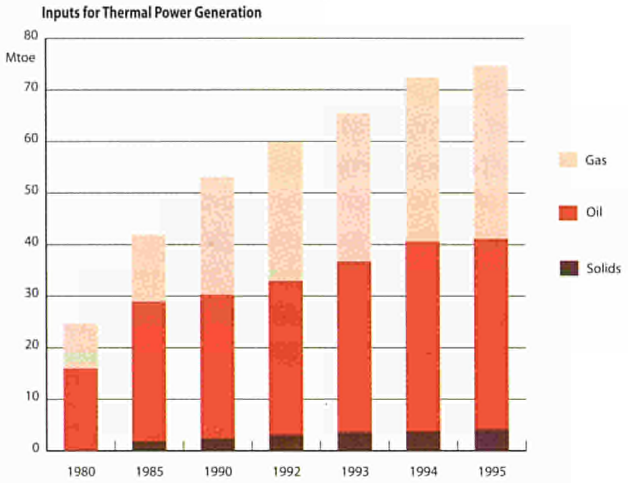


Besides oil, production of natural gas has tripled since 1980, the main producers, Saudi Arabia with 36Mtoe, Iran with 32 Mtoe and the United Arab Emirates with 28Mtoe, accounting for 80% of total production. Iran has the world's second largest natural gas reserves second only to Russia. Development of the 9 trillion cubic meters South Pars Field, which accounts for an estimated 40% of Iran's gas reserves, is a priority for the Iranian government. The development of these reserves should help Iran maintain its oil output by using gas in enhanced oil recovery gas injection schemes, as well as providing a potentially important export commodity. There is no nuclear energy and renewable energy sources (hydro power and biomass) are totally marginal.

First Step for private investment in power generation...

Electricity generation in the region grew on average by about 8.5% per year since 1980. Thermal generation dominated electricity production (95% in 1995) along with hydro, of which about 50% is produced in Iran, contributing to the rest. Richly endowed with oil and natural gas resources, the Middle East naturally relies heavily on those resources such as electricity generation fuels. In 1995, oil and natural gas provided roughly equal parts (about 45%) of the Middle East's electric fuels market, the remainder being supplied by coal and renewables. Natural gas use for power generation is expected to increase in the near future. The increasing contribution of gas opens the door to the future implementation of high efficiency combined cycle power stations. Transborder exchanges of electricity remained non-existent due to a lack of an international distibution infrastructure.

With growing electric power needs, Iran is currently restructuring its national electricity industry, considering allowing greater private participation in supply and removing restrictions on foreign



ownership. In the same way, the Saudi Government is also for the first time relying on international capital markets to fund electricity projects. In addition, a build-own-operate (BOO) scheme has been opened for a planned 1750 MWe oil-fired project.

Oil refineries largely dedicated to exports…

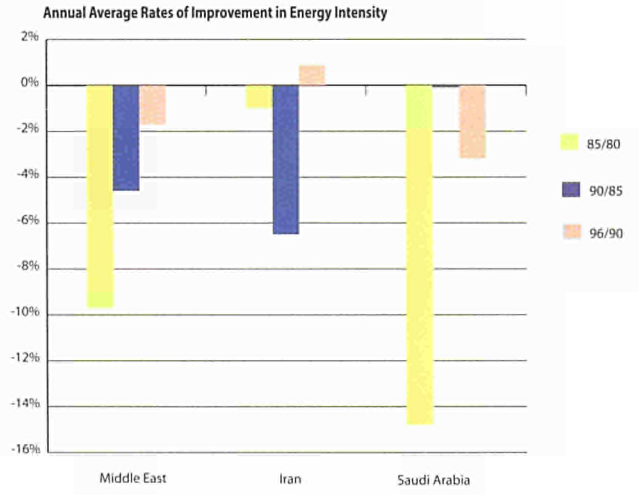
In 1995, the **refinery capacity** (5.6 million barrels per day) represented 7% of the world capacity (5% in 1985). Since 1980, the capacity grew on average by 2.9% per year under Saudi Arabian (8.2% per year) leadership. At the same time, the utilisation rate of the refineries remained largely above 96%, the highest world level. Refineries that exported in 1996 about 43% of their production outside the Middle East, remain largely dedicated to exports.

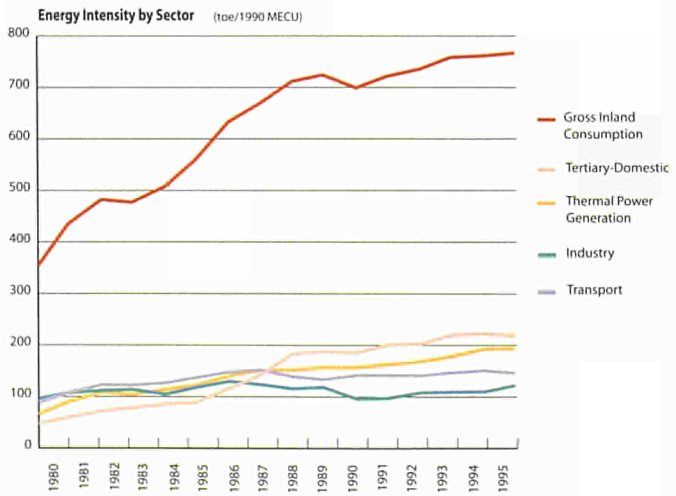
COMPETITIVENESS

Energy intensity increased continuously, but growth rate slowed since the 90's…

As a result of flat GDP and increasing gross inland consumption **energy intensity** increased significantly since 1980 by about 10% per year during the first part of the 80's and by about 5% in the second part. However, growth rate slowed down progressively since 1990 to reach only 1% in 1996. In addition very large discrepancies exist between country to country. In Saudi Arabia the degradation occurred principally in the beginning of the 80's and reappeared in the beginning of the 90's. On the contrary, Iran showed an acceleration of energy intensity during the second part of the 80's as a result of fast industrialisation and improving living standards and has demonstrated improvements since 1990. All sectors participated to the energy intensity growth but the major increase occurred in the tertiary-domestic sector where it has almost quintupled since 1980 in spite of relative stability since 1990, resulting from stagnation of local living conditions. At the same time, energy intensity of industry, pushed along by rapid industrialisation of the whole region, started to increase rapidly with an average yearly growth of about 5%, reaching a peak of 11% in 1995. The energy intensity of transport increased sharply during the first part of the 80's and remained quite stable since then as a result of motorization stability.

The **energy consumption per capita** (1.98 Toe/inhabitant) increased much slower, due to the demographic pressure prevailing in the Middle East (3.7% of yearly increase during the 80's and 3% since 1990). Since 1980, the domestic and tertiary contributions (0.55 Toe/inhabitant in 1995) has been tripled and that of industry reduced by one-fourth while the transport consumption per capita remained stable. Extreme discrepancies are reported between countries with a maximal consumption per capita at 12.8 toe per capita in United Arab Emirates and a minimum of only 0.2 toe per capita in Yemen.

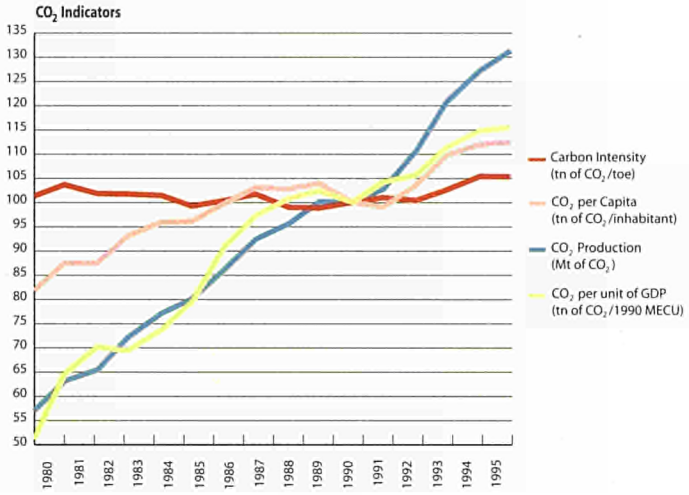


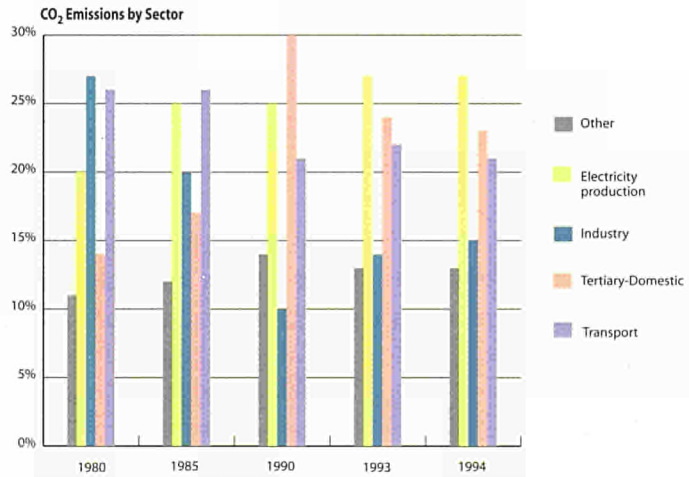


ENVIRONMENT

CO_2 emissions have been increasing by more than 5% per year since 1990…

The **CO_2 emissions** of the Middle East countries have increased regularly by about 5.6% per year since 1980 with even an acceleration at the beginning of the 90's. Saudi Arabia and Iran together contributed 60% to the total CO_2 emissions of the region, with an increasing share since 1980 (55%). Including the energy branch mainly representative of the refinery sector, industry, the major contributor, with 29% of the emissions in 1995 and power generation, with 27%, showed the sharpest increase since 1990, as a result of the region's industrial development based quite exclusively on oil products and electricity consumption. The emissions from the domestic and tertiary sector, after a considerable increase of more than 14% per year during the 80's, seem to be globally stabilised since 1993 as has transportation.





The **carbon intensity** (tn CO_2/toe) remains stable, confirming the global stability of the fuel mix over the period 1980 to 1995 in the Middle-East region. CO_2 emissions per capita have grown on average by 2% per year since 1980. The industrial contribution that declined sharply during the 80's in line with production, rebounded after 1990 in accordance to new developments. The contribution of transport remained relatively constant since 1980, corresponding to almost stable motorization in the region. The CO_2 emissions per unit of GDP globally increased on average by 5.6% per year since 1980 but growth rate slowed down regularly to reach only 0.6% in 1995 and 1996.

GLOBAL MARKETS

The Middle East, the world's primary exporter of energy, more focused on Asian markets...

The Middle East is the most important **net exporter of energy** in the world. However, this results mainly from exports of crude oil, and oil products to a lesser extent. Globally speaking, 80% of the 998 Mtoe oil produced during 1996 has been exported, 87% as crude oil. The volume of oil exported has increased regularly during the 80's but has been relatively stable since 1992. This resulted from a limited increase of world oil consumption between 1992 and 1996, by only 1.4% per year on average, conjugated with additional crude production in industrialised countries. But cold weather in the United States and Europe, combined with unexpectedly strong growth in Asia and Latin America, caused oil demand to rise by more than 2.4% in 1996, compared to only 1.2% on average between 1991 and 1995. At the same time, it was expected that Iraqi oil exports would begin to flow at mid-year, which did not happen until December. As a consequence world oil stocks draw down throughout 1996 by about 15%. In 1996 Asia, excluding Japan, was the foremost importer of oil from the Middle East (35% of oil export from this region) followed by Japan (25%) and Western Europe (20%), the United States absorbing only 10% of Middle East oil exports.

There have been increasing efforts to develop Middle Eastern LNG for export, especially to Asia, Qatar, Oman, and the United Arab Emirates, they all have developed LNG Schemes. The expansion of LNG sales is impeded, however, by the challenge of high costs associated with processing and transportation. In recent years, contracts provisions for LNG have included the flexibility to allow customers to gauge prices to the fluctuations in crude oil prices or to negotiate lower prices in exchange for large volume supply.

MIDDLE EAST : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	999.5	599.2	949.6	1082.5	1102.0	1121.1	-9.7%	9.6%	3.3%	1.8%	1.7%
Solids	0.6	0.8	0.8	0.6	0.7	0.7	6.8%	1.5%	-8.1%	11.8%	0.0%
Oil	961.4	542.4	862.5	978.7	989.1	998.5	-10.8%	9.7%	3.2%	1.1%	1.0%
Natural gas	35.8	53.9	83.7	100.6	109.6	119.3	8.5%	9.2%	4.7%	9.0%	8.8%
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Hydro & Wind	0.8	1.1	1.6	1.8	1.8	1.8	4.8%	9.1%	2.4%	0.9%	1.3%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	0.9	1.0	0.9	0.8	0.9	0.8	2.2%	-1.9%	-2.0%	1.4%	-1.3%
Net Imports	-854.8	-394.6	-701.3	-784.1	-791.3	-797.1	-14.3%	12.2%	2.8%	0.9%	0.7%
Solids	0.0	2.0	2.8	4.2	5.1	4.8	113.5%	6.9%	10.5%	21.6%	-4.3%
Oil	-852.5	-394.0	-700.2	-784.2	-791.0	-796.4	-14.3%	12.2%	2.9%	0.9%	0.7%
Crude oil	-812.8	-340.7	-616.8	-699.8	-699.4	na	-16.0%	12.6%	3.2%	-0.1%	na
Oil products	-39.7	-53.3	-83.4	-84.4	-91.6	na	6.1%	9.4%	0.3%	8.6%	na
Natural gas	-2.3	-2.5	-3.8	-4.0	-5.3	-5.4	1.9%	8.7%	1.0%	33.7%	2.0%
Electricity	0.0	0.0	0.0	-0.1	-0.1	-0.1	21.5%	1.1%	12.7%	-14.3%	0.0%
Gross Inland Consumption	133.3	191.4	237.1	286.3	295.7	311.3	7.5%	4.4%	4.8%	3.3%	5.3%
Solids	0.6	2.7	3.4	4.7	5.4	5.5	35.0%	5.1%	7.9%	15.4%	2.0%
Oil	97.4	135.3	151.3	182.5	183.4	189.3	6.8%	2.3%	4.8%	0.5%	3.2%
Natural gas	33.5	51.4	79.9	96.6	104.3	113.8	8.9%	9.2%	4.9%	8.0%	9.2%
Other (1)	1.7	2.0	2.5	2.6	2.6	2.6	3.2%	4.4%	0.6%	1.4%	0.4%
Electricity Generation in TWh	95.6	172.4	237.6	315.3	327.2	na	12.5%	6.6%	7.3%	3.8%	na
Nuclear	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Hydro & wind	9.7	9.6	14.8	15.7	15.6	na	-0.2%	9.1%	1.4%	-0.6%	na
Thermal	85.9	162.8	222.8	299.6	311.6	na	13.6%	6.5%	7.7%	4.0%	na
Generation Capacity in GWe	27.0	54.4	72.6	85.6	87.1	na	15.0%	6.0%	4.2%	1.7%	na
Nuclear	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Hydro & wind	1.6	3.0	3.1	4.0	4.6	na	13.1%	1.1%	6.6%	13.5%	na
Thermal	25.4	51.4	69.5	81.5	82.5	na	15.1%	6.2%	4.1%	1.1%	na
Average Load Factor in %	40.4	36.2	37.4	42.1	42.9	na	-2.2%	0.6%	3.0%	2.0%	na
Fuel Inputs for Thermal Power Generation	24.7	41.9	53.2	72.5	74.7	na	11.2%	4.9%	8.0%	3.1%	na
Solids	0.0	1.8	2.4	3.8	4.2	na	-	5.2%	12.3%	9.6%	na
Oil	16.0	27.1	27.9	36.8	37.0	na	11.1%	0.6%	7.2%	0.4%	na
Gas	8.7	13.0	22.9	31.8	33.5	na	8.4%	12.0%	8.6%	5.4%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	0.0%	2.9%	1.6%	7.8%	na
Average Thermal Efficiency in %	29.9	33.4	36.0	35.5	35.9	na	2.2%	1.5%	-0.3%	0.9%	na
Non-Energy Uses	4.9	9.9	12.2	12.7	9.4	na	14.8%	4.4%	0.9%	-25.8%	na
Total Final Energy Demand	87.4	117.7	143.6	181.9	188.1	na	6.1%	4.1%	6.1%	3.4%	na
Solids	0.6	0.8	1.0	1.0	1.2	na	6.9%	4.5%	-1.4%	18.9%	na
Oil	66.5	84.1	98.6	123.1	125.4	na	4.8%	3.2%	5.7%	1.8%	na
Gas	12.8	19.1	26.1	34.2	36.9	na	8.2%	6.5%	6.9%	8.0%	na
Electricity	6.7	12.6	16.6	22.4	23.3	na	13.5%	5.8%	7.7%	4.3%	na
Heat	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Renewable energy sources	0.9	1.2	1.2	1.3	1.3	na	6.6%	0.5%	0.3%	2.5%	na
CO_2 Emissions in Mt of CO_2	349.3	491.6	613.6	780.7	805.6	830.0	7.1%	4.5%	6.2%	3.2%	3.0%
Indicators											
Population (Million)	91.71	109.85	131.71	149.71	153.86	157.45	3.7%	3.7%	3.3%	2.8%	2.3%
GDP (index 1985=100)	110.4	100.0	99.1	109.9	112.7	117.4	-2.0%	-0.2%	2.6%	2.5%	4.2%
Gross Inl Cons./GDP (toe/1990 MECU)	352.7	559.4	699.3	761.7	767.1	775.0	9.7%	4.6%	2.2%	0.7%	1.0%
Gross Inl Cons./Capita (toe/inhabitant)	1.45	1.74	1.80	1.91	1.92	1.98	3.7%	0.7%	1.5%	0.5%	2.9%
Electricity Generated/Capita (kWh/inhabitant)	1043	1569	1804	2106	2127	na	8.5%	2.8%	3.9%	1.0%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	3.8	4.5	4.7	5.2	5.2	5.3	3.3%	0.8%	2.9%	0.4%	0.7%
Import Dependency %	-592.8	-191.1	-281.8	-260.6	-254.9	-242.0	-20.3%	8.1%	-1.9%	-2.2%	-5.1%

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

MIDDLE EAST : MAIN INDICATORS

	1980	1985	1990	1993	1994	1995	85/80	90/85	94/90	95/94
							Annual % Change			
Gross Inland Consumption (Mtoe)	133.3	191.4	237.1	279.3	286.3	295.7	7.5%	4.4%	4.8%	3.3%
Public Thermal Power Generation	23.4	40.7	51.9	64.3	71.1	73.3	11.6%	5.0%	8.2%	3.1%
Autoprod. Thermal Power Generation	1.2	1.3	1.3	1.3	1.4	1.4	0.4%	0.3%	1.4%	1.0%
Energy Branch	15.4	22.6	34.3	38.7	41.3	42.9	8.1%	8.6%	4.7%	4.0%
Final Energy Consumption	87.4	117.7	143.6	175.6	181.9	188.1	6.1%	4.1%	6.1%	3.4%
Industry	36.4	40.4	32.6	40.4	41.4	47.2	2.1%	-4.2%	6.2%	14.0%
Transport	33.2	46.9	48.2	54.3	56.8	56.5	7.2%	0.5%	4.2%	-0.6%
Tertiary-Domestic	17.9	30.4	62.9	81.0	83.7	84.4	11.2%	15.6%	7.4%	0.8%
Energy Intensity (toe/1990 MECU)	352.7	559.4	699.3	758.6	761.7	767.1	9.7%	4.6%	2.2%	0.7%
Public Thermal Power Generation	62.0	118.8	153.1	174.7	189.2	190.3	13.9%	5.2%	5.4%	0.6%
Autoprod. Thermal Power Generation	3.3	3.7	3.8	3.7	3.6	3.6	2.4%	0.5%	-1.2%	-1.5%
Industry	96.3	118.0	96.1	109.7	110.1	122.4	4.1%	-4.0%	3.4%	11.2%
Transport	87.8	137.2	142.0	147.4	151.1	146.4	9.3%	0.7%	1.6%	-3.1%
Tertiary-Domestic	47.3	88.9	185.5	219.9	222.7	219.0	13.5%	15.8%	4.7%	-1.7%
Energy per Capita (Kgoe/inhabitant)	1453	1743	1800	1925	1912	1922	3.7%	0.7%	1.5%	0.5%
Industry	397	368	247	278	276	307	-1.5%	-7.6%	2.8%	10.9%
Transport	362	427	366	374	379	367	3.4%	-3.1%	0.9%	-3.3%
Tertiary-Domestic	195	277	477	558	559	549	7.3%	11.5%	4.0%	-1.9%
Electricity Share (%)										
Final Energy Consumption	7.6%	10.7%	11.6%	11.7%	12.3%	12.4%	7.0%	1.6%	1.5%	0.9%
Industry	4.1%	7.8%	8.2%	8.1%	9.3%	8.4%	14.1%	0.8%	3.2%	-8.9%
Transport	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	-	-	3.8%	10.2%
Tertiary-Domestic	29.0%	30.9%	22.1%	21.2%	22.1%	22.8%	1.3%	-6.4%	-0.1%	3.5%
Total Renewable Consumption (Mtoe)	1.7	2.1	2.6	2.9	2.6	2.7	3.5%	4.3%	0.9%	1.0%
Hydro	0.8	0.8	1.3	1.5	1.3	1.3	-0.2%	9.1%	1.4%	-0.4%
Biomass	0.9	1.0	0.9	1.0	0.8	0.9	2.1%	-1.9%	-2.0%	1.4%
Other renewable energy sources	0.0	0.2	0.4	0.4	0.4	0.5	-	9.2%	5.6%	4.9%
Renewable intensity (toe/1990MECU)	4.6	6.0	7.5	8.0	7.0	6.9	5.5%	4.5%	-1.7%	-1.5%
Renewable per capita (Kgoe/inhabitant)	19.0	18.8	19.4	20.3	17.6	17.4	-0.2%	0.6%	-2.3%	-1.7%
CO_2 Production (Mt of CO_2)	349.3	491.6	613.6	741.6	780.7	805.6	7.1%	4.5%	6.2%	3.2%
Public Thermal Power Generation	67.3	119.5	149.0	184.9	204.5	210.7	12.2%	4.5%	8.2%	3.0%
Autoprod. Thermal Power Generation	3.8	3.8	3.9	4.1	4.1	4.2	0.4%	0.2%	1.6%	0.9%
Energy Branch	39.7	59.1	88.3	98.4	104.5	108.4	8.3%	8.4%	4.3%	3.7%
Industry	100.6	104.4	85.1	105.1	106.5	123.9	0.7%	-4.0%	5.8%	16.3%
Transport	101.8	144.1	147.6	166.3	174.1	173.0	7.2%	0.5%	4.2%	-0.6%
Tertiary-Domestic	36.2	60.8	139.7	182.7	187.0	185.4	10.9%	18.1%	7.6%	-0.8%
Carbon Intensity (tn of CO_2/toe)	2.6	2.6	2.6	2.7	2.7	2.7	-0.4%	0.2%	1.3%	-0.1%
Public Power Generation	2.8	2.9	2.8	2.8	2.8	2.8	0.8%	-0.6%	0.2%	0.0%
Public Thermal Power Generation	2.9	2.9	2.9	2.9	2.9	2.9	0.5%	-0.5%	0.0%	-0.1%
Autoprod. Power Generation	3.0	3.0	3.0	3.0	3.0	3.0	0.0%	0.0%	0.2%	-0.2%
Autoprod. Thermal Power Generation	3.0	3.0	3.0	3.0	3.0	3.0	-0.1%	-0.1%	0.2%	-0.1%
Energy Branch	2.6	2.6	2.6	2.5	2.5	2.5	0.2%	-0.3%	-0.4%	-0.3%
Industry	2.8	2.6	2.6	2.6	2.6	2.6	-1.3%	0.2%	-0.3%	2.0%
Transport	3.1	3.1	3.1	3.1	3.1	3.1	0.0%	0.0%	0.0%	0.0%
Tertiary-Domestic	2.0	2.0	2.2	2.3	2.2	2.2	-0.3%	2.1%	0.1%	-1.7%
CO_2 per Capita (kg of CO_2/inhabitant)	3809	4475	4659	5111	5215	5236	3.3%	0.8%	2.9%	0.4%
Industry	1097	950	646	725	712	805	-2.8%	-7.4%	2.5%	13.2%
Transport	1110	1312	1121	1146	1163	1125	3.4%	-3.1%	0.9%	-3.3%
Tertiary-Domestic	394	553	1060	1259	1249	1205	7.0%	13.9%	4.2%	-3.5%
CO_2 per unit of GDP (tn of CO_2/1990 MECU)	925	1437	1810	2014	2077	2090	9.2%	4.7%	3.5%	0.6%
Public Thermal Power Generation	178	349	440	502	544	547	14.4%	4.7%	5.5%	0.5%
Autoprod. Thermal Power Generation	10	11	11	11	11	11	2.4%	0.4%	-1.0%	-1.6%
Energy Branch	105	173	260	267	278	281	10.5%	8.6%	1.6%	1.1%
Industry	266	305	251	286	283	321	2.8%	-3.8%	3.1%	13.4%
Transport	269	421	435	452	463	449	9.3%	0.7%	1.6%	-3.1%
Tertiary-Domestic	96	178	412	496	497	481	13.2%	18.3%	4.8%	-3.3%

SAUDI ARABIA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	533.1	200.8	368.8	466.4	469.8	471.9	-17.7%	12.9%	6.0%	0.7%	0.5%
Solids	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Oil	524.6	185.0	343.4	435.6	436.9	436.0	-18.8%	13.2%	6.1%	0.3%	-0.2%
Natural gas	8.5	15.8	25.4	30.8	32.9	35.9	13.1%	10.0%	5.0%	7.0%	9.0%
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Hydro & Wind	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Net Imports	-493.7	-139.8	-303.7	-383.4	-385.2	-383.0	-22.3%	16.8%	6.0%	0.5%	-0.6%
Solids	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Oil	-493.7	-139.8	-303.7	-383.4	-385.2	-382.8	-22.3%	16.8%	6.0%	0.5%	-0.6%
Crude oil	-484.6	-124.0	-253.7	-340.5	-342.2	na	-23.9%	15.4%	7.6%	0.5%	na
Oil products	-9.1	-15.8	-50.0	-42.9	-43.0	na	11.7%	25.9%	-3.7%	0.2%	na
Natural gas	0.0	0.0	0.0	0.0	0.0	-0.1	-	-	-	-	-
Electricity	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Gross Inland Consumption	35.4	52.2	63.3	81.0	82.7	86.7	8.1%	3.9%	6.4%	2.2%	4.8%
Solids	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Oil	26.8	36.5	37.9	50.2	49.8	51.0	6.3%	0.8%	7.3%	-0.8%	2.3%
Natural gas	8.5	15.8	25.4	30.8	32.9	35.8	13.1%	10.0%	5.0%	7.0%	8.6%
Other (1)	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Electricity Generation in TWh	20.5	44.3	64.9	91.0	93.9	na	16.7%	7.9%	8.8%	3.2%	na
Nuclear	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Hydro & wind	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Thermal	20.5	44.3	64.9	91.0	93.9	na	16.7%	7.9%	8.8%	3.2%	na
Generation Capacity in GWe	7.4	15.9	19.7	21.0	20.9	na	16.4%	4.4%	1.7%	-0.2%	na
Nuclear	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Hydro & wind	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Thermal	7.4	15.9	19.7	21.0	20.9	na	16.4%	4.4%	1.7%	-0.2%	na
Average Load Factor in %	31.4	31.9	37.7	49.5	51.2	na	0.3%	3.4%	7.1%	3.4%	na
Fuel Inputs for Thermal Power Generation	4.1	10.7	13.0	19.6	20.0	na	21.3%	3.9%	10.9%	2.1%	na
Solids	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Oil	3.4	7.3	8.7	13.4	13.5	na	16.4%	3.6%	11.3%	0.8%	na
Gas	0.6	3.4	4.2	6.2	6.5	na	39.1%	4.5%	10.1%	5.0%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	43.2	35.6	43.0	39.9	40.3	na	-3.8%	3.9%	-1.8%	1.0%	na
Non-Energy Uses	0.9	4.8	4.2	5.3	0.9	na	38.2%	-2.3%	5.8%	-83.4%	na
Total Final Energy Demand	22.3	26.5	38.3	44.2	48.2	na	3.5%	7.7%	3.6%	8.9%	na
Solids	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Oil	21.0	22.3	25.0	28.5	31.1	na	1.2%	2.4%	3.3%	9.1%	na
Gas	0.3	1.1	9.0	9.6	10.7	na	33.5%	52.9%	1.7%	11.2%	na
Electricity	1.1	3.1	4.3	6.1	6.4	na	23.5%	6.6%	9.0%	4.6%	na
Heat	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Renewable energy sources	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
CO_2 Emissions in Mt of CO_2	95.3	128.7	179.5	218.7	232.2	na	6.2%	6.9%	5.1%	6.2%	na
Indicators											
Population (Million)	9.37	12.38	15.80	18.35	18.98	19.59	5.7%	5.0%	3.8%	3.4%	3.2%
GDP (index 1985=100)	134.8	100.0	120.8	134.4	133.7	136.9	-5.8%	3.8%	2.7%	-0.5%	2.4%
Gross Inl Cons./GDP (toe/1990 MECU)	385.3	766.8	769.4	885.2	909.1	930.7	14.8%	0.1%	3.6%	2.7%	2.4%
Gross Inl Cons./Capita (toe/inhabitant)	3.77	4.22	4.00	4.41	4.36	4.43	2.3%	-1.0%	2.5%	-1.2%	1.5%
Electricity Generated/Capita (kWh/inhabitant)	2183	3579	4108	4960	4947	na	10.4%	2.8%	4.8%	-0.3%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	10.2	10.4	11.4	11.9	12.2	na	0.4%	1.8%	1.2%	2.7%	na
Import Dependency %	-1246.7	-229.4	-466.9	-461.9	-455.3	-428.1	-28.7%	15.3%	-0.3%	-1.4%	-6.0%

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

IRAN : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	84.1	127.8	180.6	212.2	217.0	222.1	8.7%	7.2%	4.1%	2.3%	2.4%
Solids	0.6	0.8	0.8	0.6	0.6	0.6	6.8%	0.8%	-8.8%	11.0%	0.0%
Oil	75.9	113.9	158.9	184.4	186.5	188.7	8.5%	6.9%	3.8%	1.1%	1.2%
Natural gas	6.5	11.9	19.8	26.0	28.7	31.7	12.8%	10.6%	7.1%	10.4%	10.4%
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Hydro & Wind	0.5	0.5	0.5	0.6	0.6	0.6	-0.2%	1.9%	5.2%	-2.2%	0.0%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	0.6	0.7	0.7	0.6	0.6	0.6	2.9%	-1.3%	-3.1%	0.3%	-2.4%
Net Imports	-44.0	-72.0	-106.4	-128.2	-130.4	-131.2	10.4%	8.1%	4.8%	1.8%	0.6%
Solids	0.0	0.1	0.2	0.2	0.5	0.5	10.9%	31.7%	0.0%	100.0%	4.6%
Oil	-43.9	-72.1	-105.4	-127.8	-130.8	-131.6	10.4%	7.9%	4.9%	2.4%	0.6%
Crude oil	-38.2	-77.0	-112.1	-134.1	-132.6	na	15.1%	7.8%	4.6%	-1.1%	na
Oil products	-5.7	4.9	6.7	6.3	1.8	na	-	6.2%	-1.3%	-71.7%	na
Natural gas	-0.2	0.0	-1.2	-0.7	-0.1	-0.1	-	-	-14.6%	-87.4%	-38.1%
Electricity	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Gross Inland Consumption	39.0	54.1	71.6	82.3	84.7	89.3	6.8%	5.8%	3.5%	2.9%	5.5%
Solids	0.6	0.8	1.0	0.8	1.1	1.1	7.1%	4.7%	-6.5%	38.4%	2.1%
Oil	30.9	40.2	50.8	55.0	53.7	55.4	5.4%	4.8%	2.0%	-2.2%	3.1%
Natural gas	6.4	11.9	18.5	25.3	28.6	31.6	13.4%	9.2%	8.1%	12.9%	10.5%
Other (1)	1.1	1.2	1.2	1.2	1.2	1.2	1.6%	0.0%	0.8%	-1.0%	-1.2%
Electricity Generation in TWh	22.4	39.2	59.1	82.2	85.4	na	11.9%	8.5%	8.6%	3.9%	na
Nuclear	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Hydro & wind	5.6	5.6	6.1	7.4	7.3	na	-0.2%	1.9%	5.2%	-2.3%	na
Thermal	16.8	33.7	53.0	74.8	78.1	na	15.0%	9.5%	9.0%	4.5%	na
Generation Capacity in GWe	5.3	13.4	17.6	25.1	26.3	na	20.4%	5.5%	9.4%	4.5%	na
Nuclear	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Hydro & wind	0.9	1.8	1.8	2.0	2.5	na	16.2%	0.0%	2.0%	28.0%	na
Thermal	4.5	11.6	15.8	23.2	23.8	na	21.1%	6.3%	10.1%	2.6%	na
Average Load Factor in %	48.2	33.4	38.4	37.4	37.1	na	-7.1%	2.8%	-0.7%	-0.6%	na
Fuel Inputs for Thermal Power Generation	4.5	8.9	12.6	16.7	17.4	na	14.9%	7.2%	7.3%	4.1%	na
Solids	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Oil	3.0	7.0	6.3	7.4	7.4	na	18.3%	-2.1%	4.1%	0.0%	na
Gas	1.4	1.9	6.4	9.4	10.1	na	5.9%	27.0%	10.1%	7.3%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	32.4	32.5	36.1	38.4	38.6	na	0.1%	2.1%	1.6%	0.4%	na
Non-Energy Uses	1.3	1.4	5.0	4.8	5.9	na	2.1%	28.8%	-1.3%	23.1%	na
Total Final Energy Demand	28.5	43.2	47.7	70.0	69.4	na	8.6%	2.0%	10.0%	-0.8%	na
Solids	0.6	0.8	1.0	0.9	1.0	na	7.1%	4.4%	-3.2%	15.3%	na
Oil	20.8	28.8	36.2	47.7	45.7	na	6.8%	4.6%	7.2%	-4.3%	na
Gas	4.9	10.0	6.0	15.4	16.6	na	15.3%	-9.8%	26.8%	7.9%	na
Electricity	1.7	2.8	3.9	5.4	5.6	na	11.0%	6.8%	8.6%	3.4%	na
Heat	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Renewable energy sources	0.6	0.7	0.7	0.6	0.6	na	2.9%	-1.3%	-3.1%	0.3%	na
CO_2 Emissions in Mt of CO_2	97.2	148.9	173.2	244.6	244.2	na	8.9%	3.1%	9.0%	-0.2%	na
Indicators											
Population (Million)	39.12	46.37	55.78	62.55	64.12	65.02	3.5%	3.8%	2.9%	2.5%	1.4%
GDP (index 1985=100)	75.6	100.0	96.4	117.5	120.6	126.8	5.8%	-0.7%	5.1%	2.7%	5.1%
Gross Inl Cons./GDP (toe/1990 MECU)	525.6	551.9	757.3	714.3	715.6	718.5	1.0%	6.5%	-1.5%	0.2%	0.4%
Gross Inl Cons./Capita (toe/inhabitant)	1.00	1.17	1.28	1.32	1.32	1.37	3.2%	1.9%	0.6%	0.3%	4.1%
Electricity Generated/Capita (kWh/inhabitant)	572	846	1060	1314	1332	na	8.1%	4.6%	5.5%	1.4%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	2.5	3.2	3.1	3.9	3.8	na	5.3%	-0.7%	5.9%	-2.6%	na
Import Dependency %	-108.6	-129.2	-143.4	-152.6	-150.6	-143.3	3.5%	2.1%	1.6%	-1.3%	-4.9%

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

Part VIII ASIA

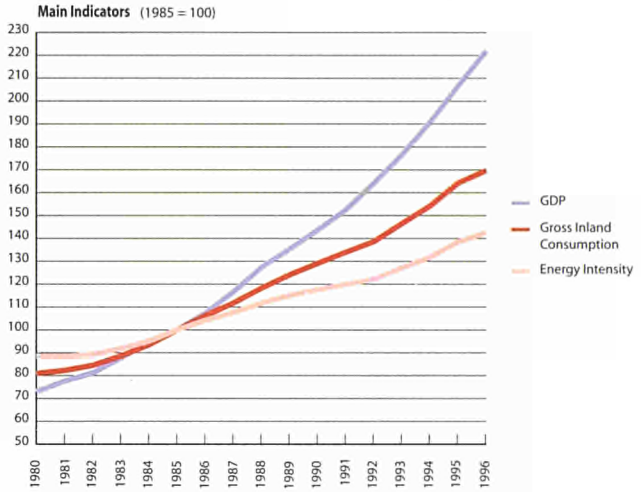
ASIA : Major trends (1980-1996)

- Since 1990 GDP grew by 7.5% per year on average, and population by only 1.4%
- Final energy consumption, still dominated by solid fuels, increased by only 3.7% per year since 1990
- Growth in the industrial sector is the driving force of final energy consumption growth
- Increasing contribution of electricity, the fastest growing source of end-use energy
- Solid fuels have been more than doubling their contribution to gross inland energy consumption since 1980
- Primary energy production evolved with indigenous energy needs, except a deficit in oil production
- Electricity generation was and will be dominated by solid fuels
- Rapid expansion of generation capacity challenging the future and arguing for independent power production
- The most dynamic market worldwide for power generation from renewables
- Refinery expansion program to meet increasing domestic oil products demand
- Under the pressure of China, energy intensity has improved by 2.3% per year since 1980
- Energy consumption per capita reached only 18% of the European Union level
- CO2 emissions increased by 60% since 1990
- Contributions of power sector and industry, almost equivalent in 1995, reached together 70% of total CO2 emissions
- Increasing energy dependency, mainly related to oil import from the Middle East

Since 1990 GDP grew by 7.5% per year on average, and population by only 1.4%...

This is the largest world region, including all Asian countries and the pacific islands, except those belonging to the OECD region, Iran and the Asian Republics of the former USSR. The Asian population has grown by 1.8% per year on average during the 80's but by only 1.4% on average since 1990 as a result of the sharp reduction in Chinese growth rate (from 1.5% on average in the 80's to only 1.1% in the 90's). The Asian population represented in 1996 almost 52% of the world's total; China and India accounted for 21% and 16% of world population respectively. Despite GDP growth of 7.2% per year on average since 1980, the region is still characterised by a rather low level of economic development (GDP per capita in 1996 was 25 times lower than the European Union average). However, the four NICs (Hong-Kong, Singapore, South Korea and Taiwan) enjoyed in 1995 a GDP per capita only 45% below the European average.

The recent economic crisis in Asia will no doubt have significant energy implications. These will be adressed in later editions of the annual energy review as statistical information becomes available.



ASIA : GDP/CAPITA (THOUSAND 1990 ECU/INHABITANT)

	1980	1985	1990	1994	1995	1996(1)
ASIA	0.28	0.35	0.46	0.57	0.61	0.65
China	0.12	0.18	0.25	0.38	0.41	0.45
India	0.19	0.23	0.28	0.30	0.31	0.33
NICs	3.01	3.93	5.82	7.29	7.76	8.17
Other	0.32	0.36	0.42	0.50	0.52	0.62
European Union	11.81	12.76	14.58	14.95	15.28	15.49

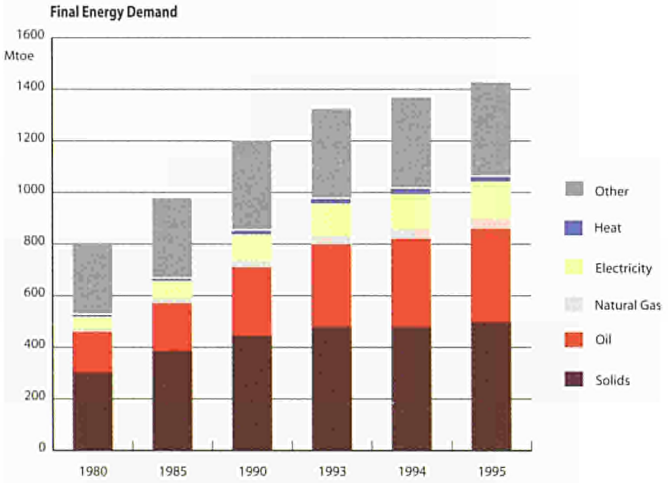
(1) Estimates

ENERGY OUTLOOK

Final energy consumption, still dominated by solid fuels, increased by only 3.7% per year since 1990...

Sustained by the strong economic growth, **final energy consumption** increased steadily by almost 4.1% per year during the 80's and by 3.7% since 1990. Even if solid fuel remained the first component of the final energy consumption, the increasing demand since 1990 was satisfied firstly by oil products (42% of the overall increment), followed by solid fuels (22%), electricity (19%), biomass (10%), gas (5%) and derived heat (2%). China accounted in 1995 for about 55% of the total regional final demand but only 43% of incremental demand since 1990, followed by India with 16% (19% of incremental demand) and the NICs with only 10%

(19% of incremental demand). About 50% of the increase in oil demand since 1990 has been allocated to the transport sector, of which energy consumption grew by about 7.5% per year since 1990. China was absorbing almost the totality of increasing solid fuels consumption in relation with the rapid development of its iron and steel and cement industries. The growth in electricity consumption (7.80% per year on an average since 1990) must be reported at the very low level of 550 kWh consumption per inhabitant (compared to 5310 kWh in the European Union).



Growth in the industrial sector is the driving force of final energy consumption growth...

Growth in the industrial sector is the driving force behind the region's strong economic performance. In most countries, the industrial sector is the largest user of energy (one of the exceptions being Thailand where the transport sector dominated). Energy-intensive industries such as iron and steel, chemicals, cement and pulp and paper account for 50 to 80% of final industrial sector energy demand. As a consequence of the rapid expansion of the basic chemical industry, the consumption related to non-energy uses, mainly petrochemical basis, expanded between 1990 and 1995, being multiplied by 2.4 to reach 90 Mtoe. This recent evolution accentuated the progression of oil product consumption.

The share of the tertiary-domestic sector in the final energy consumption declined from 52% in 1980 to 44% in 1995 for the benefit of both the transport sector (from 10% to 14%) and industry (from 38% to 42%). This region is characterised by very low levels of car use. The energy consumption per capita for transport uses represented only 67 Kgoe per inhabitant in 1995, compared to 758 Kgoe in the European Union. If a substantial expansion of road transportation is expected in Asia, especially in China, growth in road transportation will be hindered by the current low level of development in roads and related infrastructure. In the same way, the rail system was quite well utilised and is expected to be under increasing pressure to ship freight. The rail system has been dominated by coal-fired steam locomotives, which are being replaced by diesel-fired locomotives, further increasing the demand for oil products in the transport sector.

Increasing contribution of electricity, the fastest growing source of end-use energy...

Increasingly, industrial energy demand was relying on electricity, the fastest growing source of end-use energy. Electrification for commercial and residential activities was also spreading as rising living standards in cities increased the penetration of modern electrical appliances and electricity services spread into the more rural areas. The electricity share in final consumption reached 10% in 1995 from 8.2% in 1990 and 5.6% in 1980. The long term elasticity of electricity demand to GDP reached only 1.1 in the period 1980-1995,and was even close to 1 in the period 1990-95. If we except the NICs, this indicator reflects, in the case of developing countries, both the low level of industrialisation and poor living standards, mainly in the two largest countries: China and India, where in particular, rural electrification remained limited.

Solid fuels have been doubling their contribution to gross inland energy consumption since 1980...

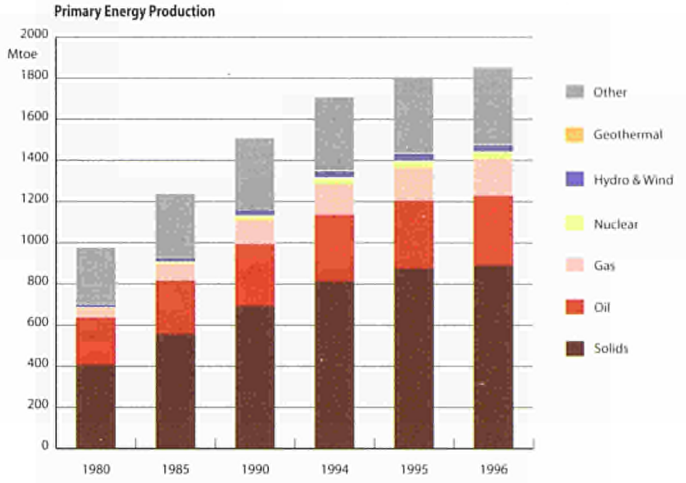
Gross inland energy consumption has been growing in the period 1980-1996 by about 4.7% per year on average since 1980 with all primary fuels contributing. Coal remained the dominant fuel in the region, bolstered by the strong growth in China and India, eventhough it has the lowest growth rate of the three major fossil fuels. The NICs (principally South Korea and Taiwan) rely most heavily upon oil, with coal second. However natural gas consumption is these countries was growing at an explosive rate. The remaining Asian developing countries also rely more heavily on oil and also demonstrated high rates of growth for natural gas consumption. Nuclear energy was developed rapidly in the 1980's (growing over 20% per year on average) but stabilised in the first part of the 90's before new sites were developed in China and South Korea from 1993. Renewable energy sources (mainly biomass) have had a steady increase since 1980 of over 2.3% per year. The major contributing countries were China (48%), India (20%) and Indonesia (9%). In 1996, each primary fuel contributed to the gross inland consumption as follows: solid fuels with 44% (42% in 1980), oil with 27% (25% in 1980); Biomass with 19% (28% in 1980), natural gas with 7% (3% in 1980), hydro with 2% (as in 1980) and nuclear with 2% (almost nil in 1980).

Primary energy production evolved with indigenous energy needs, except a deficit in oil production...

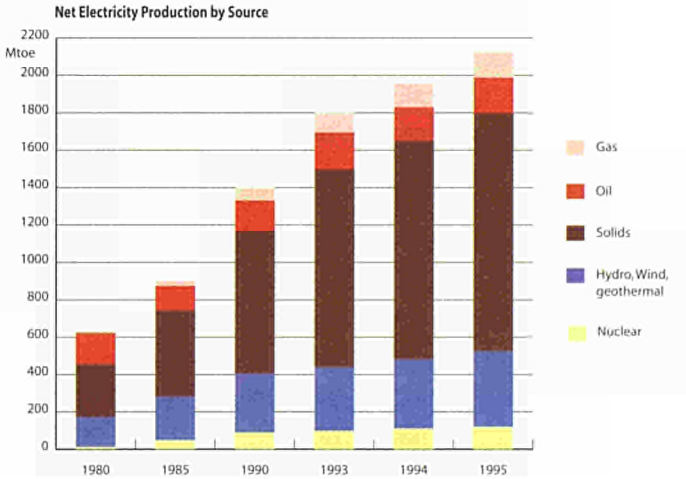
Primary energy production in Asia evolved with indigenous energy needs, with the exception of a deficit in oil production to cover Asian requirements. Primary production was dominated by solid fuels with 48% of total production in 1996 (42% in 1980). China and India represented respectively about 77% and 16% of the total region's production in 1996 with relation to their reserves (11% of total world reserves for China and 7% for India). The share of oil decreased from 24% in 1980 to 18% in 1996. China was the biggest oil producer in 1996 (157 Mtoe mainly concentrated onshore on a single field) followed by Indonesia (75 Mtoe), Malaysia (39 Mtoe) and India (36 Mtoe). To increase domestic oil production, efforts are being made to promote foreign investment. Oil producers in the Far East Asia are beginning to reap the benefits of enhanced exploration and extraction technologies. A significant increase in output potential is projected at the turn of the century for a lot of countries (India, deepwater fields offshore from the Philippines, Vietnam, etc...). Natural gas production increased in the period by 9% per year on average since 1980, to reach 178 Mtoe in 1996 or about half of the crude oil production. Indonesia with 68 Mtoe, Malaysia with 30 Mtoe, China with 18Mtoe and India with 16Mtoe were the four main contributors to this increase. It must be noted that the Asian hydrocarbon reserves are very limited, with only 4% of world oil reserves in 1996 and 6% of gas reserves. Nuclear energy production was dominated by the NICs who accounted for 93% of total nuclear energy in 1992 but only 83% in 1996 due to new nuclear units being commissioned in China from 1993. Hydropower grew very slowly compared to the very large existing potential, and its contribution in 1996 was equivalent to nuclear power. Biomass production, the second primary energy source in volume in 1996, increased by only 2% per year on average between 1980 and 1996 over the whole region. The major producers were China (188 Mtoe), India (78 Mtoe), Indonesia (38 Mtoe) and Thailand (22Mtoe); but since 1990, as the production remained stable in China and India, it was progressing more rapidly in other countries, except in the NICs were it remained negligible.

Electricity generation was and will be dominated by solid fuels...

Electricity generation in the region grew steadily by 8.4% per year in the period 1980-1995. Thermal generation dominated electricity production (76% in 1995) with nuclear and hydro accounting respectively for 6% and 18% of total generation. Solid fuels dominated the increment of input for thermal generation of electricity. In 1995,solid fuels accounted for 78% of thermal generation (60% in 1980); oil and gas represented 12% and 8% respectively (37% and 2% in 1980). But it must be noted that the contribution of natural gas was increasing by about 21% per year on average during the 80's starting in fact from a very low level. Natural gas continued to grow on average by about 15% per year during the first half of the 90's, doubling its contribution in only five years. Presently, the development of natural gas use is still limited by the transportation pipeline facilities. But, even if the transportation network could largely expand in the future, it is foreseen that the bulk of electricity production will be covered by solid fuels, largely produced around the region at low cost.



Countries currently operating nuclear power include China, South Korea, Taiwan, India and Pakistan. With the exception of South Korea, the programs are small, but all expect growth in the future. At the end of 1996, these five countries had 18 GWe on line and 18 units under construction and as many as 16 more were at the planning stages. Seven of the units actively under construction at the end of 1996 were in South Korea. China also was building



additional nuclear power stations to meet rapid growth in electricity demand. The next two units at the Quishan site are 600 MWe PWRs of a Chinese design, although foreign companies have been contracted to supply major components. Although India's nuclear program is not expected to be as dynamic as China's, the country has all phases of the nuclear fuel cycle in place, in addition to having 12 nuclear plants either planned or under construction.

Rapid expansion of generation capacity challenging the future and arguing for independent power production...

The total generation capacity reached 467 GWe in 1995 and the rate of expansion was very rapid with a doubling of installed capacity in the last ten years, or about 25 GWe of new capacity per year. Thermal units dominate this market, mainly steam coal power units (the bulk of Chinese generation capacity) but combined cycles units started to be developed where indigenous gas resources are available. In 1995, thermal units accounted for 74% of total generation capacity (69% in 1980), hydro and wind for 22% (29% in 1980) and nuclear for 4% (2% in 1980). In the next ten years, at modest estimates, China would require about 15 GWe of additional capacity each year and India about 10 MWe. This would represent about 40 to 50 % of world additional capacity requirements. Faced with this challenging situation, China, India and some relatively smaller economies have undergone significant attempts at electricity privatisation. Since 1992, the Chinese government has allowed foreign investment on a limited basis. Most foreign investment has involved joint ventures of local and foreign entities, although build-operate-transfer (BOT) schemes have become a growing means of finance. In 1991, the national Indian government enacted legislation to encourage private sector involvement in independent power production. Of the 40 GWe of generating capacity to be built between 1997 and 2002, nearly half is expected to be funded from private sources.

The most dynamic market worldwide for power generation from renewables ...

The emerging economies of Asia provide one of the most dynamic markets worldwide for power generation from renewables. A wide range of renewables development projects are already in progress, from large scale hydroelectric facilities, such as the Three Gorges Dam in China, to the fast-paced growth of wind power in India. Rapid economic growth has resulted in large increases in power demand in Asia where, for example in India, there is an increasing incidence of respiratory disease. As a consequence, related environmental concerns have resulted in more interest and investment in renewable resources.

China is aggressively developing its hydroelectric resources. In addition to the controversial 18 GWe Three Gorges Dam on the Yangtse River, about 20 GWe hydroelectric projects are currently under construction in China. The construction of the Three Gorges project began in 1994, and is expected to be completed in 2009. The Chinese Government has had problems securing finance because of international concerns about the environmental impact of the dam. In spite of high potential for hydroelectric development in India, the environmental issues and high costs involved in developing the resource make it unlikely that a substantial development will occur. It is more likely that very small hydro plants may be commissioned. Currently, however, there are plans to complete 11.3 GWe of new hydro capacities with individual plant capacity ranging from 25 MWe to 2885 MWe. To encourage greater participation of the private sector in hydroelectric generation, government incentives are prioritised for projects commissioned after 1 January 1997.

India is one of the largest producers of wind energy in the world today. In 1996 India had 829 MWe of installed wind capacity, and some 1.5 GWe of wind capacity was in various stages of planning. India installed 264 MWe of wind capacity in 1996, after installing 383 MWe in 1995, enough to make it second only to Germany in terms of additional wind capacity. But wind installations might slow further in 1997 because of a change in the corporate tax code reducing the tax shield provided by the 100% depreciation in the first year by almost 18%. In addition, it must be said that the performance of wind farms, which are supposed to operate at 25 to 30% of load factor, has declined in some cases to only 7%. Even so, the American Wind Energy Association forecasts that India and China will be amongst the five top growth markets for wind energy through to 2005.

Refinery expansion program to meet increasing domestic oil products demand...

In 1996, **the refinery capacity** (11.8 millions barrels day) represented 15% of the world capacity (7.6% in 1980). Since 1980, the capacity grew by 2.0% per year under China's leadership (5.1% per year). In 1996, china represented about 25% of the total refinery capacity of the region, against 15% in 1980. At the same time, the utilisation rate of the refineries increased from 79% to 89%, remaining throughout all the period above the world average. In order to meet increasing domestic oil demand the region has embarked on an aggressive refinery expansion program, partially based on joint ventures with foreign investors.

COMPETITIVENESS

Under the pressure of China, energy intensity has improved by 2.3% per year since 1980...

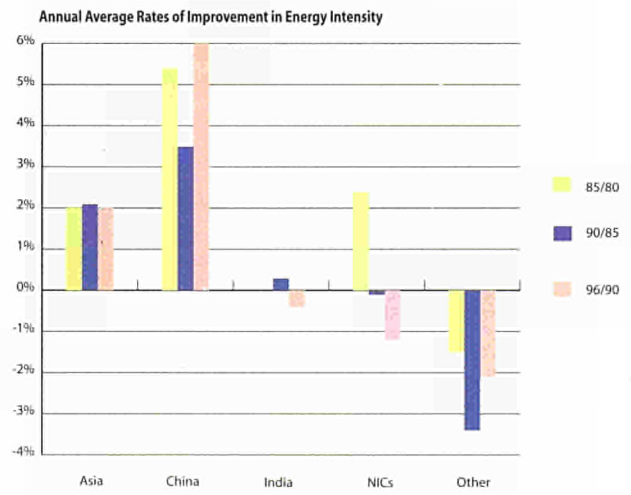
The **energy intensity** indicator for the region has been improving significantly (by about –2.3% per year on average) since 1980 and this evolution has accelerated since the beginning of the 90's. It was mainly due to China (-4.5% per year during the 80's and –7.2% per year since 1990) although India and NICs indicators were quite stable since 1980. China currently has an energy intensity that is amongst the highest in the world. Compared to the European Union, China was about 8 times more energy intensive. But the Asian region was presenting extreme patterns as the energy intensity of the NICs was 15% lower than the United States in 1995 but still 74% higher than the European Union.

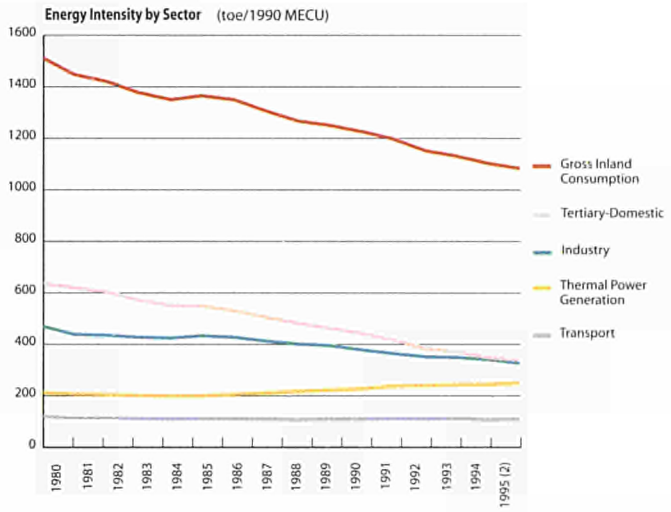
The nation's energy consumption was concentrated in a few major industries that are by their nature highly energy intensive (chemicals, iron and steel, cement, ...) and, in China, used energy inefficiently. The inefficiency results from less efficient technologies, smaller plants, and failure to maintain energy-efficient operations within plants. The continual improvement of energy intensity has been mainly sustained, at regional and national level, by the industrial sector (-30% since 1980 at regional level) notwithstanding the rapid industrialisation of the region, and by the tertiary-domestic sector (-46% since 1980) in spite of improving standards of living both in cities and rural zones. Until now, the contribution of transport remained stable but, as is often the case for developing economies, increased personal wealth has resulted in the desire for more individual and comfortable means of transportation that will be challenging for the future. For example, the number of small cars in China grew from less than 250.000 in 1980 to almost 1.3 million in 1990 and nearly 2 million in 1993. Passenger road traffic grew by 13% per year on average between 1990 and 1994, which was twice the rate of growth for rail traffic. As a consequence, road passenger traffic grew from 32 to 45% of all passenger traffic. Finally the weight of power generation was increasing as the share of electricity in the final demand was rising continuously.

ASIA : ENERGY INTENSITY

toe/1990 MECU	1980	1985	1990	1994	1995	1996(1)
ASIA	1512.8	1367.1	1228.2	1104.3	1085.6	1044.8
China	4770.3	3605.3	3014.8	2155.2	2083.8	1931.2
India	1082.2	1083.4	1065.1	1098.5	1092.2	1063.6
NICs	440.1	390.2	391.5	426.3	420.7	427.1
Other	1034.3	1012.6	1007.4	930.6	918.1	827.3
European Union	285.5	271.0	247.5	240.7	240.4	245.2

(1) Estimates





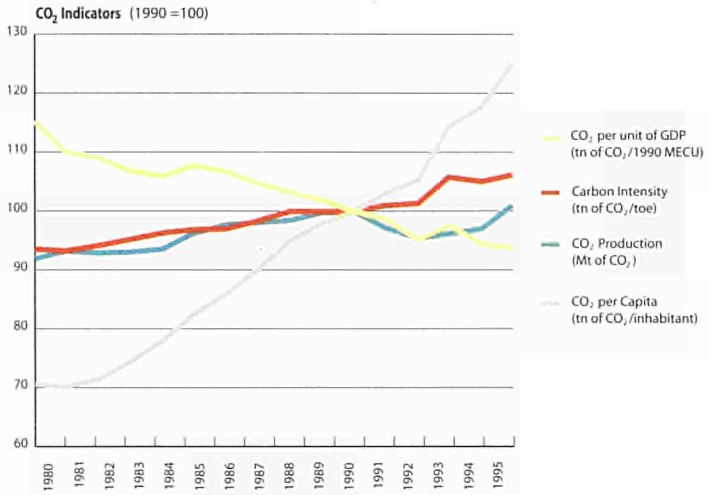
Energy consumption per capita reached only 18% of the European level...

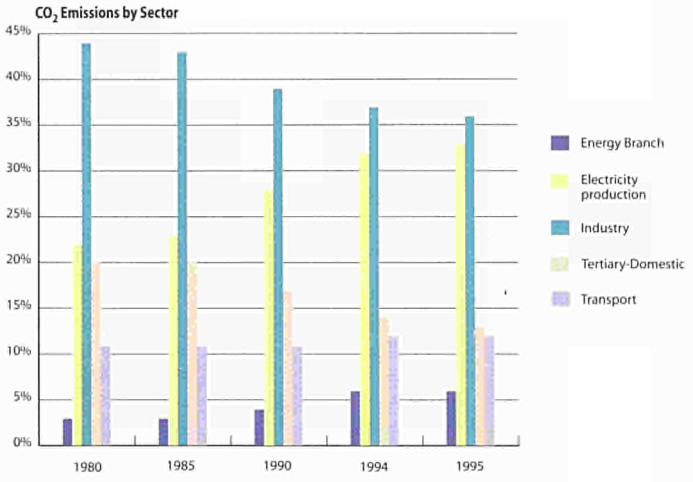
The gross inland consumption per capita increased by 60% between 1980 and 1996 but remained at a rather low level with 0.68 toe/capita, only 18% of the European Union level. One of the lowest levels occurred in India with 0.35 toe/capita, much lower than the African average, while the NICs consumption per capita approached progressively towards the EU level.

ENVIRONMENT

CO_2 emissions increased by 60% since 1990...

China and India are presently the world's highest and second fastest growing sources of greenhouse gases respectively. The air quality deterioration and the pollution from the growing use of





coal as a fuel is expected to worsen, as a bulk of additional steam coal based power capacity will be put on stream, unless adequate regulatory measures can be built-in from the design stage.

In general terms, **CO_2 emissions** have been increasing continuously over the last sixteen years (5356 million tonnes of CO_2 in 1996, compared to 3858 million tonnes in 1990 and 2264 million tonnes in 1980), resulting in a 60% increase since 1990. As the dominant position of solid fuels induces an increase in the carbon intensity of fossil fuels, emissions are increasing twice as rapidly than gross inland energy consumption. This global evolution must nevertheless be shaded. If CO_2 emissions per capita sustained by increasing standards of living were increasing by 3.9% since 1980 with a marked growth since 1990, CO_2 intensity per unit of GDP has been declining by only 1.7% per year on average.

Contributions of power sector and industry, almost equivalent in 1995, reaching together 70% of total CO_2 emissions...

Looking at CO_2 emissions by sector on a regional level, the first conclusion is that the largest sector in terms of emission is industry which by far occupies the first place with about 36% of total emissions (44% in 1980). The power sector, mainly based on solids, increased continuously to approach the industrial contribution in 1995. The tertiary-domestic sector, where renewable energy continued to make a significant contribution, saw its contribution reduced from 20% in 1980 to only 13% in 1995 when its emissions volume increased by more than 50% at the same time. The contribution of transport sector has remained quite stable since 1980, at about 11% of total emissions, even if it has multiplied by 2.5 since 1980.

GLOBAL MARKETS

Increasing energy dependency, mainly related to oil imports from the Middle East...

With an energy dependency in 1996 of about 11%, Asia was increasingly a net **importer of energy**. This is true for oil (net import of 222 Mtoe supplied mainly by the Middle East) and solid fuels (net import of 13 Mtoe reduced from 30 Mtoe in 1980). But Asia remained a net exporter of natural gas (7% per year of growth between 1980 and 1990, and stable since then). In 1990, gas exports accounted for 31% of indigenous production, but this share was reduced to only 20% in 1996 in line with the increasing indigenous consumption. Exports concerned mainly LNG to Japan. At a national level, this picture is quite different. China with a global dependency near to zero is a net exporter of solid fuels but has become a net importer of oil since 1993 for about 8% of indigenous consumption till 1996. India, however, is a net importer of all commercial energy sources except natural gas but oil accounted for 96% of total imports in 1996. The NICs, without significant fossil fuel reserves, are an important net energy importer. Indeed, they depended on foreign supplies for 87% of their consumption in 1996, the rest being mainly completed by nuclear.

ASIA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	969.0	1235.9	1507.5	1700.8	1816.9	1866.6	5.0%	4.1%	3.1%	6.8%	2.7%
Solids	402.6	550.8	684.7	804.9	874.8	889.7	6.5%	4.5%	4.1%	8.7%	1.7%
Oil	226.8	261.4	304.4	325.0	333.7	342.7	2.9%	3.1%	1.6%	2.7%	2.7%
Natural gas	44.8	76.9	113.7	147.7	161.0	178.3	11.4%	8.1%	6.8%	9.0%	10.8%
Nuclear	3.8	13.2	24.0	29.6	32.0	34.9	28.2%	12.7%	5.4%	8.0%	9.2%
Hydro & Wind	13.3	18.8	25.4	29.9	32.8	32.8	7.2%	6.3%	4.1%	9.7%	0.0%
Geothermal	1.8	4.4	5.7	6.6	6.9	7.0	20.0%	5.0%	3.8%	4.4%	1.2%
Other renewable energy sources	275.9	310.4	349.5	357.1	375.8	381.2	2.4%	2.4%	0.5%	5.2%	1.5%
Net Imports	19.4	1.3	86.5	197.6	219.4	222.2	-42.2%	133.3%	22.9%	11.0%	1.3%
Solids	7.0	23.7	30.6	30.1	23.5	13.4	27.8%	5.2%	-0.4%	-22.1%	-42.9%
Oil	30.7	8.0	91.1	203.0	230.1	244.7	-23.5%	62.6%	22.2%	13.4%	6.3%
Crude oil	23.1	14.3	67.8	147.3	170.4	na	-9.1%	36.5%	21.4%	15.7%	na
Oil products	7.6	-6.3	23.3	55.7	59.7	na	-	-	24.3%	7.3%	na
Natural gas	-18.2	-30.5	-35.2	-35.9	-34.3	-35.9	10.9%	2.9%	0.5%	-4.5%	4.6%
Electricity	0.0	0.1	0.1	0.5	0.1	0.0	11.2%	-3.8%	72.7%	-73.2%	-100.0%
Gross Inland Consumption	980.2	1211.2	1563.3	1867.1	1988.3	2055.2	4.3%	5.2%	4.5%	6.5%	3.4%
Solids	411.2	552.9	707.9	839.9	888.1	903.1	6.1%	5.1%	4.4%	5.7%	1.7%
Oil	247.6	265.1	372.3	491.8	526.5	553.7	1.4%	7.0%	7.2%	7.1%	5.2%
Natural gas	26.6	46.3	78.4	111.7	126.2	142.4	11.7%	11.1%	9.3%	13.0%	12.9%
Other (1)	294.7	346.9	404.7	423.7	447.5	455.9	3.3%	3.1%	1.2%	5.6%	1.9%
Electricity Generation in Twh	634.2	904.4	1401.9	1959.5	2128.7	na	7.4%	9.2%	8.7%	8.6%	na
Nuclear	14.7	50.8	92.2	113.6	122.7	na	28.2%	12.7%	5.4%	8.0%	na
Hydro & wind	154.3	218.2	295.6	347.6	381.3	na	7.2%	6.3%	4.1%	9.7%	na
Thermal	465.2	635.4	1014.1	1498.3	1624.8	na	6.4%	9.8%	10.2%	8.4%	na
Generation Capacity in GWe	153.4	230.8	325.8	436.1	466.9	na	8.5%	7.1%	7.6%	7.1%	na
Nuclear	2.9	9.5	14.5	17.0	18.0	na	27.1%	8.8%	4.1%	5.9%	na
Hydro & wind	44.6	61.8	79.0	98.5	102.4	na	6.7%	5.1%	5.7%	3.9%	na
Thermal	105.9	159.6	232.3	320.5	346.5	na	8.6%	7.8%	8.4%	8.1%	na
Average Load Factor in %	47.2	44.7	49.1	51.3	52.1	na	-1.1%	1.9%	1.1%	1.5%	na
Fuel Inputs for Thermal Power Generation	140.5	183.5	297.4	423.9	469.1	na	5.5%	10.1%	9.3%	10.6%	na
Solids	84.2	132.2	224.4	329.6	366.8	na	9.4%	11.2%	10.1%	11.3%	na
Oil	51.6	39.2	47.5	51.8	55.7	na	-5.4%	3.9%	2.2%	7.6%	na
Gas	2.9	7.7	19.8	36.0	39.7	na	21.7%	20.9%	16.0%	10.2%	na
Geothermal	1.8	4.4	5.7	6.6	6.9	na	20.0%	5.0%	3.8%	4.4%	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	28.5	29.8	29.3	30.4	29.8	na	0.9%	-0.3%	0.9%	-2.0%	na
Non-Energy Uses	21.6	26.1	37.5	66.6	90.4	na	3.9%	7.5%	15.5%	35.7%	na
Total Final Energy Demand	795.7	973.2	1190.5	1355.3	1430.2	na	4.1%	4.1%	3.3%	5.5%	na
Solids	299.7	390.0	444.3	481.1	498.3	na	5.4%	2.6%	2.0%	3.6%	na
Oil	156.7	182.4	261.7	332.5	362.7	na	3.1%	7.5%	6.2%	9.1%	na
Gas	13.3	21.8	28.2	38.8	39.7	na	10.3%	5.4%	8.3%	2.5%	na
Electricity	44.6	63.5	97.6	132.1	142.3	na	7.3%	9.0%	7.9%	7.7%	na
Heat	7.4	9.1	14.8	21.4	19.5	na	4.3%	10.1%	9.7%	-9.0%	na
Renewable energy sources	273.9	306.5	343.9	349.5	367.7	na	2.3%	2.3%	0.4%	5.2%	na
CO_2 Emissions in Mt of CO_2	2263.6	2895.9	3858.1	4842.3	5212.5	5356.5	5.1%	5.9%	5.8%	7.6%	2.8%
Indicators											
Population (Million)	2314.6	2535.8	2784.5	2967.0	3007.9	3051.1	1.8%	1.9%	1.6%	1.4%	1.4%
GDP (index 1985=100)	73.1	100.0	143.7	190.8	206.7	222.0	6.5%	7.5%	7.4%	8.3%	7.4%
Gross Inl Cons./GDP (toe/1990 MECU)	1512.8	1367.1	1228.2	1104.3	1085.6	1044.8	-2.0%	-2.1%	-2.6%	-1.7%	-3.8%
Gross Inl Cons./Capita (toe/inhabitant)	0.42	0.48	0.56	0.63	0.66	0.67	2.4%	3.3%	2.9%	5.0%	1.9%
Electricity Generated/Capita (kWh/inhabitant)	274	357	503	660	708	na	5.4%	7.1%	7.0%	7.2%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	1.0	1.1	1.4	1.6	1.7	1.8	3.2%	3.9%	4.2%	6.2%	1.3%
Import Dependency %	2.0	0.1	5.5	10.5	10.9	10.7	-44.7%	121.8%	17.5%	4.3%	-1.7%

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

ASIA : MAIN INDICATORS

	1980	1985	1990	1993	1994	1995	85/80	90/85	94/90	95/94
							Annual % Change			
Gross Inland Consumption (Mtoe)	980.2	1211.2	1563.3	1774.0	1867.1	1988.3	4.3%	5.2%	4.5%	6.5%
Public Thermal Power Generation	135.0	173.9	286.3	377.7	410.3	454.2	5.2%	10.5%	9.4%	10.7%
Autoprod. Thermal Power Generation	3.7	5.2	5.4	6.4	7.0	8.0	6.9%	0.8%	6.7%	13.7%
Energy Branch	27.9	35.0	63.8	104.3	107.7	124.7	4.6%	12.8%	14.0%	15.8%
Final Energy Consumption	795.7	973.2	1190.5	1310.7	1355.3	1430.2	4.1%	4.1%	3.3%	5.5%
Industry	304.4	385.4	483.5	548.8	579.1	601.6	4.8%	4.6%	4.6%	3.9%
Transport	78.2	99.7	141.1	178.5	184.0	202.7	5.0%	7.2%	6.9%	10.2%
Tertiary-Domestic	413.1	488.1	565.9	583.4	592.2	625.9	3.4%	3.0%	1.1%	5.7%
Energy Intensity (toe/1990 MECU)	1512.8	1367.1	1228.2	1133.9	1104.3	1085.6	-2.0%	-2.1%	-2.6%	-1.7%
Public Thermal Power Generation	208.3	196.3	225.0	241.4	242.7	248.0	-1.2%	2.8%	1.9%	2.2%
Autoprod. Thermal Power Generation	5.7	5.9	4.3	4.1	4.2	4.4	0.4%	-6.2%	-0.6%	5.0%
Industry	469.9	435.0	379.9	350.8	342.5	328.5	-1.5%	-2.7%	-2.6%	-4.1%
Transport	120.7	112.6	110.8	114.1	108.8	110.7	-1.4%	-0.3%	-0.5%	1.7%
Tertiary-Domestic	637.5	551.0	444.6	372.9	350.3	341.7	-2.9%	-4.2%	-5.8%	-2.4%
Energy per Capita (Kgoe/inhabitant)	423	478	561	607	629	661	2.4%	3.3%	2.9%	5.0%
Industry	132	152	174	188	195	200	2.9%	2.7%	3.0%	2.5%
Transport	34	39	51	61	62	67	3.1%	5.2%	5.2%	8.7%
Tertiary-Domestic	178	192	203	200	200	208	1.5%	1.1%	-0.4%	4.2%
Electricity Share (%)										
Final Energy Consumption	5.6%	6.5%	8.2%	9.1%	9.7%	9.9%	3.1%	4.7%	4.4%	2.1%
Industry	9.7%	10.6%	12.4%	12.6%	13.1%	13.6%	1.8%	3.2%	1.4%	4.0%
Transport	0.6%	0.9%	1.0%	1.1%	1.1%	1.1%	7.8%	1.5%	3.2%	-0.1%
Tertiary-Domestic	3.5%	4.5%	6.4%	8.3%	9.2%	9.3%	4.7%	7.5%	9.4%	1.4%
Total Renewable Consumption (Mtoe)	290.9	333.6	380.6	384.5	393.6	415.4	2.8%	2.7%	0.8%	5.5%
Hydro	13.3	18.8	25.4	27.6	29.9	32.8	7.2%	6.3%	4.1%	9.7%
Biomass	275.8	310.4	349.5	351.1	357.1	375.8	2.4%	2.4%	0.5%	5.2%
Other renewable energy sources	1.8	4.4	5.7	5.8	6.6	6.9	20.0%	5.0%	3.8%	4.4%
Renewable intensity (toe/1990MECU)	448.9	376.6	299.0	245.8	232.8	226.8	-3.5%	-4.5%	-6.1%	-2.6%
Renewable per capita (Kgoe/inhabitant)	125.7	131.6	136.7	131.5	132.7	138.1	0.9%	0.8%	-0.7%	4.1%
CO_2 Production (Mt of CO_2)	2263.6	2895.9	3858.1	4632.8	4842.3	5212.5	5.1%	5.9%	5.8%	7.6%
Public Thermal Power Generation	483.7	640.6	1058.2	1397.5	1520.1	1683.9	5.8%	10.6%	9.5%	10.8%
Autoprod. Thermal Power Generation	13.8	19.5	20.7	24.1	26.4	30.4	7.3%	1.1%	6.3%	15.1%
Energy Branch	71.9	86.2	156.2	258.7	263.6	309.2	3.7%	12.6%	14.0%	17.3%
Industry	986.9	1243.4	1509.1	1711.2	1787.4	1855.8	4.7%	3.9%	4.3%	3.8%
Transport	251.8	317.1	439.9	550.4	565.1	621.0	4.7%	6.8%	6.5%	9.9%
Tertiary-Domestic	455.5	589.1	673.9	673.6	658.8	697.1	5.3%	2.7%	-0.6%	5.8%
Carbon Intensity (tn of CO_2/toe)	2.3	2.4	2.5	2.6	2.6	2.6	0.7%	0.6%	1.2%	1.1%
Public Power Generation	3.1	3.0	3.1	3.2	3.2	3.2	-0.6%	0.4%	0.7%	0.4%
Public Thermal Power Generation	3.6	3.7	3.7	3.7	3.7	3.7	0.6%	0.1%	0.1%	0.1%
Autoprod. Power Generation	3.7	3.7	3.8	3.7	3.7	3.8	0.3%	0.1%	-0.2%	1.4%
Autoprod. Thermal Power Generation	3.7	3.8	3.8	3.8	3.8	3.8	0.3%	0.3%	-0.3%	1.2%
Energy Branch	2.6	2.5	2.4	2.5	2.4	2.5	-0.9%	-0.1%	0.0%	1.4%
Industry	3.2	3.2	3.1	3.1	3.1	3.1	-0.1%	-0.7%	-0.3%	-0.1%
Transport	3.2	3.2	3.1	3.1	3.1	3.1	-0.3%	-0.4%	-0.4%	-0.2%
Tertiary-Domestic	1.1	1.2	1.2	1.2	1.1	1.1	1.8%	-0.3%	-1.7%	0.1%
CO_2 per Capita (kg of CO_2/inhabitant)	978	1142	1386	1585	1632	1733	3.2%	3.9%	4.2%	6.2%
Industry	426	490	542	585	602	617	2.8%	2.0%	2.7%	2.4%
Transport	109	125	158	188	190	206	2.8%	4.8%	4.8%	8.4%
Tertiary-Domestic	197	232	242	230	222	232	3.4%	0.8%	-2.1%	4.4%
CO_2 per unit of GDP (tn of CO_2/1990 MECU)	3494	3269	3031	2961	2864	2846	-1.3%	-1.5%	-1.4%	-0.6%
Public Thermal Power Generation	747	723	831	893	899	919	-0.6%	2.8%	2.0%	2.3%
Autoprod. Thermal Power Generation	21	22	16	15	16	17	0.8%	-5.9%	-1.0%	6.2%
Energy Branch	111	97	123	165	156	169	-2.6%	4.8%	6.2%	8.3%
Industry	1523	1404	1186	1094	1057	1013	-1.6%	-3.3%	-2.8%	-4.2%
Transport	389	358	346	352	334	339	-1.6%	-0.7%	-0.8%	1.4%
Tertiary-Domestic	703	665	529	431	390	381	-1.1%	-4.5%	-7.4%	-2.3%

NICS : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1995(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	18.0	27.7	34.1	30.9	32.7	34.7	9.0%	4.3%	-2.4%	5.7%	6.3%
Solids	10.2	11.5	8.2	3.6	2.8	2.4	2.5%	-6.5%	-18.6%	-22.8%	-14.8%
Oil	0.2	0.2	0.3	0.1	0.1	0.1	3.7%	4.6%	-31.8%	-10.0%	0.0%
Natural gas	1.6	1.1	1.2	0.8	0.8	0.8	-7.5%	1.8%	-8.9%	3.7%	0.0%
Nuclear	3.0	11.9	22.3	24.4	26.7	29.1	31.2%	13.5%	2.2%	9.4%	9.1%
Hydro & Wind	0.4	0.9	1.3	1.1	1.2	1.2	16.6%	6.5%	-2.8%	10.7%	-1.4%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	2.6	2.1	0.8	1.0	1.1	1.2	-4.1%	-16.5%	3.1%	15.2%	5.5%
Net Imports	70.6	81.6	148.0	229.3	241.4	252.7	2.9%	12.7%	11.6%	5.3%	4.7%
Solids	8.1	22.7	33.2	48.4	53.0	53.0	22.8%	7.8%	9.9%	9.6%	0.0%
Oil	62.5	58.9	111.2	168.3	174.0	181.7	-1.2%	13.6%	10.9%	3.4%	4.4%
Crude oil	74.6	73.8	108.1	160.8	168.7	na	-0.2%	7.9%	10.4%	4.9%	na
Oil products	-12.1	-14.9	3.1	7.5	5.3	na	4.3%	-	24.3%	-29.3%	na
Natural gas	0.0	0.0	3.8	12.0	13.8	17.5	-	-	33.6%	15.5%	26.2%
Electricity	0.0	-0.1	-0.2	0.6	0.5	0.6	22.6%	10.5%	-	-5.4%	8.6%
Gross Inland Consumption	83.6	104.2	163.0	231.8	245.9	265.5	4.5%	9.4%	9.2%	6.1%	8.0%
Solids	17.3	32.7	41.1	48.7	51.1	55.4	13.6%	4.7%	4.4%	4.9%	8.5%
Oil	58.7	55.6	92.7	143.2	150.6	159.8	-1.1%	10.8%	11.5%	5.2%	6.1%
Natural gas	1.6	1.1	4.9	12.9	14.6	18.3	-7.5%	35.5%	27.3%	13.6%	25.0%
Other (1)	6.0	14.8	24.3	27.0	29.5	32.0	19.7%	10.5%	2.7%	9.4%	8.5%
Electricity Generation in Twh	99.5	142.8	239.3	328.3	357.5	na	7.5%	10.9%	8.2%	8.9%	na
Nuclear	11.7	45.5	85.8	93.5	102.3	na	31.2%	13.5%	2.2%	9.4%	na
Hydro & wind	4.9	10.6	14.5	13.0	14.4	na	16.6%	6.6%	-2.8%	10.6%	na
Thermal	82.9	86.7	139.0	221.8	240.8	na	0.9%	9.9%	12.4%	8.6%	na
Generation Capacity in GWe	23.8	43.1	52.6	70.5	76.0	na	12.6%	4.1%	7.6%	7.8%	na
Nuclear	1.9	8.0	12.8	12.8	13.8	na	33.9%	9.8%	0.0%	7.8%	na
Hydro & wind	2.8	4.9	5.1	6.4	7.0	na	11.8%	0.9%	5.8%	9.5%	na
Thermal	19.2	30.2	34.7	51.3	55.3	na	9.5%	2.8%	10.3%	7.6%	na
Average Load Factor in %	47.7	37.8	52.0	53.2	53.7	na	-4.5%	6.6%	0.6%	1.0%	na
Fuel Inputs for Thermal Power Generation	18.7	19.4	31.5	48.5	52.9	na	0.7%	10.2%	11.4%	8.9%	na
Solids	2.3	11.0	15.5	23.0	24.7	na	37.0%	7.1%	10.4%	7.6%	na
Oil	16.4	8.4	13.6	18.7	20.9	na	-12.5%	10.0%	8.4%	11.8%	na
Gas	0.0	0.0	2.5	6.9	7.2	na	-	-	29.0%	5.1%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	38.1	38.4	37.9	39.3	39.2	na	0.2%	-0.3%	0.9%	-0.2%	na
Non-Energy Uses	6.2	9.2	13.9	25.6	27.3	na	8.3%	8.5%	16.5%	6.8%	na
Total Final Energy Demand	56.4	68.1	104.8	140.5	150.2	na	3.9%	9.0%	7.6%	6.8%	na
Solids	14.2	20.4	24.3	23.2	23.2	na	7.5%	3.5%	-1.1%	0.0%	na
Oil	31.4	34.3	59.9	85.3	91.0	na	1.8%	11.8%	9.2%	6.7%	na
Gas	0.9	0.9	2.3	6.1	7.7	na	1.4%	20.0%	27.9%	27.0%	na
Electricity	7.3	10.4	17.6	25.0	27.1	na	7.2%	11.0%	9.2%	8.5%	na
Heat	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Renewable energy sources	2.6	2.1	0.9	1.0	1.1	na	-4.1%	-16.4%	3.1%	15.1%	na
CO_2 Emissions in Mt of CO_2	226.4	272.8	416.2	563.5	601.8	na	3.8%	8.8%	7.9%	6.8%	na
Indicators											
Population (Million)	63.08	67.89	71.52	74.57	75.33	76.1	1.5%	1.0%	1.0%	1.0%	1.0%
GDP (index 1985=100)	71.1	100.0	155.9	203.6	218.9	232.8	7.1%	9.3%	6.9%	7.5%	6.4%
Gross Inl Cons./GDP (toe/1990 MECU)	440.1	390.2	391.5	426.3	420.7	427.1	-2.4%	0.1%	2.2%	-1.3%	1.5%
Gross Inl Cons./Capita (toe/inhabitant)	1.32	1.53	2.28	3.11	3.26	3.49	3.0%	8.2%	8.1%	5.0%	6.9%
Electricity Generated/Capita (kWh/inhabitant)	1577	2103	3346	4402	4746	na	5.9%	9.7%	7.1%	7.8%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	3.6	4.0	5.8	7.6	8.0	na	2.3%	7.7%	6.8%	5.7%	na
Import Dependency %	79.1	73.7	83.1	91.5	90.7	87.5	-1.4%	2.4%	2.4%	-0.8%	-3.5%

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

CHINA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	572.7	741.5	877.7	977.1	1053.9	1068.9	5.3%	3.4%	2.7%	7.9%	1.4%
Solids	303.9	427.4	529.1	622.4	680.4	686.0	7.1%	4.4%	4.1%	9.3%	0.8%
Oil	107.9	127.1	140.8	146.1	149.7	156.8	3.3%	2.1%	0.9%	2.5%	4.7%
Natural gas	12.0	10.8	12.8	16.3	16.7	18.3	-2.0%	3.4%	6.3%	2.2%	9.6%
Nuclear	0.0	0.0	0.0	3.6	3.3	3.6	-	-	-	-7.7%	8.9%
Hydro & Wind	5.0	7.9	10.9	14.5	16.4	16.1	9.7%	6.5%	7.3%	13.3%	-1.9%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	144.0	168.2	184.1	174.1	187.4	188.0	3.1%	1.8%	-1.4%	7.6%	0.4%
Net Imports	-19.7	-39.1	-32.0	-9.8	-10.1	-8.8	14.7%	-3.9%	-25.6%	2.8%	-12.8%
Solids	-2.3	-2.9	-8.4	-14.9	-20.4	-23.2	4.8%	23.5%	15.6%	36.8%	13.6%
Oil	-17.4	-36.3	-23.8	5.3	10.8	14.7	15.8%	-8.1%	-	104.6%	36.7%
Crude oil	-13.2	-30.3	-21.4	-6.1	-1.1	na	18.1%	-6.7%	-26.8%	-81.5%	na
Oil products	-4.3	-6.0	-2.4	11.4	11.9	na	7.0%	-16.9%	-	4.3%	na
Natural gas	0.0	0.0	0.0	0.0	0.0	0.1	-	-	-	-	-
Electricity	0.0	0.1	0.2	-0.2	-0.5	-0.5	-	11.4%	-	163.1%	0.0%
Gross Inland Consumption	557.2	685.2	839.9	969.3	1037.9	1055.1	4.2%	4.2%	3.6%	7.1%	1.7%
Solids	306.6	404.8	515.4	614.7	658.1	662.9	5.7%	4.9%	4.5%	7.1%	0.7%
Oil	89.7	93.3	116.5	146.1	156.4	166.6	0.8%	4.6%	5.8%	7.0%	6.5%
Natural gas	12.0	10.8	12.8	16.3	16.7	18.4	-2.0%	3.4%	6.3%	2.2%	10.3%
Other (1)	149.1	176.2	195.1	192.1	206.6	207.3	3.4%	2.1%	-0.4%	7.6%	0.3%
Electricity Generation in TWh	300.6	410.7	621.2	928.1	1007.7	na	6.4%	8.6%	10.6%	8.6%	na
Nuclear	0.0	0.0	0.0	13.9	12.8	na	-	-	-	-7.7%	na
Hydro & wind	58.2	92.4	126.7	168.3	190.6	na	9.7%	6.5%	7.3%	13.3%	na
Thermal	242.4	318.3	494.5	745.9	804.3	na	5.6%	9.2%	10.8%	7.8%	na
Generation Capacity in GWe	65.8	87.0	137.9	190.1	204.1	na	5.7%	9.6%	8.4%	7.4%	na
Nuclear	0.0	0.0	0.0	2.1	2.1	na	-	-	-	0.0%	na
Hydro & wind	20.3	26.4	36.0	46.0	48.0	na	5.4%	6.4%	6.3%	4.3%	na
Thermal	45.6	60.6	101.8	142.0	154.0	na	5.9%	10.9%	8.7%	8.5%	na
Average Load Factor in %	52.1	53.9	51.4	55.7	56.4	na	0.7%	-0.9%	2.0%	1.1%	na
Fuel Inputs for Thermal Power Generation	78.3	99.1	154.2	224.9	249.1	na	4.8%	9.2%	9.9%	10.8%	na
Solids	57.9	81.8	138.0	212.5	235.1	na	7.2%	11.0%	11.4%	10.6%	na
Oil	20.2	16.9	15.2	11.5	13.3	na	-3.5%	-2.1%	-6.7%	15.0%	na
Gas	0.2	0.3	0.9	0.9	0.7	na	11.7%	23.8%	-0.1%	-16.0%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	26.6	27.6	27.6	28.5	27.8	na	0.7%	0.0%	0.8%	-2.6%	na
Non-Energy Uses	8.3	7.1	7.3	22.9	45.2	na	-3.1%	0.4%	33.2%	97.7%	na
Total Final Energy Demand	461.8	574.5	678.1	741.5	781.1	na	4.5%	3.4%	2.3%	5.3%	na
Solids	230.5	299.2	345.0	381.4	401.1	na	5.4%	2.9%	2.5%	5.2%	na
Oil	51.8	60.1	79.5	90.4	98.2	na	3.0%	5.8%	3.3%	8.6%	na
Gas	6.8	7.9	10.8	12.4	9.1	na	3.2%	6.4%	3.4%	-26.5%	na
Electricity	21.3	29.9	44.0	61.9	65.9	na	7.0%	8.0%	8.9%	6.6%	na
Heat	7.4	9.1	14.8	21.4	19.5	na	4.3%	10.1%	9.7%	-9.0%	na
Renewable energy sources	144.0	168.2	184.1	174.1	187.4	na	3.1%	1.8%	-1.4%	7.6%	na
CO_2 Emissions in Mt of CO_2	1412.5	1794.1	2276.9	2841.8	3050.5	na	4.9%	4.9%	5.7%	7.3%	na
Indicators											
Population (Million)	981.24	1051.01	1135.16	1190.92	1200.24	1212.24	1.4%	1.6%	1.2%	0.8%	1.0%
GDP (index 1985=100)	61.5	100.0	146.6	236.6	262.1	287.5	10.2%	7.9%	12.7%	10.7%	9.7%
Gross Inl Cons./GDP (toe/1990 MECU)	4770.3	3605.3	3014.8	2155.2	2083.8	1931.2	-5.4%	-3.5%	-8.0%	-3.3%	-7.3%
Gross Inl Cons./Capita (toe/inhabitant)	0.57	0.65	0.74	0.81	0.86	0.87	2.8%	2.6%	2.4%	6.2%	0.7%
Electricity Generated/Capita (kWh/inhabitant)	306	391	547	779	840	na	5.0%	7.0%	9.2%	7.7%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	1.4	1.7	2.0	2.4	2.5	na	3.5%	3.3%	4.4%	6.5%	na
Import Dependency %	-3.5	-5.7	-3.8	-1.0	-1.0	-0.8	10.0%	-7.8%	-28.2%	-3.9%	-14.2%

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

INDIA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	123.6	172.8	223.3	257.5	273.2	281.1	6.9%	5.3%	3.6%	6.1%	2.9%
Solids	58.1	75.5	104.3	127.6	135.7	140.0	5.4%	6.7%	5.2%	6.4%	3.2%
Oil	9.6	31.0	35.6	34.0	36.7	35.7	26.4%	2.8%	-1.2%	8.0%	-2.5%
Natural gas	1.2	3.8	10.1	13.9	15.6	17.3	25.3%	21.5%	8.3%	12.0%	11.1%
Nuclear	0.8	1.3	1.6	1.5	1.8	2.1	10.7%	4.3%	-2.1%	23.9%	13.8%
Hydro & Wind	4.0	4.4	6.2	7.1	7.2	7.3	1.9%	7.0%	3.7%	0.8%	1.6%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	49.8	56.8	65.6	73.5	76.3	78.6	2.7%	2.9%	2.9%	3.8%	3.1%
Net Imports	23.5	16.8	29.7	44.7	50.9	52.9	-6.5%	12.1%	10.7%	14.0%	3.9%
Solids	0.3	1.1	3.5	5.0	5.4	2.0	32.3%	24.7%	9.8%	7.6%	-62.7%
Oil	23.2	15.7	26.1	39.5	45.4	50.8	-7.6%	10.8%	10.9%	14.9%	11.9%
Crude oil	16.3	13.0	20.6	28.2	28.2	na	-4.4%	9.6%	8.2%	0.1%	na
Oil products	6.9	2.6	5.6	11.3	17.2	na	-17.7%	16.3%	19.5%	51.5%	na
Natural gas	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Electricity	0.0	0.0	0.1	0.1	0.1	0.1	14.9%	-	0.8%	9.0%	0.0%
Gross Inland Consumption	143.7	186.8	249.6	301.0	317.6	330.6	5.4%	6.0%	4.8%	5.5%	4.1%
Solids	56.3	76.3	105.9	134.1	137.7	142.0	6.3%	6.8%	6.1%	2.6%	3.1%
Oil	31.5	44.1	60.1	70.7	78.9	83.2	6.9%	6.4%	4.1%	11.6%	5.5%
Natural gas	1.2	3.8	10.1	13.9	15.6	17.3	25.3%	21.5%	8.3%	12.0%	10.8%
Other (1)	54.6	62.5	73.5	82.2	85.4	88.1	2.7%	3.3%	2.9%	3.9%	3.2%
Electricity Generation in TWh	119.3	183.4	289.4	385.6	414.6	na	9.0%	9.6%	7.4%	7.5%	na
Nuclear	3.0	5.0	6.1	5.6	7.0	na	10.7%	4.3%	-2.1%	23.9%	na
Hydro & wind	46.6	51.0	71.7	82.7	83.4	na	1.9%	7.0%	3.7%	0.8%	na
Thermal	69.7	127.4	211.6	297.2	324.2	na	12.8%	10.7%	8.9%	9.1%	na
Generation Capacity in GWe	33.3	52.3	73.7	91.5	93.7	na	9.4%	7.1%	5.6%	2.4%	na
Nuclear	0.9	1.3	1.6	2.0	2.0	na	9.1%	3.3%	6.4%	0.0%	na
Hydro & wind	11.8	15.5	18.8	20.9	21.3	na	5.6%	3.9%	2.7%	1.9%	na
Thermal	20.6	35.5	53.3	68.6	70.4	na	11.4%	8.5%	6.5%	2.6%	na
Average Load Factor in %	40.9	40.0	44.9	48.1	50.5	na	-0.4%	2.3%	1.8%	5.0%	na
Fuel Inputs for Thermal Power Generation	22.3	34.1	62.7	88.1	100.5	na	8.9%	12.9%	8.9%	14.1%	na
Solids	19.0	30.2	56.7	80.7	92.6	na	9.7%	13.4%	9.3%	14.7%	na
Oil	2.8	2.7	2.7	2.5	2.5	na	-0.6%	-0.5%	-1.4%	0.1%	na
Gas	0.5	1.2	3.3	4.8	5.4	na	21.5%	22.8%	9.5%	12.0%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	26.9	32.1	29.0	29.0	27.7	na	3.6%	-2.0%	0.0%	-4.4%	na
Non-Energy Uses	4.7	5.9	7.7	7.9	5.7	na	4.9%	5.5%	0.7%	-28.2%	na
Total Final Energy Demand	112.0	146.2	180.4	212.9	225.9	na	5.5%	4.3%	4.2%	6.1%	na
Solids	30.6	43.0	46.1	50.8	48.5	na	7.0%	1.4%	2.4%	-4.5%	na
Oil	23.2	32.5	44.5	56.5	66.4	na	7.0%	6.5%	6.1%	17.6%	na
Gas	0.6	2.4	5.6	6.8	7.7	na	30.8%	18.5%	5.0%	12.0%	na
Electricity	7.7	11.4	18.5	25.2	27.1	na	8.3%	10.2%	8.0%	7.3%	na
Heat	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Renewable energy sources	49.8	56.8	65.6	73.5	76.3	na	2.7%	2.9%	2.9%	3.8%	na
CO_2 Emissions in Mt of CO_2	291.1	422.3	591.7	751.1	823.4	na	7.7%	7.0%	6.1%	9.6%	na
Indicators											
Population (Million)	687.33	765.15	849.52	913.60	929.36	946.09	2.2%	2.1%	1.8%	1.7%	1.8%
GDP (index 1985=100)	77.0	100.0	136.0	158.9	168.7	180.3	5.4%	6.3%	4.0%	6.1%	6.9%
Gross Inl Cons./GDP (toe/1990 MECU)	1082.2	1083.4	1065.1	1098.5	1092.2	1063.6	0.0%	-0.3%	0.8%	-0.6%	-2.6%
Gross Inl Cons./Capita (toe/inhabitant)	0.21	0.24	0.29	0.33	0.34	0.35	3.1%	3.8%	2.9%	3.7%	2.3%
Electricity Generated/Capita (kWh/inhabitant)	174	240	341	422	446	na	6.7%	7.3%	5.5%	5.7%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	0.4	0.6	0.7	0.8	0.9	na	5.4%	4.8%	4.2%	7.8%	na
Import Dependency %	16.3	9.0	11.9	14.8	16.0	16.0	-11.3%	5.8%	5.7%	8.1%	-0.2%

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

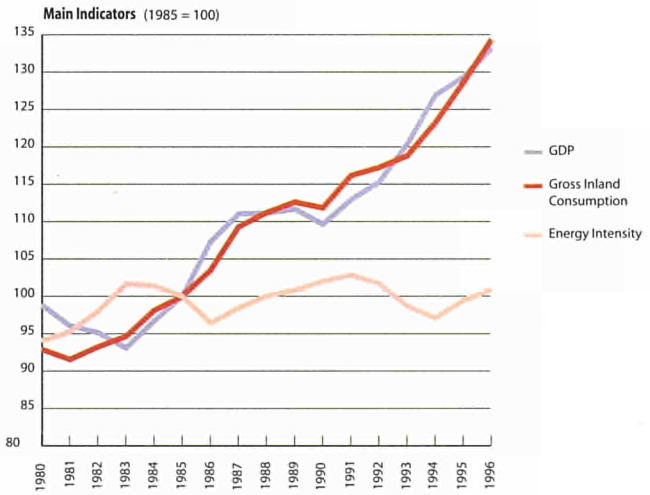
PART IX LATIN AMERICA

LATIN AMERICA: Recent evolution (1985-1996)

- Economic activity rebounded since the beginning of the 90's
- Increasing final energy consumption driven by growing economic activities since 1990
- The structure by sector of final energy consumption remained stable since 1980
- Electricity consumption in industry challenged by low labour cost
- Gross Inland Consumption dominated by oil and renewable energy sources
- Hydrocarbon production boosted by technological improvements and privatisation
- Hydro dominated the electricity generation but development of natural gas was under progress
- Privatisation and liberalisation of the electricity sector under way since 1992
- In 1996 energy intensity returned to the peak value reached in 1990
- CO_2 emissions increased by 28% since 1990
- The region increased substantially its oil exports

Economic activity rebounded since the beginning of the 90's...

Latin America includes all the countries of Central and South America (excluding Mexico) and the Caribbean islands. It is a mix of large and medium sized countries, such as Brazil or Venezuela, located in South America and a multitude of smaller ones with different economic structures and energy resources, mainly located in Central America. In general, the level of economic development is intermediate, between the OECD members and the less developed countries of Africa and Asia. In 1995, the average GDP per capita in Latin America was 2.2 thousand 1990 ECU per inhabitant, or seven times less than the European average, but nearly triple of Asia. Since the beginning of the 90's the GDP growth rate is more sustained than during the 80's with an average of almost 3.3% per year compared to only 1% per year during the 80's.



GDP PER CAPITA : REGION COMPARISON

Thousand 1990 MECU / inhabitant	1980	1985	1990	1994	1995	1996
European Union	12.02	12.76	14.58	14.95	15.28	15.49
Middle East	4.12	3.11	2.57	2.51	2.51	2.55
Latin America	2.15	1.96	1.96	2.12	2.12	2.15
Central and Eastern Europe	1.82	1.88	1.80	1.37	1.44	1.47
CIS (1)	2.13	2.40	2.50	1.53	1.44	1.40
Asia	0.28	0.35	0.46	0.57	0.61	0.64
Africa	0.63	0.59	0.57	0.52	0.52	0.54

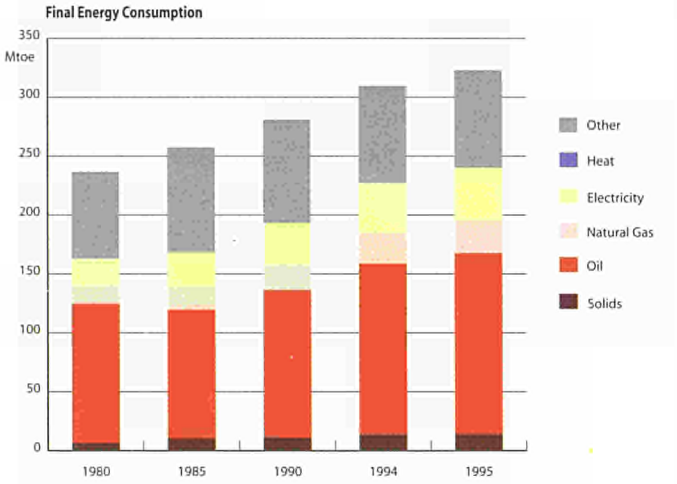
(1) Including Baltic countries for statistical reasons

ENERGY OUTLOOK

Increasing final energy consumption driven by growing economic activity since 1990....

Final energy consumption has increased steadily by about 1.7% during the 80's marked by an economic crisis during the first part of the decade. Sustained by a growing economy, the final energy consumption growth reached 2.8% per year since 1990, marked by a 4.3% jump in 1995. The additional consumption was mainly covered by oil (67% of the overall increment), electricity (21%) and gas (16%) although biomass consumption demonstrated some reduction in line with a reduction of the alcohol program developed in Brazil. This program has favourably influenced the development of biomass but has suffered from low oil prices on the international market since the beginning of the 90's. One country, Brazil, absorbed about 43% of total final energy demand in Latin America and its share has been quite stable since 1980. Argentina with only 12% of total final consumption and Venezuela with 10% followed it. Therefore, developments in the final energy demand in Latin America were dominated by the evolution of Brazilian

1 Excluding Mexico



energy demand, except in the case of natural gas, whose development was determined by Argentina and Venezuela, which are also the main gas producers.

The structure by sector of final energy consumption remained stable since 1980...

The structure by sector of final energy consumption has remained quite stable since 1980: industrial share evolved from 39% in 1980 to 36% in 1995, transportation from 31% in 1980 to 33% in 1998 and the tertiary-domestic sector remained stable. This relative stability was the result of two phenomena. First the reasonably stable contribution of industrial production in gross domestic production, in spite of a marked reduction during the economic recession in the first half of the 80's, although in other less well developed regions this share was increasing. Secondly the increasing share of high-intensive energy industries in relation to the transfer of heavy industries from the industrialised countries that compensated for increasing energy consumption per employee in the service sector. As in the OECD, the contribution of transport to the final consumption of oil is close to 60%, reflecting the traffic saturation of major cities (Mexico, Sao Paulo, Rio de Janeiro, ...).

Electricity consumption in industry challenged by low labour cost...

The share of electricity in final consumption reached about 15% in 1995 from 12% in 1985 and 10% in 1980. Compared to the OECD region, the contribution of electricity in industry reached only a little more than 50% of the OECD level owing to the fact that the low-cost of industrial labour was not pressing for mechanisation and automation of industrial processes. On the other side, the contribution of electricity in the tertiary-domestic sector was equivalent to the OECD, resulting from low heating demand in the equatorial area where a significant share of Latin America's population is concentrated. This reinforced the contribution of specific electricity demand driven by electrical appliance's development in relation to improvement of living standards. But the level of electrification varies largely through Latin America, as the electricity share in final energy demand from 1.4% in Haiti to 18.9% in Uruguay. Generally speaking electrification was almost lower in Central America (Costa-Rica and Jamaica excepted) than in South America.

Gross Inland Consumption dominated by oil and renewable energy sources...

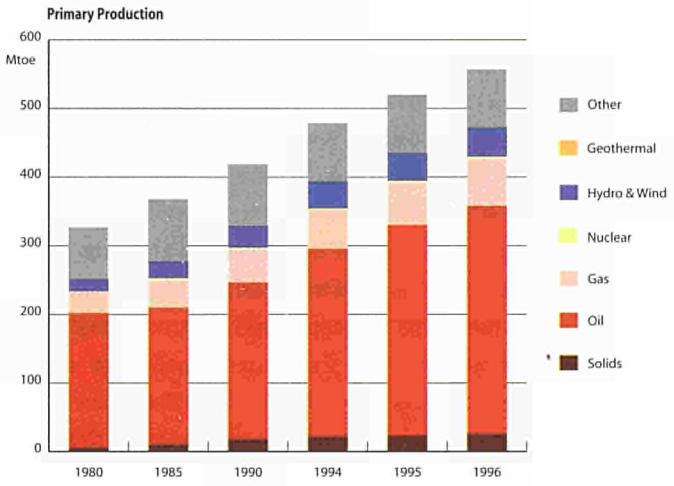
Gross inland energy consumption was dominated by oil (48% of total in 1996 from 55% in 1980). After oil, renewable energy sources, mainly biomass (85 Mtoe in 1995) and hydro (44 Mtoe in 1995), came second in satisfying 31% of total demand in 1996 as in 1980. Natural gas contributions doubled in these last fifteen years and represented 16% of the total in 1995 (10% in 1980). Robust activity was thus continuing in Central and South America to develop the infrastructure needed to deliver natural gas to industrial consumers and electricity power generators. Solid fuels remained marginal with only 6% of the 1996 total, the bulk of consumption (65%) being located in Brazil. There is also some participation of nuclear energy in Argentina and Brazil but it represents less than 1% of the total in 1996. Since 1990, additional consumption of fossil fuel of about 79 Mtoe has been covered respectively by oil (48 %), natural gas (27%), hydro (15%) and solid fuels (10%) eventhough biomass contribution was declining by about 6 Mtoe.

In the future, gas consumption that increased by about 9% in 1995 and 12% in 1996, will continue to expand rapidly. There are extensive plans to expand natural gas pipelines throughout South America: these concern the Gas-Andes pipeline to supply Santiago (Chile) from Argentina, the Bolivia-to-Brazil pipeline to provide gas to the Sao Paulo region and then on to Porto Alegre. Two projects also exist to connect Argentina and Uruguay with the possibility to extend to Brazil. Bolivia and Paraguay are negotiating the construction of a link between Yacuiba, on the Bolivia-Paraguay border, to Asuncion. Finally, the Colombian government has instituted an impressive gas plan to bring natural gas to consumers in all of the country's major population and industrial areas. A new residential and industrial distribution system alongside the pipeline is planned.

Hydrocarbon production boosted by technological improvements and privatisation...

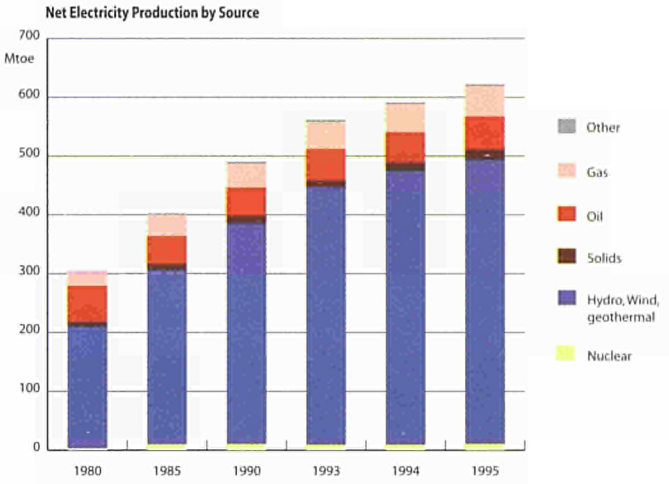
Indigenous **energy production** has grown since 1980 on average by more than 3.4% per year, with an even more noticeable acceleration in 1995 (8.8%) and 1996 (7.0%). Production was dominated by oil (59% of total in 1996) followed by biomass (15%), natural

gas (12%), hydro and wind (8%), solid fuels (5%) and nuclear (less than 1%). In 1996, Venezuela dominated oil (51%) and natural gas production (39%). Other major oil producers were Brazil (15%), Argentina (12%) and Columbia (10%) although Argentina contributed to gas production at the same level as Venezuela. Notable gains in oil production are in prospect for Argentina, Venezuela, Colombia and Brazil. Major improvements in Venezuela's output have already been achieved through agreements with foreign investors to revive production from existing oil fields, using new seismic and drilling technologies. Hydrocarbon production was boosted in a lot of other countries since the beginning of the 90's as a result of two developments: the drastic restructuring and privatisation of former state oil and gas companies and increased private foreign investment encouraged by changes in investment laws and more favourable tax regimes. Brazil was mainly responsible for hydro and biomass production (54% and 66% respectively of the region's production). Finally several new low-cost coal producers, including Colombia and Venezuela, have entered the coal supply picture in recent years and are rapidly penetrating world coal trade markets.



Hydro dominated the electricity generation but development of natural gas was under progress...

Electricity generation in the region grew steadily by 4.8% per year on average in the period 1980-1995. Hydroelectric dams remained the dominant source of electricity generation in Central and South America with 76% in 1995 (67% in 1980). Brazil supplied more than half of hydro production. Thermal generation satisfying 22% of total generation in 1995 has grown by 2.2 % on average since 1980 but the growth rate has been continuously increasing: 0.7% per year on average during the first half of the 80's, 1.9% during the second half and 3.9% since 1990 with even a jump of 10% in 1995. Input needs are covered equally by oil and gas (38% in 1995) followed by solid fuels (13%) and biomass (8%). But the picture differs at national level. In the case of Brazil where the contribution of thermal power represented only 7% of total production, solid fuels, oil, and biomass shared input almost equally since 1980. In Venezuela and Argentina, gas dominated the fuel inputs with 75% and 82% respectively in 1995.



The countries of Central and South America are moving to diversify fuel sources for power generation. Hydropower has dominated electricity generation, but rapid demand growth and periodic water shortages have led to some power shortages. Natural gas is an attractive alternative to oil and coal-fired generation. Several factors influence the growing use of natural gas for electricity generation. They include the development of efficient gas-fired generating capacity, the adoption of tight monetary policies and the integration of markets throughout the region. Controlling inflation rates has made it possible to develop long-term contracts between gas producers and power generators, which in turn have made it easier to attract the financing needed for pipeline projects. Market integration is helping to reduce tariffs and bring regional convergence to natural gas prices.

Privatisation and liberalisation of the electricity sector under way since 1992...

Many countries in Central and South America have begun electricity sector privatisation programs. Brazil's Electrobras is still 47.5% state-owned, but 23% of the 62 companies in Brazil's electricity sector have been privatised. Several steps have been taken by the Brazilian government to encourage competition in the electricity industry. The Brazilian national grid, National System of Electrical Power Transmission, was established in 1993, and legislation has been enacted to require third-party access to the transmission grid. Since 1992, the Argentine Electricity Act was enacted, unbundling the electricity industry completely. The generation sector is organised on a competitive basis, with independent

generation companies selling their product on the wholesale electricity market or by private contracts with other market participants. In Chile, the greater part of electricity infrastructure was privately owned. In Colombia, the electricity sector has been undergoing privatisation and since 1992, Columbia has encouraged private investment in power generation by allowing companies to build, own and operate (BOO) generating capacity. Now, over 1GWe of capacity has been built privately and an additional 1 GWe is in the planning stage. In Peru, since 1992, the law permitted private ownership and operation of electricity supply by individuals or corporations, including foreign ones, and also forbaid the state to develop new facilities. About 42% of Peru's power generation is now in the private sector.

The total generation capacity reached 146 GWe in 1995, of which 66% was hydro (56% in 1980), 33% thermal units (43% in 1980) and 1% nuclear. Since 1980, new commissioning has been shared between hydro for 53 GWe (77% of the total), thermal for 14 GWe and nuclear for 1 GWe. Brazil and Paraguay owned the region's largest operating hydroelectric plant, the 12.6 GWe Itaipu project. Most of the hydroelectric resources in Brazil have already been developed. But there are plans to extend the Guri and Managua scheme in Venezuela accounting now for about 13 GWe to about 17GWe generating capacity for export to Brazil. The hydro potential remains, with Asia, as the largest in the world.

Several major natural gas-fired projects are currently under construction, and more are planned in anticipation of completion of major gas pipeline agreements signed in 1996 in lines connecting Bolivia and Brazil, Venezuela and Brazil, and Argentina and Chile, as well as projects expanding grids within individual countries.

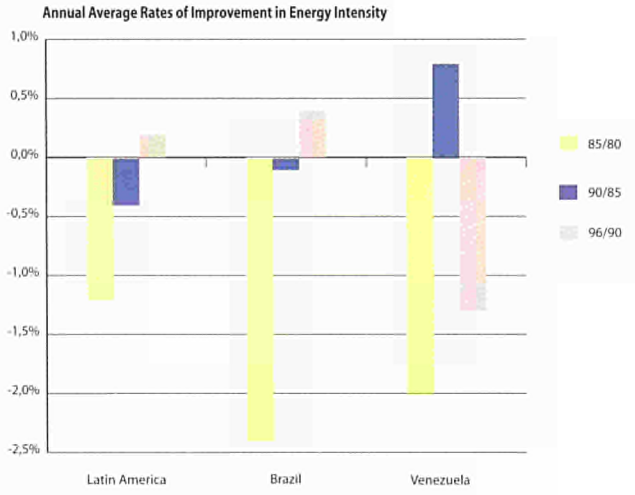
Refining capacity increasing slowly...

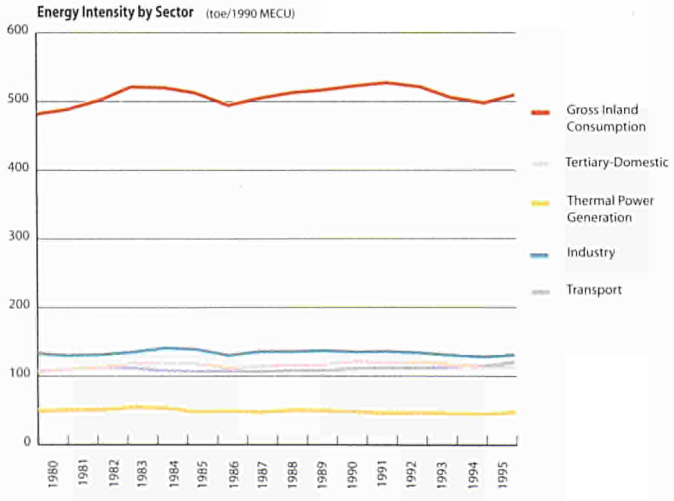
In 1996, the **refinery capacity** (6.18 million barrels per day stable since 1993) represented 8.0% of world capacity (9.3% in 1980). If a capacity of about 2 million barrels day has been closed in the first half of the 80's, since 1985, the installed capacity grew by about 0.8% per year on average. But the utilisation rate of the refineries (79% in 1996 from 75% in 1985) increased slower than the world average (83% in 1996 from 74% in 1985).

COMPETITIVENESS

In 1996, energy intensity returned to the peak value reached in 1990...

The **energy intensity** indicator for the region had a contrasting evolution in the period 1980-1995. It increased by 1.2% per year over the period 1980-1985, by 0.4% over the period 1986-1990, decreased by 1.2% on average between 1990 and 1994 but rebound in 1995 by 2.4% and in 1996 by 1.5% to return in 1996 to the 1990 level. This reflects contrasting economic conditions in the region since 1980. The economic recession at the beginning of the 80's, through lower utilisation of industrial capacity, induced increasing energy intensity of industry. At the same time, development of services and improving standards of living accelerated the energy consumption of the tertiary-domestic sector although gross domestic production remained flat. Between 1986 and 1990, the smooth restarting of the economy resulted in a reduction of industrial energy intensity due to the acceleration of investment but the negative impact of the tertiary-domestic sector continued, reinforced by the transportation sector where motorization levels accelerated. Finally, since 1990, increasing energy intensity of the transport sector compensated for large gains observed in industry and tertiary-domestic sector. It must be stressed that the contribution of power generation declined slowly (from 10.3% of the total in 1980 to 9.5% in 1996).



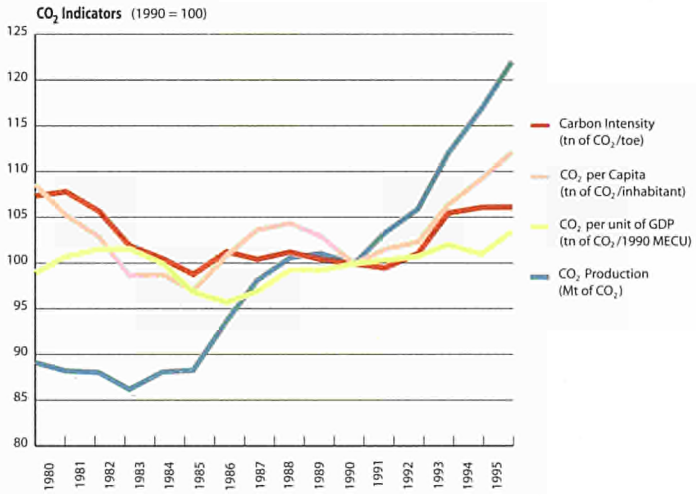


The energy consumption per capita, quite stable during the 80's, was increasing by 1990 to jump by 2.6% in 1995. By sector, increasing trends appeared clearly in the transport and domestic sectors in connection with improving standards of living and greater motorization. Nevertheless, the per capita consumption in 1995 remained well below the European level with only 41% for industry, 33% for transport and only 25% for the tertiary and domestic sector.

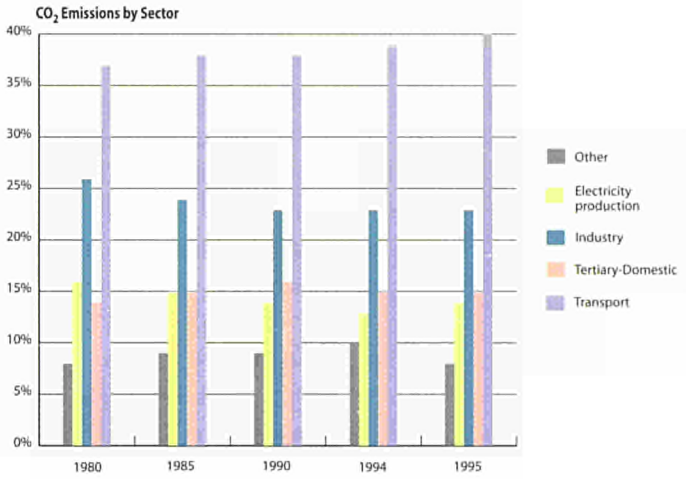
ENVIRONMENT

CO_2 emissions increased by 28% since 1990...

In general terms, CO_2 emissions have been increasing continuously over the past sixteen years (808 million tonnes of CO_2 in 1996, compared to 629 million tonnes in 1990, 556 million tonnes in 1985 and 561 million tonnes in 1980). Whereas CO_2 emissions increased annually by 1.1% on average during the 80's, the growth has accelerated significantly to reach 4.3% per year on average since 1990. This evolution, quite disturbing in perspective of post-Kyoto, must be shaded. CO_2 emissions per capita decreased by 0.8% per year during the 80's but increased by 2.3% since 1990 and the increase was accelerating. CO_2 intensity per unit of GDP quite stable during the 80's grew by about 0.6% per year on average these last five years. Finally, the carbon intensity has been stable since 1980.



Looking at CO_2 emissions by sector at a regional level, the first conclusion is that the largest sector in terms of emission is the transport sector, largely occupying the first place with about 40% of total emissions in 1996 against 37% in 1980. The industrial sector accounted for about 22%, decreasing slowly since 1980 (26%). The tertiary-domestic sector was quite stable at about 15% the same level of the electricity generation sector. Since 1990, about 50% of incremental CO_2 emissions were issued from the transportation sector.



GLOBAL MARKETS

The region increased substantially its oil exports...

Over the whole period, this region was a net **exporter of energy**. This picture is dominated by oil which accounts for almost 100% of total exports in 1996 (115 Mtoe in 1996 from 23 Mtoe in 1980), of which four fifths consisted of crude oil and one fifth in refined products. Since 1980 crude exports have multiplied by four although refined product's exports were divided into two. In 1996, net oil exports of Venezuela, one of the founders of OPEC, represented more than the net total oil exports of the region, with Argentina and Colombia also increasing their contribution since the beginning of the 90's. Oil exports are mainly oriented towards the United States (85% of the market), Western Europe being the second market with only 8% in 1996. Brazil remains a large net oil importer accounting for 67% of its total imports. Despite the limited production of solid fuels, the region became a net exporter in 1990, in relation to the efforts made by Columbia to develop its reserves. But it must be observed that Brazilian importation increased substantially in 1996, absorbing nearly all the coal available on the regional market..

LATIN AMERICA : NET IMPORTS

Mtoe	1980	1985	1990	1993	1994	1995	1996(1)
Latin America	-22.9	-40.4	-44.7	-54.4	-76.9	-93.4	-115.1
Argentina	1.3	-3.7	-4.8	-7.0	-11.9	-14.4	-16.1
Brazil	44.4	23.1	31.3	37.2	37.5	37.4	35.7
Colombia	1.3	-0.7	-11.5	-11.6	-11.4	-17.3	-21.2
Venezuela	-98.2	-71.7	-86.2	-97.9	-121.2	-134.4	-151.3

(1) estimates

LATIN AMERICA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	327.0	369.7	420.4	480.3	522.3	558.7	2.5%	2.6%	3.4%	8.8%	7.0%
Solids	6.2	10.6	18.3	21.9	23.8	25.9	11.3%	11.5%	4.5%	8.9%	8.6%
Oil	195.1	198.5	227.5	272.9	305.9	331.5	0.3%	2.8%	4.7%	12.1%	8.3%
Natural gas	30.7	40.3	48.1	56.7	61.6	69.0	5.6%	3.6%	4.2%	8.7%	12.0%
Nuclear	0.6	2.4	2.5	2.2	2.5	2.4	31.3%	0.8%	-3.4%	15.6%	-3.2%
Hydro & Wind	17.8	25.4	32.1	39.9	41.4	43.7	7.3%	4.8%	5.6%	3.8%	5.4%
Geothermal	0.3	0.6	0.9	0.9	0.8	0.9	13.0%	6.4%	0.1%	-2.9%	10.0%
Other renewable energy sources	76.2	91.9	91.1	85.9	86.2	85.3	3.8%	-0.2%	-1.5%	0.4%	-1.1%
Net Imports	-17.7	-35.7	-45.4	-79.6	-97.4	-115.4	15.1%	4.9%	15.1%	22.3%	18.6%
Solids	5.3	5.1	-0.5	-2.8	-4.0	-0.3	-0.5%	-	51.6%	46.3%	-91.5%
Oil	-22.9	-40.4	-44.7	-76.9	-93.4	-115.1	12.0%	2.0%	14.6%	21.4%	23.2%
Crude oil	26.9	-3.7	-9.7	-52.6	-75.3	na	-	20.9%	52.7%	43.1%	na
Oil products	-49.8	-36.7	-35.0	-24.3	-18.2	na	-5.9%	-0.9%	-8.7%	-25.4%	na
Natural gas	0.0	-0.1	-0.2	0.2	0.1	0.0	30.0%	34.7%	-	-33.8%	-82.9%
Electricity	0.0	-0.4	0.0	-0.1	-0.1	-0.1	89.6%	-	-	-58.9%	0.0%
Gross Inland Consumption	300.6	323.6	361.8	398.7	416.1	434.7	1.5%	2.3%	2.5%	4.4%	4.5%
Solids	11.1	15.9	17.3	19.3	20.2	25.5	7.5%	1.7%	2.8%	4.8%	26.1%
Oil	163.9	147.6	170.1	193.8	203.2	207.9	-2.1%	2.9%	3.3%	4.8%	2.3%
Natural gas	30.7	40.2	47.9	56.9	61.8	69.0	5.5%	3.6%	4.4%	8.6%	11.8%
Other (1)	94.9	119.9	126.5	128.7	130.9	132.2	4.8%	1.1%	0.4%	1.7%	1.0%
Electricity Generation in TWh	310.3	408.8	497.9	599.0	630.5	na	5.7%	4.0%	4.7%	5.3%	na
Nuclear	2.3	9.1	9.5	8.3	9.6	na	31.3%	0.8%	-3.4%	15.6%	na
Hydro & wind	207.1	294.9	373.2	463.9	481.6	na	7.3%	4.8%	5.6%	3.8%	na
Thermal	100.9	104.7	115.2	126.8	139.3	na	0.7%	1.9%	2.4%	9.9%	na
Generation Capacity in GWe	77.4	106.9	120.5	143.6	146.1	na	6.7%	2.4%	4.5%	1.7%	na
Nuclear	0.4	1.7	1.7	1.7	1.7	na	35.3%	0.0%	0.0%	0.0%	na
Hydro & wind	43.4	62.5	76.2	95.2	96.7	na	7.6%	4.0%	5.7%	1.6%	na
Thermal	33.6	42.7	42.6	46.7	47.7	na	4.9%	0.0%	2.3%	2.1%	na
Average Load Factor in %	45.8	43.7	47.2	47.6	49.3	na	-0.9%	1.6%	0.2%	3.5%	na
Fuel Inputs for Thermal Power Generation	31.6	31.3	34.6	37.7	40.6	na	-0.2%	2.0%	2.1%	8.0%	na
Solids	2.3	3.1	4.1	4.3	5.1	na	6.0%	5.7%	1.1%	20.1%	na
Oil	19.1	13.9	14.0	15.0	16.1	na	-6.1%	0.1%	1.8%	7.2%	na
Gas	7.8	11.2	12.6	14.4	15.4	na	7.5%	2.4%	3.4%	6.5%	na
Geothermal	0.3	0.6	0.9	0.9	0.8	na	13.0%	6.4%	0.1%	-2.9%	na
Biomass	2.1	2.5	3.1	3.1	3.2	na	3.6%	4.8%	-0.3%	4.7%	na
Average Thermal Efficiency in %	27.5	28.8	28.6	29.0	29.5	na	0.9%	-0.1%	0.3%	1.8%	na
Non-Energy Uses	10.1	13.7	14.9	18.7	18.2	na	6.3%	1.7%	5.8%	-2.8%	na
Total Final Energy Demand	236.1	256.8	280.1	309.0	322.2	na	1.7%	1.8%	2.5%	4.3%	na
Solids	7.1	10.5	11.3	13.9	14.2	na	8.3%	1.5%	5.3%	1.8%	na
Oil	117.3	108.8	124.7	144.3	153.0	na	-1.5%	2.8%	3.7%	6.0%	na
Gas	15.4	19.3	21.3	26.6	28.3	na	4.6%	1.9%	5.8%	6.1%	na
Electricity	22.2	28.7	34.8	41.3	43.7	na	5.3%	4.0%	4.3%	5.9%	na
Heat	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Renewable energy sources	74.1	89.4	88.0	82.8	83.0	na	3.8%	-0.3%	-1.5%	0.2%	na
CO_2 Emissions in Mt of CO_2	561.2	555.8	628.8	735.6	767.9	808.4	-0.2%	2.5%	4.0%	4.4%	5.3%
Indicators											
Population (Million)	289.31	320.75	352.20	377.03	383.34	389.33	2.1%	1.9%	1.7%	1.7%	1.6%
GDP (index 1985=100)	98.8	100.0	109.6	126.9	129.3	133.2	0.2%	1.9%	3.7%	1.9%	3.0%
Gross Inl Cons./GDP (toe/1990 MECU)	483.0	513.8	524.1	498.9	510.9	518.3	1.2%	0.4%	-1.2%	2.4%	1.5%
Gross Inl Cons./Capita (toe/inhabitant)	1.04	1.01	1.03	1.06	1.09	1.12	-0.6%	0.4%	0.7%	2.6%	2.9%
Electricity Generated/Capita (kWh/inhabitant)	1073	1275	1414	1589	1645	na	3.5%	2.1%	3.0%	3.5%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	1.9	1.7	1.8	2.0	2.0	2.1	-2.2%	0.6%	2.2%	2.7%	3.7%
Import Dependency %	-5.7	-10.8	-12.3	-19.6	-23.0	-26.2	13.4%	2.7%	12.3%	17.3%	14.2%

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

LATIN AMERICA : MAIN INDICATORS

	1980	1985	1990	1993	1994	1995	85/80	90/85	94/90	95/94
							Annual % Change			
Gross Inland Consumption (Mtoe)	300.6	323.6	361.8	384.4	398.7	416.1	1.5%	2.3%	2.5%	4.4%
Public Thermal Power Generation	22.0	21.1	23.4	24.9	25.2	28.0	-0.8%	2.0%	1.9%	11.0%
Autoprod. Thermal Power Generation	9.2	9.5	10.4	10.7	11.6	11.8	0.7%	1.7%	2.7%	2.2%
Energy Branch	24.1	27.1	29.7	34.7	33.9	31.0	2.4%	1.8%	3.4%	-8.4%
Final Energy Consumption	216.7	231.7	256.8	276.8	287.8	301.5	1.3%	2.1%	2.9%	4.7%
Industry	83.8	88.7	94.5	100.3	103.9	108.2	1.1%	1.3%	2.4%	4.1%
Transport	67.0	68.2	77.7	86.9	93.0	99.6	0.4%	2.6%	4.6%	7.1%
Tertiary-Domestic	66.0	74.9	84.7	89.6	90.9	93.7	2.6%	2.5%	1.8%	3.1%
Energy Intensity (toe/1990 MECU)	483.0	513.8	524.1	507.0	498.9	510.9	1.2%	0.4%	-1.2%	2.4%
Public Thermal Power Generation	35.4	33.6	33.9	32.9	31.5	34.4	-1.1%	0.2%	-1.8%	8.9%
Autoprod. Thermal Power Generation	14.8	15.1	15.0	14.2	14.5	14.5	0.4%	-0.1%	-1.0%	0.3%
Industry	134.6	140.8	136.9	132.3	130.0	132.8	0.9%	-0.6%	-1.3%	2.2%
Transport	107.6	108.3	112.5	114.7	116.4	122.3	0.1%	0.8%	0.8%	5.1%
Tertiary-Domestic	106.1	118.9	122.6	118.2	113.7	115.0	2.3%	0.6%	-1.9%	1.1%
Energy per Capita (Kgoe/inhabitant)	1039	1009	1027	1036	1058	1085	-0.6%	0.4%	0.7%	2.6%
Industry	289	276	268	270	276	282	-0.9%	-0.6%	0.7%	2.4%
Transport	231	213	221	234	247	260	-1.7%	0.7%	2.8%	5.3%
Tertiary-Domestic	228	233	240	242	241	244	0.5%	0.6%	0.1%	1.4%
Electricity Share (%)										
Final Energy Consumption	10.2%	12.4%	13.6%	14.3%	14.3%	14.5%	3.9%	1.8%	1.4%	1.2%
Industry	13.8%	17.0%	18.4%	18.7%	18.6%	18.5%	4.2%	1.7%	0.2%	-0.6%
Transport	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	5.4%	0.9%	-7.2%	-6.0%
Tertiary-Domestic	15.9%	18.0%	20.4%	23.2%	24.0%	25.2%	2.6%	2.5%	4.2%	5.0%
Total Renewable Consumption (Mtoe)	94.3	117.9	124.0	124.8	126.7	128.5	4.6%	1.0%	0.5%	1.4%
Hydro	17.8	25.4	32.1	37.5	39.9	41.4	7.3%	4.8%	5.6%	3.8%
Biomass	76.2	91.9	91.1	86.3	85.9	86.2	3.8%	-0.2%	-1.5%	0.4%
Other renewable energy sources	0.3	0.6	0.9	1.0	0.9	0.8	-	6.4%	0.1%	-2.9%
Renewable intensity (toe/1990MECU)	151.6	187.2	179.6	164.6	158.5	157.7	4.3%	-0.8%	-3.1%	-0.5%
Renewable per capita (Kgoe/inhabitant)	326.0	367.6	352.2	336.4	335.9	335.1	2.4%	-0.9%	-1.2%	-0.2%
CO_2 Production (Mt of CO_2)	561.2	555.8	628.8	705.0	735.6	767.9	-0.2%	2.5%	4.0%	4.4%
Public Thermal Power Generation	66.1	62.2	68.9	72.0	73.4	82.5	-1.2%	2.1%	1.6%	12.3%
Autoprod. Thermal Power Generation	21.2	20.9	21.7	23.1	25.8	25.8	-0.3%	0.8%	4.3%	0.0%
Energy Branch	47.3	48.6	57.0	73.0	71.3	62.7	0.5%	3.3%	5.7%	-12.1%
Industry	144.7	133.2	143.0	161.4	169.0	176.5	-1.6%	1.4%	4.3%	4.4%
Transport	205.3	209.1	238.2	266.4	284.9	305.1	0.4%	2.6%	4.6%	7.1%
Tertiary-Domestic	76.6	81.9	99.9	109.2	111.3	115.4	1.3%	4.1%	2.7%	3.7%
Carbon Intensity (tn of CO_2/toe)	1.9	1.7	1.7	1.8	1.8	1.8	-1.7%	0.2%	1.5%	0.0%
Public Power Generation	1.6	1.3	1.2	1.1	1.1	1.1	-5.0%	-1.4%	-2.1%	5.2%
Public Thermal Power Generation	3.0	2.9	2.9	2.9	2.9	2.9	-0.4%	0.0%	-0.3%	1.2%
Autoprod. Power Generation	2.1	2.0	2.0	2.0	2.1	2.0	-1.1%	-0.8%	1.7%	-2.3%
Autoprod. Thermal Power Generation	2.3	2.2	2.1	2.2	2.2	2.2	-1.0%	-0.9%	1.5%	-2.1%
Energy Branch	2.0	1.8	1.9	2.1	2.1	2.0	-1.9%	1.4%	2.3%	-4.0%
Industry	1.7	1.5	1.5	1.6	1.6	1.6	-2.8%	0.2%	1.8%	0.3%
Transport	3.1	3.1	3.1	3.1	3.1	3.1	0.0%	0.0%	0.0%	0.0%
Tertiary-Domestic	1.2	1.1	1.2	1.2	1.2	1.2	-1.2%	1.5%	0.9%	0.6%
CO_2 per Capita (kg of CO_2/inhabitant)	1940	1733	1785	1901	1951	2003	-2.2%	0.6%	2.2%	2.7%
Industry	500	415	406	435	448	460	-3.6%	-0.4%	2.5%	2.7%
Transport	710	652	676	718	756	796	-1.7%	0.7%	2.8%	5.3%
Tertiary-Domestic	265	255	284	294	295	301	-0.7%	2.1%	1.0%	2.0%
CO_2 per unit of GDP (tn of CO_2/1990 MECU)	902	883	911	930	920	943	-0.4%	0.6%	0.3%	2.4%
Public Thermal Power Generation	106	99	100	95	92	101	-1.4%	0.2%	-2.1%	10.2%
Autoprod. Thermal Power Generation	34	33	32	30	32	32	-0.5%	-1.0%	0.6%	-1.8%
Energy Branch	76	77	83	96	89	77	0.3%	1.4%	1.9%	-13.7%
Industry	232	211	207	213	211	217	-1.9%	-0.4%	0.5%	2.5%
Transport	330	332	345	351	356	375	0.1%	0.8%	0.8%	5.1%
Tertiary-Domestic	123	130	145	144	139	142	1.1%	2.2%	-1.0%	1.7%

BRAZIL : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	71.2	115.6	119.1	119.3	120.4	126.9	10.2%	0.6%	0.0%	0.9%	5.4%
Solids	2.5	3.5	1.9	2.0	2.0	2.0	7.1%	-11.5%	1.4%	-0.3%	3.3%
Oil	11.2	34.4	40.8	44.1	44.4	50.2	25.1%	3.4%	2.0%	0.7%	12.9%
Natural gas	1.0	2.2	3.3	4.0	4.3	5.3	17.4%	8.3%	4.5%	7.3%	25.0%
Nuclear	0.0	0.9	0.6	0.0	0.7	0.6	-	-7.9%	-60.6%	4585.7%	-4.2%
Hydro & Wind	11.1	15.3	17.8	20.9	21.8	22.8	6.7%	3.0%	4.1%	4.6%	4.7%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	45.4	59.2	54.7	48.3	47.2	45.9	5.5%	-1.6%	-3.1%	-2.3%	-2.9%
Net Imports	48.0	29.2	41.5	49.6	50.1	52.8	-9.4%	7.2%	4.6%	1.0%	5.3%
Solids	3.7	5.9	7.9	9.4	9.7	14.3	10.2%	5.7%	4.5%	3.4%	48.0%
Oil	44.4	23.1	31.3	37.5	37.4	35.3	-12.2%	6.2%	4.6%	-0.3%	-5.7%
Crude oil	43.2	27.2	31.6	31.3	28.4	na	-8.8%	3.0%	-0.2%	-9.2%	na
Oil products	1.2	-4.1	-0.2	6.3	9.1	na	-	-43.1%	-	44.3%	na
Natural gas	0.0	0.0	0.0	0.0	0.0	0.2	-	-	-	-	-
Electricity	0.0	0.2	2.3	2.7	3.0	3.0	-	69.1%	4.6%	11.3%	0.0%
Gross Inland Consumption	118.4	141.2	156.3	168.3	170.2	177.9	3.6%	2.1%	1.9%	1.1%	4.5%
Solids	5.8	9.9	9.4	11.3	11.6	16.4	11.1%	-0.9%	4.6%	3.4%	40.6%
Oil	55.2	53.5	68.2	81.1	81.5	83.6	-0.6%	5.0%	4.4%	0.5%	2.6%
Natural gas	1.0	2.2	3.3	4.0	4.3	5.5	17.4%	8.3%	4.5%	7.3%	28.9%
Other (1)	56.5	75.6	75.4	72.0	72.8	72.4	6.0%	-0.1%	-1.2%	1.1%	-0.5%
Electricity Generation in TWh	142.6	197.0	224.4	260.1	275.4	na	6.7%	2.6%	3.8%	5.9%	na
Nuclear	0.0	3.4	2.2	0.1	2.5	na	-	-7.9%	-60.4%	4480.0%	na
Hydro & wind	128.9	178.4	206.7	242.7	253.9	na	6.7%	3.0%	4.1%	4.6%	na
Thermal	13.7	15.3	15.5	17.3	19.0	na	2.2%	0.3%	2.8%	9.8%	na
Generation Capacity in GWe	33.3	44.1	53.1	57.6	59.0	na	5.8%	3.8%	2.1%	2.4%	na
Nuclear	0.0	0.7	0.7	0.7	0.7	na	-	0.0%	0.0%	0.0%	na
Hydro & wind	27.5	37.1	45.6	49.9	51.3	na	6.1%	4.2%	2.3%	2.8%	na
Thermal	5.8	6.4	6.8	7.1	7.1	na	2.0%	1.4%	0.8%	0.2%	na
Average Load Factor in %	48.9	51.0	48.3	51.5	53.3	na	0.8%	-1.1%	1.6%	3.4%	na
Fuel Inputs for Thermal Power Generation	3.4	3.9	4.0	4.3	4.8	na	3.0%	0.3%	2.1%	11.5%	na
Solids	0.8	1.2	1.1	1.2	1.4	na	8.8%	-2.4%	2.8%	14.8%	na
Oil	1.3	1.0	1.3	1.6	1.9	na	-4.7%	4.4%	6.7%	18.3%	na
Gas	0.0	0.0	0.1	0.2	0.2	na	-	-	20.1%	11.0%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Biomass	1.3	1.7	1.6	1.3	1.3	na	5.5%	-1.6%	-4.0%	0.2%	na
Average Thermal Efficiency in %	34.8	33.5	33.5	34.5	33.9	na	-0.7%	0.0%	0.7%	-1.5%	na
Non-Energy Uses	5.5	8.6	9.7	10.8	10.7	na	9.2%	2.4%	2.7%	-0.2%	na
Total Final Energy Demand	104.6	120.5	129.7	135.7	140.0	na	2.9%	1.5%	1.1%	3.2%	na
Solids	4.1	7.1	7.4	9.4	9.6	na	11.3%	0.9%	6.2%	2.2%	na
Oil	45.6	40.3	49.5	56.6	60.3	na	-2.5%	4.2%	3.4%	6.6%	na
Gas	0.6	1.2	1.6	1.9	2.2	na	15.9%	5.5%	4.8%	11.1%	na
Electricity	10.2	14.4	18.1	20.8	22.0	na	7.1%	4.7%	3.5%	5.9%	na
Heat	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Renewable energy sources	44.1	57.5	53.2	47.0	45.9	na	5.5%	-1.6%	-3.0%	-2.4%	na
CO_2 Emissions in Mt of CO_2	175.7	175.5	211.0	245.4	258.7	na	0.0%	3.8%	3.8%	5.4%	na
Indicators											
Population (Million)	121.29	135.26	148.00	157.10	159.22	161.31	2.2%	1.8%	1.5%	1.3%	1.3%
GDP (index 1985=100)	94.7	100.0	110.0	120.8	124.4	128.0	1.1%	1.9%	2.4%	3.0%	2.9%
Gross Inl Cons./GDP (toe/1990 MECU)	365.6	412.5	415.3	407.0	399.8	406.1	2.4%	0.1%	-0.5%	-1.8%	1.6%
Gross Inl Cons./Capita (toe/inhabitant)	0.98	1.04	1.06	1.07	1.07	1.10	1.3%	0.2%	0.3%	-0.2%	3.2%
Electricity Generated/Capita (kWh/inhabitant)	1176	1457	1516	1655	1730	na	4.4%	0.8%	2.2%	4.5%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	1.4	1.3	1.4	1.6	1.6	na	-2.2%	1.9%	2.3%	4.0%	na
Import Dependency %	40.0	20.3	26.2	29.0	29.1	29.3	-12.7%	5.3%	2.6%	0.1%	0.8%

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

VENEZUELA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1994	1995	1996(2)	85/80	90/85	94/90	95/94	96/95
							Annual % Change				
Primary Production	132.9	111.3	130.4	161.7	187.5	204.9	-3.5%	3.2%	5.5%	16.0%	9.3%
Solids	0.0	0.0	1.3	4.0	3.8	2.9	0.0%	120.2%	31.6%	-5.0%	-24.9%
Oil	116.8	91.0	105.8	130.7	154.2	170.3	-4.9%	3.1%	5.4%	17.9%	10.5%
Natural gas	14.8	18.3	20.2	22.5	25.1	27.1	4.3%	2.0%	2.8%	11.4%	7.9%
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Hydro & Wind	1.3	1.9	3.2	4.4	4.4	4.7	9.2%	10.3%	8.6%	0.1%	5.5%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other renewable energy sources	0.0	0.0	0.0	0.0	0.0	0.0	-11.1%	-	-	-	-
Net Imports	-98.1	-71.6	-87.3	-125.1	-138.4	-154.0	-6.1%	4.0%	9.4%	10.6%	11.3%
Solids	0.1	0.1	-1.1	-3.8	-4.0	-2.9	3.4%	-	35.9%	2.6%	-27.0%
Oil	-98.2	-71.7	-86.2	-121.2	-134.4	-151.1	-6.1%	3.7%	8.9%	10.9%	12.4%
Crude oil	-69.6	-45.0	-54.8	-87.2	-98.4	na	-8.4%	4.0%	12.3%	12.9%	na
Oil products	-28.6	-26.8	-31.4	-34.1	-36.0	na	-1.3%	3.2%	2.1%	5.7%	na
Natural gas	0.0	0.0	0.0	0.0	0.0	0.1	-	-	-	-	-
Electricity	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-100.0%	-
Gross Inland Consumption	35.0	36.9	40.3	40.5	47.1	49.7	1.0%	1.8%	0.1%	16.4%	5.4%
Solids	0.1	0.2	0.2	0.2	0.0	0.0	2.8%	5.9%	-3.0%	-97.9%	-2.8%
Oil	18.8	16.4	16.8	13.4	17.6	17.9	-2.7%	0.4%	-5.4%	31.6%	1.6%
Natural gas	14.8	18.3	20.2	22.5	25.1	27.1	4.3%	2.0%	2.8%	11.4%	8.1%
Other (1)	1.3	2.0	3.2	4.4	4.4	4.7	9.0%	10.2%	8.5%	0.4%	5.5%
Electricity Generation in TWh	36.9	49.0	59.3	73.1	73.4	na	5.9%	3.9%	5.4%	0.5%	na
Nuclear	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Hydro & wind	14.6	22.6	37.0	51.4	51.5	na	9.2%	10.3%	8.6%	0.1%	na
Thermal	22.3	26.3	22.3	21.7	22.0	na	3.4%	-3.2%	-0.7%	1.2%	na
Generation Capacity in GWe	8.5	15.5	9.5	19.7	20.0	na	12.9%	-9.3%	19.9%	1.5%	na
Nuclear	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Hydro & wind	2.7	5.0	1.0	10.7	10.7	na	12.9%	-27.4%	80.8%	0.0%	na
Thermal	5.8	10.5	8.5	9.0	9.3	na	12.8%	-4.2%	1.4%	3.3%	na
Average Load Factor in %	49.7	36.0	71.1	42.4	42.0	na	-6.2%	14.6%	-12.1%	-1.1%	na
Fuel Inputs for Thermal Power Generation	7.6	8.6	6.9	6.3	7.3	na	2.5%	-4.2%	-2.1%	15.3%	na
Solids	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Oil	3.7	2.7	1.8	0.8	1.8	na	-6.2%	-7.3%	-17.9%	110.9%	na
Gas	3.9	5.9	5.1	5.5	5.5	na	8.7%	-3.0%	2.1%	0.7%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Biomass	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	25.3	26.4	27.9	29.6	25.9	na	0.9%	1.1%	1.5%	-12.2%	na
Non-Energy Uses	1.2	1.1	1.4	2.1	1.4	na	-0.3%	3.8%	10.4%	-30.3%	na
Total Final Energy Demand	22.6	24.9	25.5	30.9	32.1	na	2.0%	0.5%	4.9%	3.8%	na
Solids	0.1	0.2	0.2	0.2	0.0	na	2.8%	5.9%	-3.0%	-97.9%	na
Oil	11.4	12.4	13.1	16.8	17.1	na	1.6%	1.2%	6.4%	2.1%	na
Gas	8.4	9.1	8.3	9.4	10.3	na	1.6%	-1.6%	3.0%	9.2%	na
Electricity	2.6	3.3	3.9	4.6	4.7	na	4.7%	3.0%	4.4%	3.1%	na
Heat	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Renewable energy sources	0.0	0.0	0.0	0.0	0.0	na	-11.1%	-	-	-	na
CO_2 Emissions in Mt of CO_2	88.5	97.6	95.5	122.3	129.4	na	2.0%	-0.4%	6.4%	5.8%	na
Indicators											
Population (Million)	14.87	17.08	19.33	21.18	21.67	22.04	2.8%	2.5%	2.3%	2.3%	1.7%
GDP (index 1985=100)	104.7	100.0	113.6	129.0	131.8	129.7	-0.9%	2.6%	3.2%	2.2%	-1.6%
Gross Inl Cons./GDP (toe/1990 MECU)	995.6	1097.2	1056.3	934.9	1064.7	1140.5	2.0%	-0.8%	-3.0%	13.9%	7.1%
Gross Inl Cons./Capita (toe/inhabitant)	2.36	2.16	2.09	1.91	2.18	2.25	-1.7%	-0.7%	-2.1%	13.8%	3.6%
Electricity Generated/Capita (kWh/inhabitant)	2479	2868	3069	3452	3389	na	3.0%	1.4%	3.0%	-1.8%	na
CO_2 Emissions/Capita (t of CO_2/inhabitant)	6.0	5.7	4.9	5.8	6.0	na	-0.8%	-2.9%	4.0%	3.5%	na
Import Dependency %	-275.4	-191.5	-212.4	-303.3	-289.5	-305.6	-7.0%	2.1%	9.3%	-4.5%	5.5%

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

PART X SHORT-TERM ENERGY OUTLOOK FOR THE EUROPEAN UNION

SUMMARY

Based on monthly data, both deliveries to final consumers and gross inland energy consumption in the European Union fell by about 0.4% in 1997, sustained economic growth being largely compensated by warmer weather conditions. Consumption of oil stabilised, the increasing deliveries of automotive diesel being compensated by lower consumption of heavy fuel oil in the power sector. Consumption of natural gas decreased by less than 1% despite a decrease of degree-days of more than 12% compared to the previous year. Increasing consumption by industrial processes and mainly by the power sector compensated the decrease in heating demand. Demand for solid fuels was down 2.3% on account of lower demand by final consumers. The production of nuclear energy increased by 1% and renewable energy by 3.2%, mainly biomass. Annual CO_2 emissions declined by 1.5%, 2% below the 1990 level.

Combining the forecast growth of the European economy (Spring 98 Economic Forecasts - DGII) and the return to long-term average temperature results in an average growth of 1.2% in gross inland energy consumption between 1997 and 2000. Gross inland energy consumption may increase by about 50 Mtoe until 2000 with very varied evolution per fuel. Although the oil contribution should remain stable, solid consumption should show a 22 Mtoe reduction while natural gas consumption should increase by 61 Mtoe. This increase, associated with the rapid expansion of gas consumption by the power sector, may stabilise in 2000 the CO_2 emissions around the 1990 level. This should be the consequence of both the continuous energy intensity gains observed during the 90's (about 1% per year on average), and the carbon intensity slowdown (about 1% per year on average) obtained from the larger contribution of natural gas in substitution of solids and oil as well as the intensification of carbon-free energy sources.

The STEO energy forecast can be considered as: optimistic regarding economic growth, prudent in terms of weather conditions and neutral concerning gas consumption in the power sector. Therefore, the forecasting concluding to the achievement of the objective of a stabilisation of CO_2 emissions in 2000, can be considered as prudent.

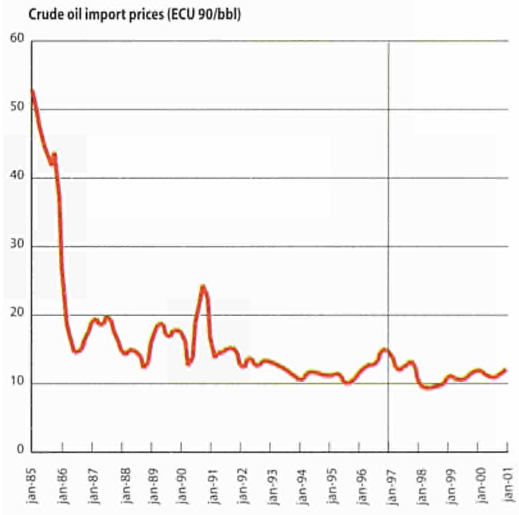
In the Autumn 98 economic forecasts presented by DG II end of October 98 real GDP in the European Union is estimated to increase by 2.9% in 1998 against 2.7% in the Spring forecasts (base case). For 1999, international events (Asian crisis, ...) have cut 1/2 percentage point from the rate of growth bringing it to 2.4% in 1999, before picking up to 2.8% in 2000. The combined effect on the period 1998-2000 result in a reduction of GDP growth by 0.5% at the horizon 2000.

Considering identical weather conditions as in the base case, the resulting reduction of energy consumption should be limited to at maximum 0.2% in 2000, concentrated mainly on gas and electricity at the final demand level. Consequently, CO_2 emissions should be reduced at maximum by 0.1% to 0.15% in 2000.

WORKING ASSUMPTIONS FOR THE PERIOD 1997-2000

The short-term energy forecasts are related to the short-and medium-term economic forecasts provided by the European Commission Directorate General for Economic Affairs (DG II). The main predetermined variables and their values are:

- Sustained GDP growth rates of 2.8% on average on the period 1998-2000, with a peak of 3.0% in 1999;
- Private consumption is foreseen to grow by 2.6% on average, showing acceleration from 1.9% in 1997 to 2.8% in 2000;
- Gross fixed capital formation should be sustained with an average growth of 6.3% peaking at 7.0% in 1999;
- Industrial production that increased by 4.0% in 1997 is foreseen to slow down regularly to 2.3% in 2000;
- Normal weather conditions, defined as the average of the past 25 year's observations, are assumed to prevail from 1998 to 2000;
- The average price of European Union crude import, including freight and insurance charges, is presumed to be 13.8$/bbl in 1998 and to recover up to 17.0$/bbl in 2000.



Recent economic developments have confirmed the expected recovery, despite an international environment that turned out less favourable due to turbulence on Asian financial markets. Prospects for a continuation of the recovery remain good as the

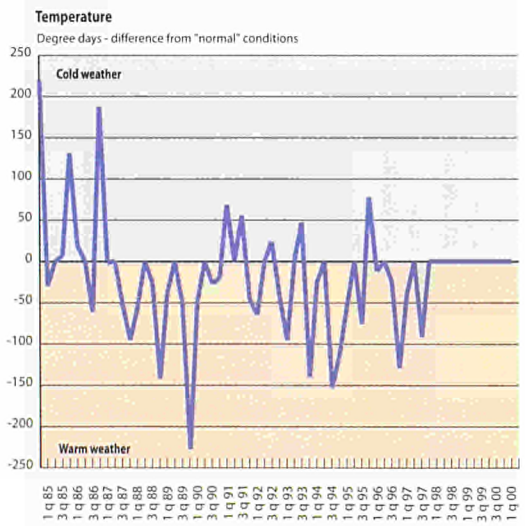
MACROECONOMIC, ENERGY PRICES AND WEATHER ASSUMPTIONS

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
A. MACROECONOMIC INDICES (1990=100)											
A.1. Gross Domestic Product	100.0	103.9	104.9	104.4	107.4	110.0	111.8	114.6	117.7	121.2	124.7
% change from prior year		*3.9*	*1.1*	*-0.5*	*2.9*	*2.4*	*1.6*	*2.5*	*2.7*	*3.0*	*2.9*
A.2. Private Consumption	100.0	105.9	108.0	107.7	109.4	111.3	113.6	115.7	118.6	121.7	125.1
% change from prior year		*5.9*	*2.0*	*-0.3*	*1.6*	*1.8*	*2.0*	*1.9*	*2.5*	*2.6*	*2.8*
A.3. Gross Fixed Capital Formation	100.0	104.9	104.4	97.5	99.8	102.9	106.0	110.5	117.2	125.4	132.6
% change from prior year		*4.9*	*-0.5*	*-6.5*	*2.3*	*3.2*	*3.0*	*4.3*	*6.0*	*7.0*	*5.7*
A.4. Industrial Production	100.0	99.2	97.8	94.1	98.6	101.8	101.8	105.9	109.3	112.0	114.6
% change from prior year		*-0.8*	*-1.4*	*-3.8*	*4.8*	*3.3*	*0.0*	*4.0*	*3.2*	*2.5*	*2.3*
A.5. Iron&Steel Production	100.0	98.2	93.0	88.3	97.5	99.5	92.5	101.3	104.4	107.5	109.8
% change from prior year		*-1.8*	*-5.3*	*-5.0*	*10.4*	*2.1*	*-7.0*	*9.5*	*3.1*	*2.9*	*2.1*
A.6. Chemical Production	100.0	99.6	102.2	101.5	108.4	112.3	113.8	120.5	124.8	128.2	130.9
% change from prior year		*-0.4*	*2.6*	*-0.7*	*6.8*	*3.6*	*1.3*	*5.9*	*3.6*	*2.7*	*2.1*
B. EXCHANGE RATE											
1 ECU = xx US$	1.3	1.24	1.30	1.17	1.19	1.31	1.27	1.14	1.10	1.10	1.11
% change from prior year		*-2.6*	*4.6*	*-9.6*	*1.4*	*10.1*	*-3.0*	*-9.9*	*-3.9*	*0.3*	*0.4*
C. INTERNATIONAL ENERGY PRICES											
Imported Crude Oil (EU90/toe)	136.0	109.3	95.5	89.2	82.5	79.2	95.8	95.1	71.1	80.4	83.5
Imported natural Gas (EU90/toe)	89.8	99.6	79.1	77.6	71.8	70.1	69.5	74.4	65.6	61.9	63.9
Imported Steam Coal (EU90/toe)	77.7	71.4	65.5	54.6	51.9	57.8	54.7	52.2	45.4	48.0	48.5
D. WEATHER											
Degree Days	2141	2549	2357	2354	2126	2202	2486	2184	2445	2445	2445
% change from prior year		*19.0*	*-7.5*	*-0.1*	*-9.7*	*3.6*	*12.9*	*-12.1*	*11.9*	*0.0*	*0.0*

driving force for growth shifts gradually from exports to domestic demand. Increasing consumer and industrial confidence reinforced by the expectation of a successful start of Monetary Union have also contributed to this process. On average, **GDP growth** in the EU is expected to average 2.8% per year over the period 1998-2000 with a maximum of 3.0% in 1999. Events in Asia only marginally affect the outlook, with a negative impact limited to a 0.2% reduction in 1998 and 0.1% in 1999. The impact of the Asian situation is expected to be partly offset by lower interest rates and falling commodity prices especially oil (dropping to around 14$/bbl compared to 20$/bbl at the end of 1997). These offsetting factors were to some extent the result of events in Asia.

With exports increasing at 9.3 % on average in the EU in 1997, the net foreign balance contributed a significant 0.4 % to growth. However, with export growth rates set to fall to about 7 % over the coming years, largely due to the Asian events, and stronger imports, the external contribution to growth is expected to disappear. Investment and **private consumption** should take over. Private consumption is forecast to accelerate regularly from 1.9 % in 1997 for the EU as a whole to 2.8 % in 2000 based on a fall in the savings ratio, moderate real wage increases and the creation of jobs. Supported by the high level of profitability and low interest rates and in the perspective of higher demand, overall **investment** is also expected to recover in 1998 (+6.0%) and 1999 (+7.0%).

The average inflation rate in the EU, measured by the deflator of private consumption, has dropped from 2.6 % in 1996 to 2.1 % in 1997, and is expected to remain at around 2 % over the rest of the forecasting horizon. External pressures on European prices have diminished since the autumn with significant falls in commodity prices, especially oil, helping offset the impact on import prices of the appreciation of the dollar. Domestic conditions also remain very favourable. Rises in unit labour costs are forecast to remain limited to 1.0 % this year and 1.3 % in 1999. The credibility of the stability-oriented monetary policy of the European Central Banks



and rises in unit labour costs well below the rate of inflation show that inflationary expectations remain low and stable.

The average general government deficit in the EU came in less than expected in 1997 at 2.4% of GDP thanks to lower interest rates and stronger than expected growth, down from a peak of 6.1% in 1993 and 4.2% in 1996. The EU average deficit fell to 1.9 % in 1998 and 1.6 % in 1999. The main impetus for the reduction in the deficit ratio came from declining expenditure, which has been falling as a proportion of GDP since 1994. However, overall government income is also expected to be on a declining path as a proportion of GDP from now on, having peaked in 1997.

The weather effect is measured using so-called degree-days, which is a function of temperature. After one warm year in 1997 the temperature is assumed to return to the long-term average, causing an increase of 11.9% in this coldness indicator for the year 1998.

METHODOLOGICAL NOTE

The forecasts are made with a neural network system. The system was designed to estimate and forecast final demand of energy by fuel (13 aggregates) on a monthly basis. The energy balance is based on technical data (e.g. electricity generation capacity) and information from Member States about their primary energy production. This work has been completed with the assistance of Muse sprl using the "Process Insights" computer programme developed by Pavilion Technologies NV/SA.

The data used are monthly deliveries to final consumers as provided by Eurostat. There may be some notable differences compared to annual energy balances. To quantify them, total annual energy consumption computed from monthly data is on average 1% below the final yearly data, excluding biomass. But, for some fuels or particular years, differences can be more significant. All historical data before 1990 was revised in order to merge all official data now available for ex-GDR by the SOEC.

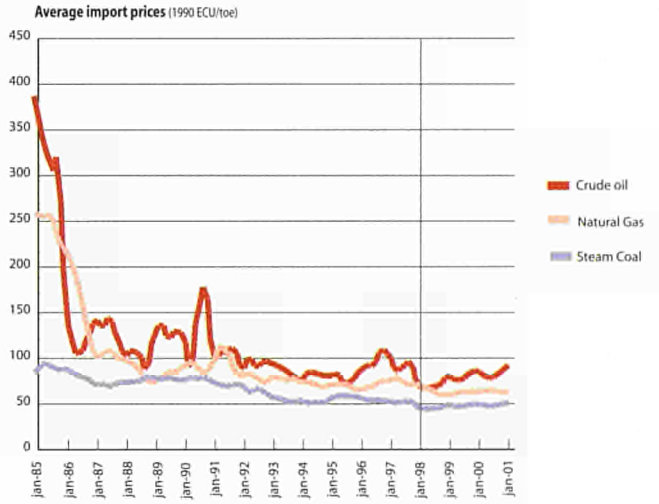
RESULTS

1. Energy prices

Different forms of energy can often act as substitutes for each other consequently their prices also affect each other. Oil has a long history of being the price leader in the world energy markets causing quick changes in all energy prices. On the other hand it is much less affected by prices and demand for other forms of energy. In the forecast it is expected that the price of natural gas will largely follow the evolution of crude oil prices with a six months delay.

Energy prices in final consumer markets (including excise and VAT) are influenced by the changes in corresponding international markets. Between 1990 and 1995 prices for oil products and natural gas fell in line with crude prices on international market. Increasing crude oil prices in 1996 reinforced in the first months of 1997 by higher US$ exchange rates, reversed this trend. The first months of 1998 witnessed a rapid decline in oil prices reflected in the forecast. For the forecast period, average excise taxes are assumed to increase slowly in real terms.

- The changes in gasoline and diesel prices are different. Despite declining crude oil prices between 1992 and 1995 gasoline and diesel prices have increased slowly since 1992 under the pressure of fiscal measures. Consequently, the 25% reduction of crude oil prices in 1998 resulted in only a 6% reduction in gasoline prices and 9% in diesel prices.
- For **industrial consumers**, the downward trend of energy prices was largely amplified in 1998, and in 1999 for natural gas and coal considering the time lag delay (6 to 9 months) in price's mechanism vs. oil prices. Electricity prices reduced by about 7% in 1998 should be constant thereafter.



2. Energy Demand

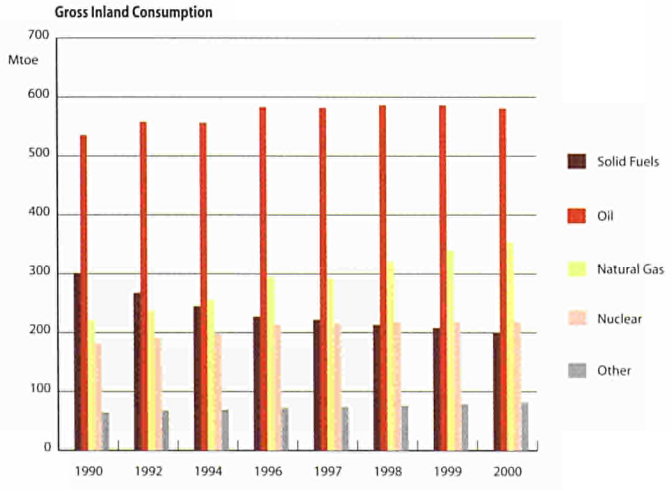
Based on monthly data, deliveries to final consumers in the European Union were reduced by about 0.4% in 1997, sustained economic growth being largely compensated by weather conditions resulting in degree-day about 12% below the 1996 level. These deliveries will increase by 1.7% per year on average over the period 1998-2000, with a major growth of 3.1% in 1998 due to col-

FINAL CONSUMER ENERGY PRICES IN REAL TERMS

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
A. Oil Products											
Prices (90ECU/toe)											
Gasoline	983	1032	1013	1020	1049	1055	1055	1101	1040	1076	1093
Growth rate from previous period in %		*5.0*	*-1.8*	*0.7*	*2.9*	*0.5*	*0.0*	*4.3*	*-5.6*	*3.5*	*1.6*
Diesel	547	567	544	562	562	554	581	584	534	569	586
Growth rate from previous period in %		*3.6*	*-3.9*	*3.2*	*-0.1*	*-1.5*	*4.9*	*0.7*	*-8.7*	*6.7*	*2.9*
Domestic Heating Oil	382	394	347	346	316	310	330	333	280	302	310
Growth rate from previous period in %		*3.2*	*-12.1*	*-0.2*	*-8.6*	*-1.9*	*6.4*	*0.9*	*-16.0*	*8.1.*	*2.6*
Industrial Heating Oil	285	287	236	240	221	215	240	240	178	203	210
Growth rate from previous period in %		*0.9*	*-17.9*	*2.0*	*-8.0*	*-2.8*	*11.6*	*-0.2*	*-25.6*	*13.8*	*3.4*
Residual Fuel Oil	124	110	102	99	109	115	119	116	87	99	102
Growth rate from previous period in %		*-10.9*	*-7.2*	*-3.2*	*10.0*	*5.6*	*3.1*	*-2.2*	*-25.2*	*13.9*	*3.4*
B. Natural Gas											
Prices (90ECU/toe)											
Household	268	295	288	268	275	267	341	344	309	290	299
Growth rate from previous period in %		*10.3*	*-2.4*	*-7.0*	*2.7*	*-3.1*	*28.0*	*0.7*	*-10.2*	*-6.1*	*3.3*
Industry	128	125	120	114	112	112	106	111	98	93	95
Growth rate from previous period in %		*-2.4*	*-4.3*	*-5.3*	*-1.2*	*-0.5*	*-5.5*	*5.2*	*-11.6*	*-5.7*	*3.1*
C. Coal											
Prices (90ECU/toe)											
Household	331	354	327	315	320	316	304	305	261	278	280
Growth rate from previous period in %		*6.9*	*-7.7*	*-3.6*	*1.7*	*-1.4*	*-3.9*	*0.5*	*-14.5*	*6.5*	*1.0*
Industry	128	125	120	114	112	112	117	117	100	106	107
Growth rate from previous period in %		*-2.4*	*-4.3*	*-5.3*	*-1.2*	*-0.5*	*4.9*	*-0.3*	*-14.6*	*6.5*	*0.9*
D. Electricity											
Prices (90ECU/100 kWh)											
Household	11.48	11.68	11.60	11.25	11.39	11.25	10.39	10.33	10.08	10.14	10.16
Growth rate from previous period in %		*1.8*	*-0.7*	*-3.0*	*1.3*	*-1.2*	*-7.6*	*-0.6*	*-2.4*	*0.6*	*0.2*
Industry	6.86	6.85	6.75	6.50	6.35	6.07	5.78	5.87	5.48	5.51	5.52
Growth rate from previous period in %		*-0.2*	*-1.4*	*-3.6*	*-2.4*	*-4.3*	*-4.8*	*1.5*	*-6.6*	*0.6*	*0.2*

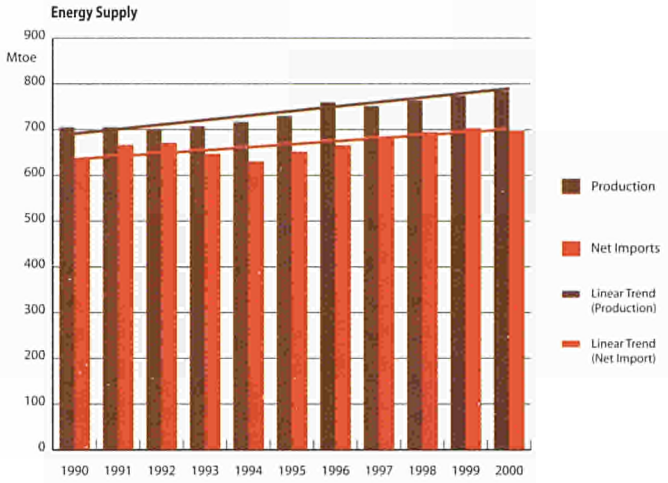
der temperature. Gross inland energy consumption that was also reduced by about 0.4% in 1997, is expected to increase by only 1.2% per year on average until 2000, due to increasing efficiency in the power sector. During the forecast period (1998-2000) the gross inland energy consumption will increase by about 50 Mtoe with very contrasted evolution per fuel. Although the contribution of oil will remain stable, solid consumption will see a 22 Mtoe reduction, and natural gas consumption will increase by 61 Mtoe. The complement will be covered by non-fossil fuels (nuclear, hydro, wind, geothermal and biomass) with biomass contributing 50% of this. Results show solid fuels steadily losing their share in gross inland consumption from 23% in 1990 to 14% in 2000. The oil share, which increased slowly between 1990 (41%) and 1995 (42.5%), will return to the 1990 level in 2000. Natural gas became the second most important fuel in 1993 and is the only fuel whose share steadily increased, rising from 17% in 1990 to 25% in 2000. The contribution of non-fossil fuels increased from 19% in 1990 to 21% in 1997, and is expected to stay around this figure until 2000.

Total domestic energy production is on an upward swing due to significant increase in both natural gas and crude production. On



the other hand, solid fuel production is expected to continue its decline. Non-fossil fuel energy sources are expected to continue to grow in the near future, at a slow rate for nuclear and hydro, but a more sustained one for biomass and especially geothermal. Altogether, the share of net imports in total energy supply has

increased slightly between 1990 and 1997. As a result of increasing production, the energy import dependency of the European Union is likely to recover its 1990 level in 2000, around 47.5%..



Solid Fuels

Total demand for **hard coal** has decreased steadily since 1990. The economic recession of 1993 accelerated this downward trend and solid fuel demand dropped drastically (10%) during that year. The downward trend is expected to continue in the near future, showing an average annual decline of 3.4% between 1997 and 2000. The power generation sector is the driving force for hard coal demand. In competition with natural gas both for economic and environmental reasons, hard coal will lose market shares in the electricity market, mainly in the United Kingdom, Germany, Denmark and Italy. The consumption by the power sector in 2000 will also be 10% lower than in 1996. Industry and the domestic and tertiary sectors will also accelerate their switch away from coal, mainly due to its inconvenience of use. In 1994, for the first time, net imports of hard coal exceeded domestic production, and this trend will be maintained in the medium term but it must be underlined that facing a progressive stabilisation of local production, imports will also start to decline in 1998.

Production and consumption of **coke** is closely connected to the activity level of the iron and steel industry and some domestic and tertiary consumers. In both these sectors, demand for coke has been slowly decreasing since 1990. In the forecast period, the sustained activity of the iron and steel sector will induce a stabilisation of the consumption notwithstanding the progressive conversion to electrical furnaces.

Lignite consumption, after a 45% reduction between 1990 and 1997, will progressively stabilise its consumption as the power sector, the major market for lignite, will be reduced by only 6% between 1998 and 2000. On the other hand, deliveries to final consumers will decline by 24% in accordance with the 1990-97 trend, leading to a marginal contribution of this kind of consumption.

Oil

Gross inland oil consumption is expected to stabilise between 1997 and 2000. Domestic production of crude oil is expected to continue to grow, although slowly, to meet 28% of gross inland consumption in 2000 compared to only 22% in 1990. Since 1993, refinery output has exceeded total domestic demand, with an excess of about 5% for export, including bunkers. This figure is expected to increase a little until 2000.

Deliveries to final consumers will increase slowly by 0.5% per year on average on the forecast period. Transport demand dominates the oil sector. Its share peaked in 1994 with 48% of total oil consumption and decreased to 47% in 1997. In the forecast period, the transport share in the gross inland oil consumption is expected to grow to reach 49% in 2000. Gasoline consumption should remain relatively stable over the forecast period although diesel consumption will increase by about 2% per year between 1997 and 2000, confirming of the progressive dieselisation of the car fleet. Aviation kerosene use, after the jump registered in mid-90's as a consequence of the liberalisation of air markets, will continue to increase between 1997-2000 but a at a limited rate of 3.2% per year on average.

Heating gas oil, faced with the competitiveness of natural gas on the heating market of household, will continue to decline by about 0.8% per year on average. Finally the slowdown of fuel oil consumption by industry, very noticeable in 1996 and 1997 (about 12% per year), will continue at a rate of about 4.4% per year on average. This situation is similar to the **power sector** where the reduction will reach 5.7% per year on average due to major conversion from oil to gas in Italy.

As a consequence of these evolutions, the production of the refineries will be more oriented to the gas oil cut (jointly gas oil and kerosene) although the share of the bottom of the barrel will still be reduced to represent only 15% in 2000. Considering the increasing environmental quality of all products this will favour the profitability of complex refineries.

SUMMARY ENERGY BALANCE (MTOE)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production											
Solid Fuels	210.4	189.8	176.5	155.9	136.5	135.3	130.1	124.7	121.9	118.8	116.3
Hard Coal	121.1	117.7	111.8	95.8	79.4	81.7	77.4	73.7	72.5	71.2	70.0
Lignite	89.4	72.1	64.8	60.1	57.1	53.6	52.7	51.0	49.4	47.6	46.2
Oil	116.6	116.1	119.6	124.6	153.4	156.5	158.1	156.0	160.1	162.5	165.0
Natural Gas	132.5	144.8	146.6	157.4	158.7	164.5	185.2	181.1	187.9	195.3	202.6
Heat	184.4	190.6	194.2	203.1	202.1	206.6	217.0	219.7	221.4	223.1	224.1
Nuclear	182.1	188.3	191.7	200.5	199.7	204.2	214.4	216.9	218.2	218.8	219.4
Geothermy	2.3	2.3	2.5	2.6	2.5	2.5	2.7	2.8	3.2	4.3	4.7
Primary Electricity	23.5	24.5	26.1	26.6	26.8	26.6	28.0	27.3	27.9	27.9	28.2
Other	38.9	40.6	39.4	40.7	40.2	41.2	42.2	43.5	45.1	46.9	49.0
Total	706.4	706.4	702.4	708.4	717.7	730.8	760.7	752.3	764.4	774.6	785.1
Growth rate from previous period in %		*0.0*	*-0.6*	*0.9*	*1.3*	*1.8*	*4.1*	*-1.1*	*1.6*	*1.3*	*1.4*
Net Imports											
Solid Fuels	88.4	97.8	98.7	84.8	88.9	94.3	93.1	98.7	92.3	90.4	85.3
Hard Coal	85.5	94.3	95.7	81.2	84.3	89.0	89.6	94.0	87.2	85.0	79.7
Oil	454.1	475.2	478.0	468.3	443.8	449.0	463.5	466.9	467.3	466.1	459.1
Natural Gas	92.4	94.4	95.2	94.3	98.4	108.8	111.9	116.2	135.8	147.6	155.1
Electricity	2.2	1.3	1.6	2.2	1.6	1.5	-0.5	1.3	1.3	1.3	1.1
Total	637.1	668.7	673.5	649.6	632.7	653.6	668.1	682.9	696.7	705.4	700.6
Growth rate from previous period in %		*5.0*	*0.7*	*-3.5*	*-2.6*	*3.3*	*2.2*	*2.2*	*2.0*	*1.2*	*-0.7*
Bunkers											
Petroleum Products	35.2	35.1	35.8	36.7	35.5	35.2	38.0	40.8	41.6	42.5	43.4
Gross Inland Consumption											
Solid Fuels	301.5	286.5	267.8	243.0	245.4	236.2	227.9	222.6	213.7	208.6	201.0
Growth rate from previous period in %		*-5.0*	*-6.5*	*-9.2*	*1.0*	*-3.8*	*-3.5*	*-2.3*	*-4.0*	*-2.4*	*-3.7*
Hard Coal	209.2	211.2	200.8	179.1	182.2	176.5	171.6	166.7	159.2	155.8	149.3
Coke	1.9	2.0	0.9	2.6	5.1	5.0	3.1	4.7	4.7	4.9	5.1
Lignite	90.5	73.3	66.1	61.3	58.1	54.7	53.1	51.2	49.8	48.0	46.6
Oil	536.2	553.8	558.6	557.2	556.9	575.0	583.9	582.5	587.2	586.9	581.5
Growth rate from previous period in %		*3.3*	*0.9*	*-0.2*	*-0.1*	*3.2*	*1.6*	*-0.2*	*0.8*	*0.0*	*-0.9*
Natural Gas	221.9	239.1	238.4	251.3	257.3	270.9	295.1	293.1	321.0	340.0	354.5
Growth rate from previous period in %		*7.7*	*-0.3*	*5.4*	*2.4*	*5.3*	*8.9*	*-0.7*	*9.5*	*5.9*	*4.3*
Heat	184.4	190.6	194.2	203.1	202.1	206.6	217.0	219.7	221.4	223.1	224.1
Growth rate from previous period in %		*3.3*	*1.9*	*4.6*	*-0.5*	*2.2*	*5.0*	*1.2*	*0.8*	*0.8*	*0.5*
Nuclear	182.1	188.3	191.7	200.5	199.7	204.2	214.4	216.9	218.2	218.8	219.4
Geothermy	2.3	2.3	2.5	2.6	2.5	2.5	2.7	2.8	3.2	4.3	4.7
Primary Electricity	23.5	24.5	26.1	26.6	26.8	26.6	28.0	27.3	27.9	27.9	28.2
Growth rate from previous period in %		*4.1*	*6.5*	*2.0*	*0.8*	*-0.6*	*5.1*	*-2.4*	*2.2*	*0.0*	*0.9*
Other	38.9	40.6	39.4	40.7	40.2	41.2	42.2	43.5	45.1	46.9	49.0
Growth rate from previous period in %		*4.2*	*-3.0*	*3.4*	*-1.3*	*2.4*	*2.5*	*3.1*	*3.7*	*4.0*	*4.4*
Total	1306.6	1335.1	1324.4	1322.0	1328.7	1356.5	1394.2	1388.7	1416.3	1433.5	1438.2
Growth rate from previous period in %		*2.2*	*-0.8*	*-0.2*	*0.5*	*2.1*	*2.8*	*-0.4*	*2.0*	*1.2*	*0.3*
Import Dependency (%)											
Hard Coal	40.9	44.7	47.7	45.3	46.3	50.4	52.2	56.4	54.8	54.6	53.4
Oil	79.5	80.7	80.4	78.8	74.9	73.6	74.5	74.9	74.3	74.1	73.5
Natural Gas	41.6	39.5	39.9	37.5	38.2	40.2	37.9	39.6	42.3	43.4	43.8
Total	47.5	48.8	49.5	47.8	46.4	47.0	46.6	47.8	47.8	47.8	47.3
Growth rate from previous period in %		*2.8*	*1.4*	*-3.4*	*-3.0*	*1.3*	*-0.7*	*2.4*	*0.0*	*0.0*	*-1.1*
Deliveries to Final Consumers (*)											
Solid Fuels	95.7	81.1	69.9	62.3	58.0	51.5	48.0	45.4	42.5	40.8	39.9
Oil	468.3	476.6	481.3	482.8	484.3	498.7	499.5	502.9	510.5	511.4	510.4
Natural Gas	191.5	209.8	208.9	216.5	218.8	229.0	245.3	237.3	257.5	267.3	274.2
Derived Gases	13.9	13.3	12.1	11.0	10.9	10.9	10.2	11.1	10.0	10.0	9.9
Electricity	158.4	161.7	162.5	164.1	165.7	170.5	175.2	176.6	183.0	186.7	188.7
Biomass	33.8	35.2	34.1	35.3	34.7	35.4	36.3	37.2	38.1	39.1	40.1
Total	961.6	977.7	968.8	972.0	972.3	996.0	1014.4	1010.4	1041.6	1055.3	1063.1
Growth rate from previous period in %		*1.7*	*-0.9*	*0.3*	*0.0*	*2.4*	*1.9*	*-0.4*	*3.1*	*1.3*	*0.7*

(*) includes some deliveries to electricity autoproducers and non-energy consumption
N.B.: Differences between the numbers in the table and EU annual energy balances originate from the discrepancies between annual and monthly-based statistics

SOLID FUELS : SUPPLY AND DISPOSAL (MTOE)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
A. HARD COAL											
Production	121.1	117.7	111.8	95.8	79.4	81.7	77.4	73.7	72.5	71.2	70.0
Growth rate from previous period in %		*-2.8*	*-5.0*	*-14.3*	*-17.1*	*3.0*	*-5.3*	*-4.8*	*-1.6*	*-1.8*	*-1.7*
Net imports	85.5	94.3	95.7	81.2	84.3	89.0	89.6	94.0	87.2	85.0	79.7
Growth rate from previous period in %		*10.4*	*1.5*	*-15.1*	*3.8*	*5.6*	*0.7*	*5.0*	*-7.3*	*-2.5*	*-6.2*
Total supply	206.5	212.0	207.5	177.0	163.7	170.7	171.6	166.7	159.2	155.8	149.3
stock var	2.6	-0.8	-6.7	2.1	18.5	5.8	4.7	1.8	-0.5	-0.5	-0.5
Gross Inland Consumption	209.2	211.2	200.8	179.1	182.2	176.5	171.6	166.7	159.2	155.8	149.3
Growth rate from previous period in %		*1.0*	*-4.9*	*-10.8*	*1.7*	*-3.1*	*-2.7*	*-2.9*	*-4.5*	*-2.1*	*-4.2*
Transformation input	177.6	177.6	169.7	151.3	155.9	154.6	151.0	150.1	144.4	141.9	135.9
of which :											
Thermal Power generation	123.7	123.6	118.0	107.9	110.1	109.5	110.5	121.5	109.1	106.7	101.4
Growth rate from previous period in %		*0.0*	*-4.6*	*-8.5*	*2.0*	*-0.5*	*1.0*	*10.0*	*-10.2*	*-2.2*	*-4.9*
Cokeries	38.6	44.6	40.8	37.8	35.9	37.7	35.5	33.7	32.4	32.5	31.9
Growth rate from previous period in %		*15.4*	*-8.5*	*-7.4*	*-4.9*	*4.9*	*-5.8*	*-5.2*	*-3.8*	*0.2*	*-1.8*
Deliveries to final consumers	31.6	33.6	31.0	27.9	26.3	21.9	20.7	16.6	14.7	13.8	13.3
Growth rate from previous period in %		*6.2*	*-7.6*	*-10.2*	*-5.7*	*-16.7*	*-5.7*	*-19.6*	*-11.3*	*-6.4*	*-3.5*
B. COKE											
Net Imports	1.8	2.2	1.6	2.4	3.6	4.2	3.2	4.5	4.7	4.9	5.2
Gross Inland Consumption	1.9	2.0	0.9	2.6	5.1	5.0	3.1	4.7	4.7	4.9	5.1
Coking Plants Production	21.5	20.3	19.3	16.6	14.6	15.0	15.8	16.1	15.6	15.6	15.4
Deliveries to Final Consumers	23.4	22.3	20.2	19.2	19.7	20.0	18.9	20.8	20.3	20.6	20.5
Growth rate from previous period in %		*-4.7*	*-9.3*	*-4.8*	*2.6*	*1.1*	*-5.4*	*10.4*	*-2.5*	*1.2*	*-0.3*
C. LIGNITE											
Production	89.4	72.1	64.8	60.1	57.1	53.6	52.7	51.0	49.4	47.6	46.2
Gross Inland Consumption	90.5	73.3	66.1	61.3	58.1	54.7	53.1	51.2	49.8	48.0	46.6
Growth rate from previous period in %		*-19.0*	*-9.8*	*-7.3*	*-5.2*	*-5.8*	*-2.9*	*-3.7*	*-2.6*	*-3.7*	*-2.9*
Transformation Input	48.2	47.3	46.7	45.6	45.1	44.4	44.4	43.0	42.3	41.5	40.6
Public Power Generation	48.1	47.3	46.5	45.4	44.9	44.2	44.3	42.9	42.2	41.4	40.5
Growth rate from previous period in %		*-1.7*	*-1.6*	*-2.5*	*-1.1*	*-1.5*	*0.2*	*-3.2*	*-1.4*	*-1.9*	*-2.4*
Deliveries to Final Consumers	40.8	25.2	18.6	15.2	12.0	9.6	8.5	7.9	7.5	6.4	6.0
Growth rate from previous period in %		*-38.1*	*-26.1*	*-18.4*	*-21.3*	*-19.5*	*-12.2*	*-6.3*	*-5.9*	*-13.9*	*-5.9*
Of which electricity autoproduction	6.0	5.8	4.8	4.0	3.4	3.1	3.1	3.0	2.8	2.6	2.4

N.B. : Differences between the numbers in the table and EU annual energy balances originate from the discrepancies between annual and monthly-based statistics

Natural Gas

Natural gas demand has increased by 4% annually since 1990, with a jump of 9% in 1996 due to climatic conditions. Between 1990 and 1997, about 80% of the total increase in gross inland consumption was met by gas. The main reasons were higher consumption in power generation (+22 Mtoe) and final consumption sectors (+46 Mtoe). Over the forecast period, natural gas demand is anticipated to increase by 4.6% annually with a major increase in 1998 (+8.2%) due to the climate effect and a more moderate growth in 1999 and 2000 (+2.8% on average). The adoption of the gas market directive should also add to the impetus of increasing gas demand.

During the forecast period, the bulk of the increase in gas consumption comes from the power sector where gas use increases by 13.4% per year on average. This result comes both from the liberalisation of the electricity market favouring combined cycle investment and environmental concerns pushing to repowering and conversion of fossil fuel based units to natural gas. Furthermore, the new development of limited-size units by autoproducers almost based on gas (gas turbine and gas driven engines) will accentuate the pressure on gas. Globally power capacity able to burn natural gas will be completed by between 22 and 25 GWe until 2000 due to new investments, repowering and conversion programmes.

Domestic production of natural gas is expected to increase by 10% until the turn of the century, with imports increasing by 38% over the same period. Consequently, import dependency for natural gas is predicted to continue increasing from 39% in 1997 to 44% in 2000.

OIL AND NATURAL GAS : SUPPLY AND DISPOSAL (MTOE)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
A. OIL											
A.1. Supply											
Primary Production	116.6	116.1	119.6	124.6	153.4	156.5	158.1	156.0	160.1	162.5	165.0
Crude	113.8	112.6	115.3	119.8	152.7	155.8	157.6	155.6	159.7	162.1	164.6
Oil Products	2.8	3.5	4.3	4.9	0.7	0.7	0.5	0.4	0.4	0.4	0.4
Net Imports	454.1	475.2	478.0	468.3	443.8	449.0	463.5	466.9	467.3	466.1	459.1
Bunkers	35.2	35.1	35.8	36.7	35.5	35.2	38.0	40.8	41.6	42.5	43.4
Gross Inland Consumption	536.2	553.7	558.6	557.9	556.9	575.0	583.9	582.5	587.2	586.9	581.5
Growth rate from previous period in %		3.3	0.6	-2.0	-5.2	1.2	3.2	-0.2	0.8	0.0	-0.9
Transformation Energy Consumption	68.0	77.1	77.3	75.0	72.6	76.2	84.5	77.1	76.7	75.5	71.1
Refineries Input	555.6	572.6	590.5	612.3	630.4	627.0	643.5	654.3	664.2	665.4	663.9
Refineries Net Output	531.7	542.3	560.1	579.9	599.0	594.7	610.4	620.7	630.2	631.2	629.8
Power Generation input	44.0	46.8	46.9	42.7	41.2	43.8	41.7	38.6	38.2	35.4	32.4
A.2. Final Consumers											
Total	468.3	476.6	481.3	482.8	484.3	498.7	499.5	502.9	510.5	511.4	510.4
Growth rate from previous period in %		1.8	1.0	0.3	0.3	3.0	0.1	0.7	1.5	0.2	-0.2
Motor Gasoline	123.3	125.1	127.7	125.5	123.4	122.0	121.9	121.6	121.8	121.6	120.4
Growth rate from previous period in %		1.4	2.1	-1.8	-1.7	-1.1	0.0	-0.2	0.1	-0.1	-1.0
Kerosene	30.0	29.8	32.1	33.6	35.7	37.2	39.2	40.9	42.3	43.6	44.9
Growth rate from previous period in %		-0.6	7.7	4.7	6.2	4.2	5.5	4.2	3.4	3.0	3.0
Gasoil (total)	186.4	197.7	197.4	207.7	206.2	210.6	220.8	219.5	222.6	221.8	223.7
Growth rate from previous period in %		6.0	-0.1	5.2	-0.7	2.2	4.8	-0.6	1.4	-0.4	0.9
Automotive Diesel	92.8	97.2	101.8	101.0	109.5	111.0	110.2	113.8	116.8	118.5	120.4
Growth rate from previous period in %		4.7	4.7	-0.7	8.4	1.4	-0.8	3.3	2.6	1.5	1.6
Heating gas oil	93.6	100.4	95.7	106.7	96.7	99.6	110.6	105.7	105.8	103.3	103.3
Growth rate from previous period in %		7.3	-4.8	11.5	-9.4	3.1	11.1	-4.5	0.2	-2.4	0.0
Heavy fuel oil	35.3	35.5	34.4	35.9	35.7	34.2	29.9	26.1	24.8	23.6	22.8
Growth rate from previous period in %		0.8	-3.2	4.2	-0.4	-4.1	-12.5	-12.7	-5.3	-4.7	-3.3
Other Products	93.2	88.5	89.7	80.2	83.3	94.7	87.5	94.7	99.0	100.8	98.6
Growth rate from previous period in %		-5.1	1.3	-10.6	4.0	13.7	-7.6	8.2	4.6	1.8	-2.2
B.NATURAL GAS											
Primary Production	132.5	144.8	146.6	157.4	158.7	164.5	185.2	181.1	187.9	195.3	202.6
Net Imports	92.4	94.4	95.2	94.3	98.4	108.8	111.9	116.2	135.8	147.6	155.1
Gross Inland Consumption	221.9	239.1	238.4	251.3	257.3	270.9	295.1	293.1	321.0	340.0	354.5
Growth rate from previous period in %		7.7	-0.3	5.4	2.4	5.3	8.9	-0.7	9.5	5.9	4.3
Transf. Input & Own Consump.	30.5	29.4	29.5	34.8	38.5	41.9	49.5	55.4	63.1	72.3	79.9
Growth rate from previous period in %		-3.6	0.5	18.0	10.6	8.8	18.0	12.0	13.9	14.6	10.4
Own consumption	6.7	7.3	7.4	7.8	8.6	8.9	9.5	9.4	9.7	10.1	10.5
Public Power Generation	23.8	22.5	22.4	27.1	30.0	32.9	39.5	45.7	53.0	61.8	69.0
Available for Final Consumption	191.5	209.8	208.9	216.5	218.8	229.0	245.3	237.3	257.5	267.3	274.2
Growth rate from previous period in %		9.6	-0.4	3.6	1.0	4.7	7.1	-3.2	8.5	3.8	2.6
of which electricity autoproduction	7.8	7.6	8.2	8.8	9.6	11.6	12.9	15.2	17.1	18.6	19.9

N.B. : Differences between the numbers in the table and EU annual energy balances originate from the discrepancies between annual and monthly-based statistics

Electricity

Demand for electricity has increased steadily for many years driven by the tertiary-domestic sector and, to a lesser extent, industry. In 1997 demand growth was limited to only 0.8%, the sustained economic growth being largely compensated by the very mild climatic conditions. Final electricity demand is expected to continue to grow by 2.2% annually on average until 2000, demonstrating an elasticity of about 0.8 compared to GDP. This evolution is deeply affected by the climate effect in 1998 that pushed the demand growth to 3.0%.

The power sector is certainly the most challenging in the immediate future. **New investments** were oriented mainly to gas-fuelled power stations. Combined cycle made a large contribution, including increasing combined heat and power production, and repowering and conversion of existing units to natural gas. In addition, the market perception by the power sector itself is changing rapidly, modifying in consequence their investment programmes. Between 1997 and 1998, their perception of gas contribution to the 2000 horizon increased from 56 Mtoe in 1996 to about 97 Mtoe in 2000 with a subsequent reduction of hard coal

ELECTRICITY : SUMMARY BALANCE

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
A.1. Generation (TWh)											
Total Gross Generation	2162.6	2231.0	2229.3	2240.4	2270.4	2334.2	2417.3	2417.5	2505.8	2559.4	2588.8
Growth rate from previous period in %		*3.2*	*-0.1*	*0.5*	*1.3*	*2.8*	*3.6*	*0.0*	*3.7*	*2.1*	*1.1*
Produced by Pumping	13.8	14.9	16.2	13.9	13.1	16.2	17.9	17.5	16.2	16.9	17.1
Primary production (Hydro)	273.5	284.7	303.2	309.1	311.7	309.7	325.6	317.9	324.9	324.8	327.8
Growth rate from previous period in %		*4.1*	*6.5*	*2.0*	*0.8*	*-0.6*	*5.1*	*-2.4*	*2.2*	*0.0*	*0.9*
Derived production :	1875.3	1931.4	1909.9	1917.3	1945.6	2008.3	2073.8	2082.1	2164.8	2217.7	2243.9
Nuclear	719.9	744.4	757.8	792.7	789.4	807.3	847.5	857.4	862.6	865.0	867.5
Growth rate from previous period in %		*3.4*	*1.8*	*4.6*	*-0.4*	*2.3*	*5.0*	*1.2*	*0.6*	*0.3*	*0.3*
Conventional Thermal	1152.1	1183.8	1148.6	1121.0	1152.8	1197.6	1222.6	1220.8	1297.7	1346.7	1369.9
Growth rate from previous period in %		*2.7*	*-3.0*	*-2.4*	*2.8*	*3.9*	*2.1*	*-0.1*	*6.3*	*3.8*	*1.7*
Geothermal	3.2	3.2	3.5	3.7	3.4	3.4	3.8	3.9	4.5	6.0	6.5
Absorbed by Pumping	19.4	21.1	23.2	19.5	18.5	22.6	25.2	24.7	22.8	23.8	24.1
Own consumption	114.3	125.2	121.0	117.0	120.3	125.8	121.5	124.1	132.6	135.5	136.4
Total Net Generation	2048.3	2105.8	2108.3	2121.9	2150.3	2208.4	2295.7	2293.4	2373.2	2424.0	2452.5
Growth rate from previous period in %		*2.8*	*0.1*	*0.6*	*1.3*	*2.7*	*4.0*	*-0.1*	*3.5*	*2.1*	*1.2*
A.2. Disposal (TWh)											
Total Net Generation	2025.3	2084.6	2085.1	2102.4	2131.7	2189.0	2270.5	2268.7	2350.5	2400.2	2428.4
Net Imports	25.4	15.5	18.2	25.1	18.0	17.4	-5.4	14.6	15.3	14.6	13.1
Total Available	2050.7	2100.2	2103.3	2127.5	2149.8	2206.4	2265.1	2283.3	2365.8	2414.8	2441.5
Growth rate from previous period in %		*2.4*	*0.1*	*1.1*	*1.0*	*2.6*	*2.7*	*0.8*	*3.6*	*2.1*	*1.1*
Distribution losses	134.8	140.7	135.0	139.1	142.7	141.5	148.4	148.9	154.7	157.9	158.9
Consumption Internal Market	1915.9	1959.5	1968.3	1988.4	2007.1	2064.9	2116.6	2134.4	2211.1	2256.9	2282.5
Energy Branch Consumption	73.9	78.8	78.8	80.8	80.8	82.6	79.0	81.0	83.2	85.6	88.3
Available for Final Consumption	1841.9	1880.7	1889.5	1907.6	1926.3	1982.3	2037.7	2053.5	2127.9	2171.3	2194.3
Growth rate from previous period in %		*2.1*	*0.5*	*1.0*	*1.0*	*2.9*	*2.8*	*0.8*	*3.6*	*2.0*	*1.1*
B. Input to Conventional Thermal Power Stations (Mtoe)											
Solids											
Hard coal	123.7	123.6	118.0	107.9	110.1	109.5	110.5	121.5	109.1	106.7	101.4
Growth rate from previous period in %		*0.0*	*-4.6*	*-8.5*	*2.0*	*-0.5*	*1.0*	*10.0*	*-10.2*	*-2.2*	*-4.9*
Lignite	54.1	53.1	51.4	49.3	48.3	47.2	47.3	45.8	45.0	44.1	42.8
Growth rate from previous period in %		*-1.8*	*-3.2*	*-3.9*	*-2.1*	*-2.2*	*0.2*	*-3.2*	*-1.7*	*-2.1*	*-2.8*
Oil	44.0	46.8	46.9	42.3	41.2	43.8	41.7	40.2	38.2	35.4	32.4
Growth rate from previous period in %		*6.2*	*0.2*	*-9.9*	*-2.6*	*6.5*	*-4.8*	*-3.8*	*-4.8*	*-7.4*	*-8.4*
Gas											
Natural gas	31.2	30.4	31.3	37.1	40.1	46.6	53.6	63.0	70.0	80.4	88.9
Growth rate from previous period in %		*-2.6*	*2.9*	*18.6*	*8.1*	*16.3*	*15.0*	*17.5*	*11.1*	*14.8*	*10.5*
Derived gas	2.4	2.2	2.1	2.2	2.4	2.5	2.7	2.5	2.3	2.1	2.0
Growth rate from previous period in %		*-8.2*	*-4.7*	*6.7*	*6.7*	*6.5*	*8.8*	*-7.9*	*-8.1*	*-7.9*	*-7.7*
Other	5.1	5.4	5.3	5.4	5.5	5.8	5.9	6.3	7.0	7.8	8.9
Growth rate from previous period in %		*4.9*	*-2.2*	*2.8*	*1.5*	*5.0*	*2.6*	*6.6*	*10.5*	*12.0*	*13.8*
TOTAL	260.5	261.4	254.8	244.3	247.5	255.5	261.9	279.4	271.7	276.5	276.4
Growth rate from previous period in %		*0.4*	*-2.5*	*-4.2*	*1.3*	*3.2*	*2.5*	*6.7*	*-2.7*	*1.8*	*0.0*

N.B. : Differences between the numbers in the table and EU annual energy balances originate from the discrepancies between annual and monthly-based statistics

consumption. This significantly affects the structure of gross inland energy consumption and CO_2 emissions. Our forecast does not integrate such a bullish development of gas, even if a consumption of about 89 Mtoe of natural gas is predicted in 2000.

Nuclear electricity production is likely to increase slowly over the next four years due to new commissioning (2.9 GWe) and the upgrading of existing units associated with steam generator replacements. Hydropower production is assumed to stay around its 1996 level. Geothermal production, being almost marginal in the overall picture, is expected to increase as some new units will be commissioned in Italy. These three sources are together expected to account for 46% of total generation in 2000, compared to 48.8% in 1997. Consequently, conventional thermal generation of electricity will play a major role in covering additional requirements over the forecast period. Lignite supported by indigenous production will stabilise its contribution. Hard coal and oil-based production, penalised by economic and environmental considerations will see their production base declining by 8% and 22% respectively between 1997 and 2000. In 1996, gas became the second most important fuel in thermal power generation ahead of lignite and oil and, as discussed above, is predicted to reinforce sharply this position by the year 2000.

3. Energy Indicators

The **energy intensity** in the European Union improved by 0.7% p.a. between 1990 and 1997, benefiting from mild climate conditions in 1997. During the forecast period, energy intensity is forecast to improve by 1.6% per annum, profiting from sustained economic activity over the whole period. The energy system benefits in particular from strong replacement equipment investment and improved general performance in all sectors. On the other hand, energy consumption per capita will increase by about 3% between 1997 and 2000 as it did between 1990 and 1996.

CO_2 emissions showed a 2% reduction in 1997 compared to 1990. Over the forecast period, considering average climate conditions, they will increase by about 1.5% to give in 2000 a level 0.5% lower than in 1990. This means that the political objective of stabilising CO_2 emissions in 2000 can be achieved. This is mainly due to two factors: the continuous energy intensity gains observed during the 90's (about 1% per year on average); and the carbon intensity slowdown (about 1% per year on average) obtained from the larger contribution of natural gas instead of solids and oil as well as the intensification of carbon-free energy sources. In complement to this major result, CO_2 emissions per unit of GDP declined by 18% during the 90's and CO_2 emissions per capita decreased by 4%.

4. Result sensitivity

Three main factors could influence the short-term energy forecast: the evolution of economic growth, climatic conditions and the evolution of the power sector.

- Considering recent economic development (issues in Asia and Latin America), the economic growth has been overestimated. In the Autumn 98 economic forecasts presented by DG II end of October 98 real GDP in the European Union is estimated to increase by 2.9% in 1998 against 2.7% in the Spring forecasts (base case). For 1999, international events (Asian crisis, ...) have cut 1/2 percentage point from the rate of growth bringing it to 2.4% in 1999, before picking up to 2.8% in 2000. The combined effect on the period 1998-2000 result in a reduction of GDP growth by 0.5% at the horizon 2000. Considering identical weather conditions as in the base case, the resulting reduction of energy consumption should be limited to at maximum 0.2% in 2000, concentrated mainly on gas and electricity at the final demand level. Consequently, CO_2 emissions should be reduced at maximum by 0.1% to 0.15% in 2000.
- Evolution of short term climatic conditions (1998-1997) indicates that the short term (10 years) average degree-days is about 7% below the long term average (25 years). If one assumes a trend in the average temperature, the short-term average degree-days were more representatives of the evolution in the near future of the climatic conditions. This means that average temperature could be underestimated in the forecast leading to an overestimate of energy consumption and CO_2 emissions in 2000 by 1.0% to 1.5%.
- The rapid conversion of the power sector to gas consumption is one of the key factors in guaranteeing stability of CO_2 emissions at the horizon of 2000. To quantify the impact of this conversion, it can be considered that each variation of gas consumption of about 15 Mtoe by the power sector results in a variation of total CO_2 emissions by 1%. But the STEO forecast remains significantly below the latest estimates of gas consumption provided by the power sector.

Consequently, the STEO forecast can be considered as: optimistic regarding the economic growth, prudent in terms of climate conditions and neutral concerning gas consumption in the power sector. Therefore, the forecast concerning the objective of a stabilisation of CO_2 emissions in 2000 can be considered as prudent.

SHORT TERM FORECAST - MAIN INDICATORS (1990 = 100)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
CO_2 emissions (million tn of CO_2)	100.0	100.5	98.1	96.3	96.4	97.8	99.5	98.0	99.0	99.7	99.5
Enegy Intensity (toe/1990 MECU)	100.0	101.0	99.3	99.8	97.4	97.0	98.1	95.4	94.8	93.1	90.8
Energy per capita (toe/inhabitant)	100.0	101.7	100.4	99.8	99.9	101.7	104.3	103.5	105.3	106.3	106.3
Carbon Intensity (tn of CO_2/toe)	100.0	98.4	96.8	95.1	94.8	94.2	93.2	92.2	91.4	90.9	90.4
CO_2 per unit of GDP (tn of CO_2/1990 MECU)	100.0	99.4	96.1	94.9	92.3	91.4	91.5	88.0	86.6	84.7	82.0
CO_2 per Capita (tn of CO_2/inhabitant)	100.0	100.0	97.1	94.9	94.7	95.8	97.2	95.5	96.2	96.6	96.0

N.B.: Differences between the numbers in the table and EU annual energy balances originate from the discrepancies between annual and monthly-based statistics

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Part II analyses in detail the European Union including summary tables on energy prices.

Part III looks at the rest of the OECD, by regions: NAFTA, OECD Pacific and EFTA

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CIS	Community of Independent States
DG II	Directorate-General for Economic Affairs of the European Commission
DG XVII	Directorate-General for Energy of the European Commission
EFTA	European Free Trade Association
Energy Intensity	Ratio of Energy Consumption to GDP
EU	European Union
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GIC	Gross Inland Consumption
GW	GigaWatt, or 10^9 Watt
IEA	International Energy Agency
IMF	International Monetary Fund
kgoe	Kilogram oil equivalent
kl	Thousand litre
kWh	Thousand Watt.hour
l	Litre
MECU	Million ECU
Mt	Million metric tonne
Mtoe	Million toe
NAFTA	North American Free Trade Agreement
OECD	Organisation for Economic Cooperation and Development (excluding Hungary, Czech Republic and Poland)
OLADE	Organizacion Latinoamericana de Energia
S	Sulphur
SOEC	Statistical Office of the European Communities
STEO	Short-Term Energy Outlook for the European Union
t	Metric tonne, or 1.000 kilograms
toe	Tonne of oil equivalent, or 10^7 kilocalories, or 41.86 GJ
TWh	Tera Watt.hour, or 10^{12} Watt.hour
UN	United Nations
WB	World Bank

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