





AFRICA: Recent trends (1980-1997)

- 1997 confirmed the economic recovery observed since 1994
- Biomass covered up to 72% of the final energy demand in sub-Saharan Africa
- The contribution of transportation fuels and electricity remained very low
- Final energy demand is largely dominated by the tertiary-domestic sector
- Growth of gross inland consumption had slowed down since 1980, but rebounded in 1997
- Sub-Saharan oil production increased steadily, sustained by promising offshore West African sites
- Africa accounted for just over 6% of world's fossil fuel reserves
- Electricity is mainly generated in thermal power plants despite a large hydro potential
- The refinery capacity still requires upgrading
- Synthetic fuels developed in South Africa are now subject to closer economic scrutiny
- Energy intensity has improved since 1995
- Gross inland consumption per capita has declined since 1985 and is equivalent to only 15% of EU average
- In 1997, CO₂ emissions were 14% above the 1990 level
- Africa became an increasing exporter of energy with North Africa and sub-Saharan Africa contributing equally

Africa is a diverse continent from both economic and energy perspectives. A natural geographic separation, the Sahara desert, separates the North along the Mediterranean Sea, and all other countries. There are a number of countries with vast resources of oil, gas and coal. However, the energy sector in the region is largely underdeveloped. Africa includes some of the least developed countries in the world and, as a whole, has the lowest average income per capita among the world regions considered in this outlook. Special economic 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.

1997 confirmed the economic recovery observed since 1994...

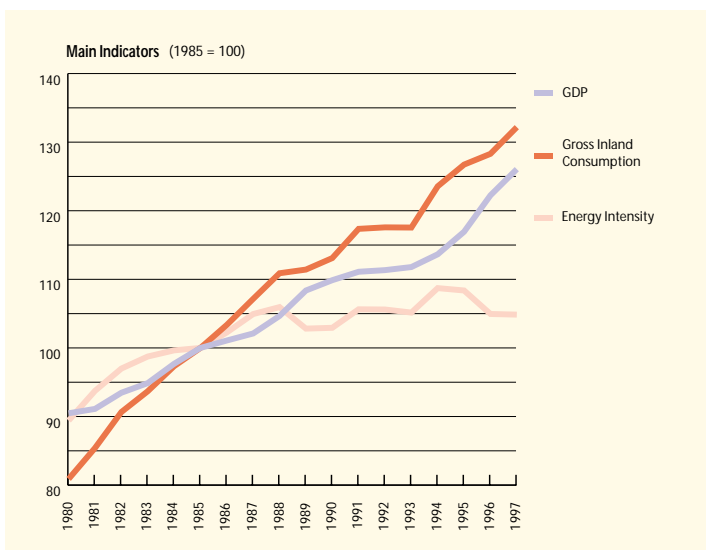
Between 1980 and 1997, the African population grew steadily by about 2.7% per annum, but only by 2.1% in North Africa since 1990. About 82% of the continent's population is concentrated in sub-Saharan Africa. Over the same period, the annual average GDP growth was limited to 2.0%. Though growth was stable during the 1980's, the economic growth was marked by stagnation between 1990 and 1993 and by a more sustained evolution since then, confirmed by a 3.1% increase in 1997. But it must be stressed that GDP is largely underestimated, as a large fraction of the population is self-sufficient and thus much economic activity is not recorded.

ENERGY OUTLOOK

Biomass covered up to 72% of the final energy demand in sub-Saharan Africa...

The growth of final energy demand slowed down since 1980 to reach only 1.8% in 1997 compared to 2.5% at the beginning of the 1980's. But final demand varies greatly from region to region. Since 1985, the growth in North Africa (+36%) has been systematically higher than in sub-Saharan Africa (+25%). Furthermore, in North Africa, the growth was totally covered by fossil fuels and electricity. Biomass played a major role in sub-Saharan Africa, with the exception of South Africa.

Biomass remained the major contributor to the final energy demand, with a share of about 60% of energy needs even though





the precise levels of use in individual countries are uncertain. For example, some neighbouring countries with similar economic and geographical characteristics show unexplained differences in their level of per capita biomass use. The significant differences in economic development, energy endowment and demography between North, South and the rest of Sub-Saharan Africa are reflected in the pattern of biomass energy use. Sub-Saharan Africa, excluding South Africa, accounted for 92% of the continent's total final biomass consumption in 1996, but consumed only 12% of the continent's final conventional energy. Most biomass energy is consumed in the household sector. The share of biomass in the tertiary-domestic and agriculture sectors was about 83% for the whole continent, 16% in North Africa, 35% in South Africa and 93% for the rest of sub-Saharan Africa. Much of the biomass used in rural households is collected rather than purchased. In urban areas, however, all charcoal and a large part of firewood is traded. Firewood and charcoal production constitute an important source of employment and income for rural people.

	Total Biomass in Final Energy Demand	Share of the region's biomass use	Share of biomass in Final Energy Demand	Per capita energy use (Kgoe)	
	(Mtoe)			Biomass	Conv. Fuels
North Africa	3,4	2%	6%	26	401
Sub-Saharan Africa	183,8	98%	79%	311	83
of which South Africa	11,8	6%	24%	313	996
Total Africa	187,1	100%	65%	260	140

Contribution of transportation fuels and electricity remained very low...

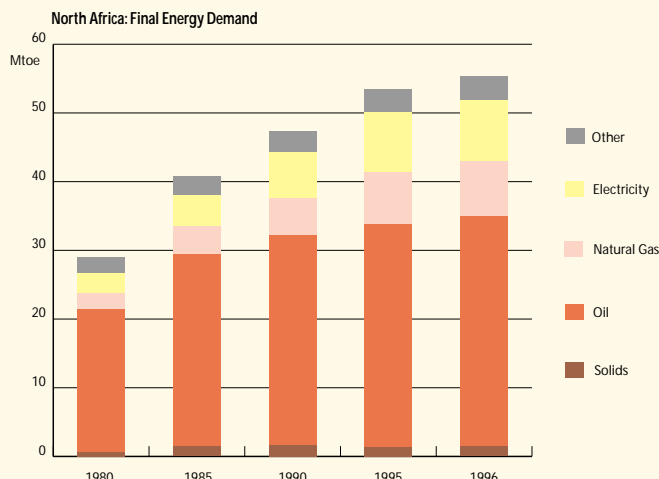
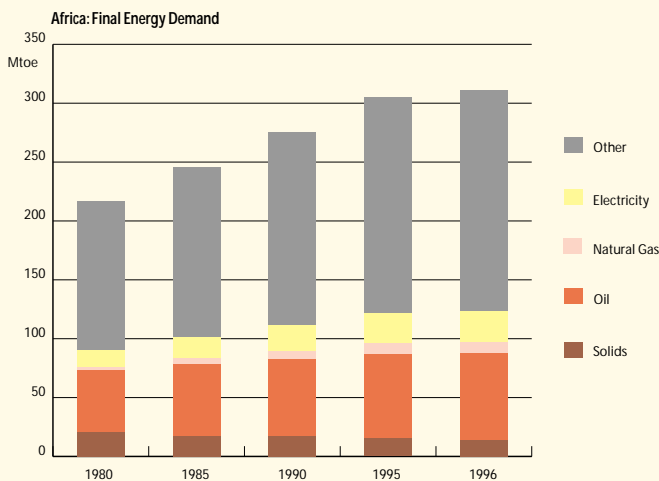
Oil's contribution has remained stable since 1980 at about 24% due to the limited increase of transportation fuel consumption. Car ownership in Africa remains one of the lowest in the world, with only 20 cars per 1000 inhabitants on average. The substitution from coal to both oil and gas is largely due to the evolution of South Africa's final demand. The electricity share increased from 6% to 8% since 1980 but remained very low compared to industrialised countries. Oil consumption of the whole continent remained lower than the UK's oil consumption in 1996. At present, there are low levels of electrification in many African countries. In per capita terms, the contrast is dramatic: in 1996 South Africa consumed 5260 kWh per capita, North Africa 899 kWh per capita and sub-Saharan Africa only 131 kWh per capita.

Main items

The tremendous diversity of the African continent, in terms of both economic and energy evolution, is exemplified by its three main sub-regions: North Africa, Sub-Saharan Africa and South Africa. In all three sub-regions continued rapid population growth and urbanisation impose growing strains on economic development and are increasing energy demand. Political instability, weak public administration and burdensome regulation are endemic; and reform of the energy sector remains a priority (as regards pricing, corporate management, attracting foreign capital and energy market liberalisation). Public-private partnerships provide scope for infrastructure investment and technology transfer. However, growing debt burdens remain a major constraint on development in many countries. Sub-Saharan Africa is now widely recognised as the biggest global development challenge: two-thirds of the population live in rural areas with virtually no access to commercial energy; and 40% subsist on incomes below 1 EURO a day. Following the smooth transition to democracy in South Africa, political and economic reform continue to progress but, even here, energy provision remains poor in non-urban areas. Continued development in North Africa must aim to diversify these economies, reducing the current heavy dependence on oil and gas exports in some countries. Elsewhere there are prospects for significant expansion of indigenous energy resources including on- and off-shore hydrocarbon resources, hydro-electric potential (coupled with expanded intra-regional grid connections) and more effective utilisation of biomass and other renewable resources. Unregulated urbanisation has placed huge strains on inadequate infrastructures of all kinds (electricity, public transport, water and sewage, telecommunications). Such urbanisation, and rising use of unleaded gasoline and diesel, contributes to deteriorating air quality.

Final energy demand largely dominated by the tertiary-domestic sector...

Globally, for the whole continent, the domestic and tertiary share in final energy demand is by far the most important, and this feature has accelerated over time, rising from 59% in 1980 to 66% in 1996. The share of industry fell from 24% to 19% over the same period, while the transport sector decreased from 17% to 15%. This is a result of the rural economy prevailing in sub-Saharan Africa, which excludes almost all forms of conventional industrial



activity, with the exception of South Africa. In this region of more than 553 millions inhabitants, industrial energy consumption remained lower than 19 Mtoe in 1996, slightly below the Spanish industrial demand. A second reason for this predominance of the tertiary-domestic sector is the very low efficiency associated with biomass use: about 15% for a traditional three-stone open fire. Looking more specifically at North Africa, the structure of energy consumption there was closer to that in industrialised countries with 33% for industry, 25% for transport and 42% for the tertiary-domestic sector in 1996.

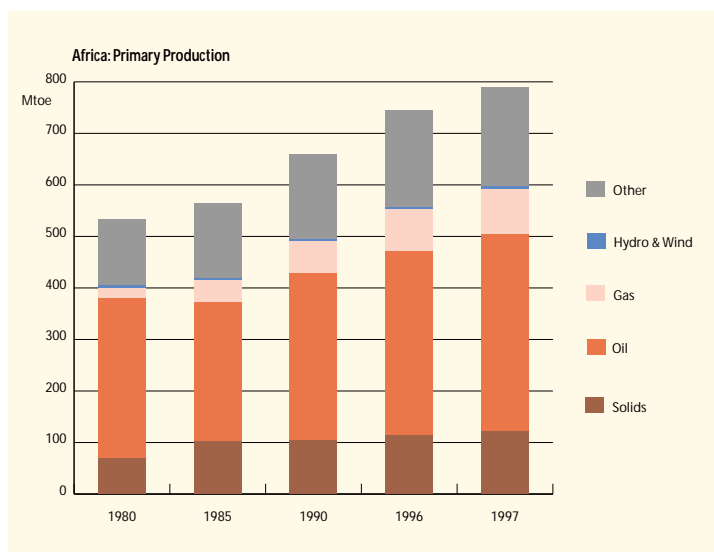
Growth of gross inland consumption had slowed down continuously since 1980, but rebounded in 1997...

Gross inland energy consumption closely followed the evolution of final demand, with an average annual increase of almost 3.4% during the 1980's, but only 2.2% since 1990 even though energy

consumption growth recovered to 3.0% in 1997 in line with the economic rebound. There was a general increase for all primary fuels, with large regional variations. Gas, mainly consumed in North Africa where the production is located, grew on average by 7.8% 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, solid fuels - which increased by about 2.9% on average since 1980, but only by 1.9% since 1990 - are mainly consumed in South Africa, the major African producer. Power generation absorbed 55% of solid fuel consumption and synthetic fuels production in South Africa another 26%. The continent's oil consumption grew on average by about 2.3% per year, but stabilised between 1995 and 1997. The regional evolution was more varied. North Africa features more industrialised countries with transport infrastructures. Oil consumption has grown there by 3.5% since 1980, although growth slowed down progressively and stabilised in 1995. Since then the growth in oil consumption has been limited in sub-Saharan Africa at only 1.2% on average since 1980, exhibiting the same stability since 1995.

Sub-Saharan oil production increased regularly, sustained by promising offshore West Africa sites...

Indigenous energy production in Africa increased by almost 50% over the period 1980 to 1997, but with considerable uncertainty relating to the statistical accounting of biomass production. Over the period, oil remained the major contributor, although its share in primary production decreased from 58% to about 48%. Although the major oil producers (Algeria, Libya and Egypt) are located in North Africa it must be stressed that Sub-Saharan production, driven by Nigeria, Angola and Gabon, increased more rapidly to overtake the level of North Africa in 1997. This evolution will continue as vast areas of offshore West Africa are now considered to be promising oil provinces for future development. In addition, oil revenues are vital for all these producing countries, accounting in most cases for more than 90% of total exports. Given that in some sub-Saharan regions biomass remained the only energy source accessible to people, its use continued to grow. Biomass remained the second energy source, covering 24% of primary production in 1997. Solid fuels, the third contributor with about 16% of primary production, increased production by 75% since 1980, 97% of the output being from in South Africa with about 117 Mtoe in 1997. Natural gas, mainly produced in North Africa (Algeria and to a lesser extent Egypt), saw its production multiplied by 4.3 since 1980 to contribute to 11% of primary production in 1997. Nuclear, hydro and wind, as well as geothermal, remain marginal even if their contribution has been increasing slowly since 1990.



Africa accounted for a little more than 6 % of the world's fossil fuel reserves...

Africa's oil reserves at end 1997 amounted to about 7% of the world's proven oil reserves. Three OPEC Members accounted for most of these reserves: Libya, Nigeria and Algeria with a share of 42%, 24% and 13% of total reserves respectively. Gas reserves, about 7% of world reserves as for crude oil, were highly concentrated with over half in North Africa (mainly Algeria) and more than one third in Nigeria. Finally the continent's coal reserves, mainly located in South Africa, accounted for 6% of the world's coal reserves.

Electricity mainly generated in thermal power generation despite a large hydro potential....

Electricity generation in Africa grew by almost 5% per year during the 1980's. After a relative slow down at 2.5% per annum between 1990 and 1993, growth was re-established to reach 5.1% in 1996 with the improvement in the economic circumstances. But the world's lowest electricity consumption per capita, only about 537 kWh/inhabitant, demonstrated the current low level of electrification in many African countries. Only around one quarter of African households have access to electricity. In South Africa, about 40% of the population had access to electricity in 1995 and consumed over half the continent's electricity. With the exception of some nuclear power in South Africa, all the incremental electricity production has been covered by thermal generating units which more than doubled their output since 1980. Thermal power units are mainly fed by coal in South Africa, gas in Algeria, Egypt, Nigeria and Tunisia and oil in the rest of Africa. Despite an increase of 50% in hydropower capacity since 1980, hydro production remained relatively flat due to climatic conditions and the

political situation in some sub-Saharan countries. Africa, particularly sub-Saharan Africa, has a large hydro potential, which could supply about 1300 TWh per year or twenty times the present production. However, poor integration of the power networks at the sub-regional level limits the development of these hydro resources. Nevertheless, there are plans to link the electricity supply grids of some countries. Furthermore several African countries have recently opened up their electricity sectors to private investment. Morocco, Egypt, Ivory Coast, Nigeria and Ghana have led such privatisation efforts.

The refinery sector still requires upgrading...

In 1997, 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 has grown by 2.1% per year. At the same time, the utilisation rate of the refineries increased from 71% to 86%, remaining at all times below the world average except these last two years. Major refineries were located in Algeria, Egypt, Nigeria, Libya (the major oil producers) and in South Africa. These five countries accounted for about 80% of installed refining capacity. In addition, the refining sector is characterised by its relative simplicity and age. It requires foreign investment to upgrade and enhance processing capability so as to improve its efficiency and permit production of higher value and cleaner oil products.

Synthetic fuels largely developed in South Africa subject to closer scrutiny...

South Africa's reserves of coal, coupled with its lack of oil and gas and its period of international isolation, led it to construct a highly developed synthetic fuels industry. There are three axes: the manufacture of oil products from coal by Sasol; the manufacture of gas from coal; and a small project to produce gasoline from natural gases and condensates. With the end of the oil embargo and the low level of oil prices, the economic case for producing oil and gas from coal will be subject to much closer scrutiny in future.

COMPETITIVENESS

Energy intensity improved since 1995...

Energy intensity for the continent as a whole has increased by roughly 1.4% per year on average between 1980 and 1994, but improved on average by 1.3% per year since then. The major increases occurred in North Africa with a growth of about 3.1% per year on average between 1980 and 1995 with continuing improvement in 1996 but not in 1997. Energy intensity in sub-



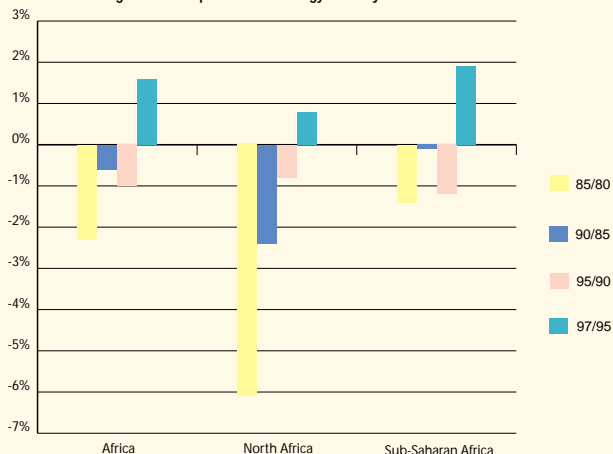
Saharan Africa grew by only 1.0% on average between 1980 and 1994 but has improved since then. As in the Middle East, the evolution of the GDP in North Africa and other oil producing countries has been deeply affected by the falling price of crude oil on international markets, resulting in a limited GDP growth of only 2.0% per year on average since 1980. This means that GDP grew less than population and so Africa had a lower GDP per capita in

to vital ones, mainly cooking requirements.

Gross inland consumption per capita has declined since 1985 and is equivalent to only 15% of EU average...

Per capita gross inland consumption underlines the very low level of energy use: fluctuating between 0.56 and 0.60 Toe/inhabitant between 1980 and 1997, about 15% of the average EU level. The figures show a slight but continuous decrease since 1985, driven by sub-Saharan Africa where the living standards have been generally declining over the last twelve years, while consumption per capita increased in North Africa. For Africa as a whole, the main contribution comes largely from domestic applications which stabilised their share at about 47% of total consumption per capita in the period 1980-1997. The contributions of industry and transport have declined continuously since 1980 and represented, in 1995, 13% and 10% respectively, demonstrating the very low level of industrialisation for the whole continent. Regionally this phenomenon is more marked: the share of industry reaching 20% in North Africa but only 11% in sub-Saharan Africa. On the other hand, the share of the power sector increased to reach 17% in 1996, compared to 14% in 1980.

Annual Average Rates of Improvement in Energy Intensity



1995 than in 1980.

The contribution of the various sectors to the energy intensity varied substantially from region to region depending on their industrialisation rate. The contribution of domestic applications, industry and power generation is evenly distributed in north Africa, each of them accounting for about 21% in 1980 and 24% in 1997 when the share of transport declined from 20% to only 15%. On the other hand, the contribution of domestic and tertiary applications climbs to 50% in the sub-Saharan countries and even to 85% in some smaller countries where energy needs are limited

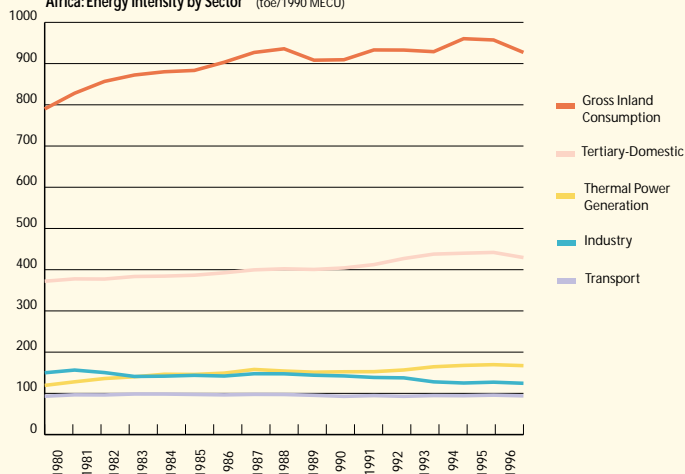
ENVIRONMENT

In 1997 CO₂ emissions were 14% above the 1990 level...

CO₂ emissions in Africa increased by 50% since 1980 to reach 624 Mt of CO₂ in 1997, 14% more than the 1990 level. Over the period, considering the particular structure of energy consumption, the fastest growing sources were power generation and the tertiary-domestic sector (92% and 91% growth respectively over the period). However most of the increase for power stations occurred during the first half of the 1980's while, for the tertiary-domestic sector the increase accelerated after 1990 due to the increasing consumption of oil products. CO₂ emissions from industry, stable during the 1980's, declined sharply between 1990 and 1994 due to the economic recession but have rebounded since 1995. Emissions from the transport sector grew by only 35% since 1980, reflecting the poor state of transport infrastructure.

North Africa, which accounted for 18% of total population, contributed to 38.5% of the continent's total CO₂ emissions, with public power stations emitting 30% of the total. The domestic sector, industry and the transport sector contributed roughly one-fifth each. In the sub-Saharan region, South Africa accounted for 70% of CO₂ emissions due to its economic activities and high dependence on solid fuels. Consequently, the rest of sub-Saharan region represented only 18.5% of total CO₂ emissions with a quite different structure of emissions given the major role played by bio-

Africa: Energy Intensity by Sector (toe/1990 MECU)



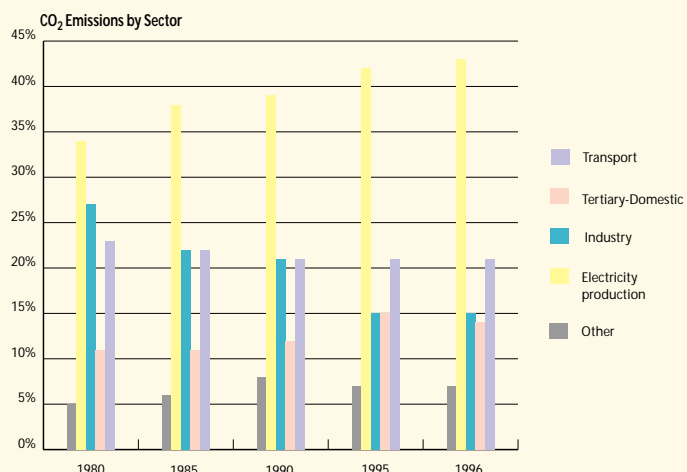
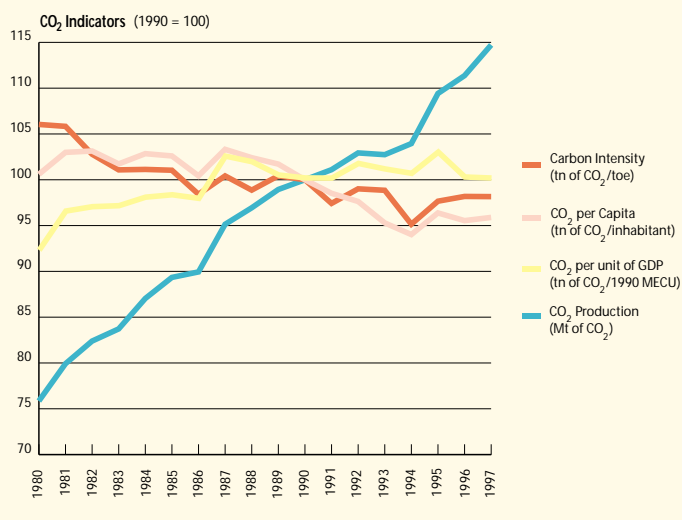


GLOBAL MARKETS

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 1997, energy exports grew from 260 Mtoe to 366 Mtoe with sub-Saharan Africa overtaking North Africa in 1997. Oil is by far the major contributor, accounting for 77% of the total energy exports in 1997, with 12.5% for natural gas and 10.5% for coal. Although coal exports, covered totally by South Africa, increased slowly since 1985 (+20%), gas exports, only from North Africa, have almost doubled since then. In 1997 Africa was exporting 46% of its total energy production, but 70% of its fossil fuel production. North Africa exports 71% of its oil production and 57% of its gas production, mainly to the European market. Sub-Saharan Africa exports a little more oil than North Africa, about 76% of its production.

Gas export infrastructures have been recently extended with the doubling of the Transmed pipeline capacity from Algeria to Italy. The Magreb pipeline which runs from the 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 many years, the Nigerian Bonny LNG project is the most advanced. First deliveries are scheduled to begin in 2000. The main contracts, already signed, involve Spain, Turkey, France and Italy. More recently, interconnection of power grids has started both in North Africa and sub-Saharan Africa but all these projects remain under development.



mass in the domestic sector. Here transport was responsible for 41% of total emissions, power generation for 19%, the domestic sector for 18% and industry for only 13%.

Per capita CO₂ emissions vary widely. In 1996, they reached a maximum of 7.0 tonne of CO₂ per inhabitant in South Africa, an average value of 1.8 tonne in North Africa as a whole and only 0.2 tonne for the rest of sub-Saharan Africa. For the whole continent the CO₂ emissions per capita decreased over the period by 5%. Although South Africa remained broadly stable since 1990, these emissions increased by about 40% in North Africa as a consequence of industrialisation and increasing living standards but continued to decrease by about 20% in the rest of sub-Saharan Africa due to the declining GDP/capita ratio. As gross inland energy consumption, based on fossil fuels, increased more rapidly than GDP, this implies that the CO₂ content per unit of GDP also increased over the whole period considered, except in 1996.



AFRICA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1995	1996	1997(2)	85/80	90/85	95/90	96/95	97/96
	Annual % Change										
Primary Production	532.2	566.2	661.6	722.7	748.9	793.9	1.2%	3.2%	1.8%	3.6%	6.0%
Solids	69.8	103.8	105.7	115.8	115.8	123.1	8.3%	0.4%	1.8%	0.0%	6.3%
Oil	310.5	270.0	323.8	340.7	357.6	381.4	-2.8%	3.7%	1.0%	5.0%	6.7%
Natural gas	20.4	42.5	61.5	74.8	79.6	88.7	15.8%	7.7%	4.0%	6.5%	11.4%
Nuclear	0.0	1.4	2.2	2.9	3.1	3.3	-	9.7%	6.0%	4.2%	6.8%
Hydro & Wind	5.2	4.2	4.6	4.9	5.2	5.3	-4.2%	1.8%	1.4%	5.4%	3.4%
Geothermal	0.0	0.0	0.3	0.3	0.4	0.4	30.6%	47.1%	-1.7%	27.2%	0.0%
Other	126.4	144.3	163.5	183.3	187.4	191.7	2.7%	2.5%	2.3%	2.2%	2.3%
Net Imports	-260.6	-241.7	-295.8	-310.8	-328.4	-366.1	-1.5%	4.1%	1.0%	5.7%	11.5%
Solids	-18.4	-30.0	-31.1	-34.9	-34.7	-37.8	10.4%	0.7%	2.3%	-0.6%	8.9%
Oil	-234.1	-190.8	-234.9	-240.3	-254.2	-281.5	-4.0%	4.2%	0.5%	5.8%	10.7%
Crude oil	-231.3	-178.1	-212.5	-217.5	-233.8	na	-5.1%	3.6%	0.5%	7.5%	na
Oil products	-2.8	-12.7	-22.4	-22.8	-20.4	na	35.2%	12.0%	0.3%	-10.3%	na
Natural gas	-8.2	-20.8	-29.6	-35.5	-39.2	-46.7	20.6%	7.3%	3.7%	10.4%	19.2%
Electricity	0.0	0.0	-0.1	-0.1	-0.3	-0.1	-	117.2%	1.4%	229.7%	-69.7%
Gross Inland Consumption	260.2	321.6	363.8	407.6	412.7	425.2	4.3%	2.5%	2.3%	1.2%	3.0%
Solids	51.6	73.5	74.7	81.2	83.0	85.3	7.4%	0.3%	1.7%	2.2%	2.9%
Oil	64.8	76.6	86.8	96.0	93.9	97.3	3.4%	2.5%	2.0%	-2.3%	3.6%
Natural gas	12.2	21.7	31.9	39.2	40.4	41.9	12.1%	8.0%	4.2%	2.9%	3.8%
Other (1)	131.6	149.9	170.3	191.1	195.4	200.6	2.6%	2.6%	2.3%	2.3%	2.6%
Electricity Generation in TWh	197.3	262.5	320.4	368.1	386.7	na	5.9%	4.1%	2.8%	5.1%	na
Nuclear	0.0	5.3	8.4	11.3	11.8	na	-	9.7%	6.0%	4.2%	na
Hydro & wind	60.5	48.7	53.3	57.0	60.1	na	-4.2%	1.8%	1.4%	5.4%	na
Thermal	136.8	208.5	258.6	299.7	314.8	na	8.8%	4.4%	3.0%	5.0%	na
Generation Capacity in GWe	45.4	62.9	82.4	94.8	95.0	na	6.8%	5.6%	2.8%	0.2%	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%	1.1%	0.0%	na
Thermal	30.9	44.3	60.2	71.4	71.6	na	7.5%	6.3%	3.5%	0.3%	na
Average Load Factor in %	49.6	47.7	44.4	44.3	46.5	na	-0.8%	-1.4%	0.0%	4.8%	na
Fuel Inputs for Thermal Power Generation	39.3	53.2	61.3	72.5	74.8	na	6.2%	2.9%	3.4%	3.1%	na
Solids	27.6	34.1	38.9	43.8	45.8	na	4.3%	2.7%	2.4%	4.5%	na
Oil	7.6	10.8	11.9	12.9	12.6	na	7.1%	2.0%	1.6%	-2.1%	na
Gas	4.1	8.2	10.1	15.5	16.0	na	15.2%	4.2%	8.9%	3.1%	na
Geothermal	0.0	0.0	0.3	0.3	0.4	na	30.6%	47.1%	-1.7%	27.2%	na
Other	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	29.9	33.7	36.3	35.5	36.2	na	2.4%	1.5%	-0.4%	1.8%	na
Non-Energy Uses	4.2	7.0	8.7	13.7	13.9	na	10.5%	4.4%	9.6%	1.3%	na
Total Final Energy Demand	216.8	245.6	275.6	305.2	310.7	na	2.5%	2.3%	2.1%	1.8%	na
Solids	21.0	18.0	17.5	16.1	14.2	na	-3.0%	-0.6%	-1.7%	-11.5%	na
Oil	52.3	60.6	65.9	71.1	73.7	na	3.0%	1.7%	1.5%	3.6%	na
Gas	3.0	5.1	6.8	9.0	9.5	na	11.4%	6.0%	5.5%	5.8%	na
Electricity	14.2	17.6	22.1	26.0	26.1	na	4.5%	4.7%	3.3%	0.4%	na
Heat	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Other	126.3	144.2	163.3	183.1	187.1	na	2.7%	2.5%	2.3%	2.2%	na
CO₂ Emissions in Mt of CO₂	415.1	488.9	547.3	598.8	609.5	627.8	3.3%	2.3%	1.8%	1.8%	3.0%
Indicators											
Population (Million)	466.02	538.21	618.08	701.72	720.50	739.45	2.9%	2.8%	2.6%	2.7%	2.6%
GDP (Index 1985=100)	90.5	100.0	109.9	116.9	122.2	126.1	2.0%	1.9%	1.3%	4.5%	3.1%
Gross Inl Cons./GDP (toe/1990 MEUR)	789.9	883.4	909.3	957.3	927.1	926.2	2.3%	0.6%	1.0%	-3.2%	-0.1%
Gross Inl Cons./Capita (toe/inhabitant)	0.56	0.60	0.59	0.58	0.57	0.57	1.4%	-0.3%	-0.3%	-1.4%	0.4%
Electricity Generated/Capita (kWh/inhabitant)	423	488	518	525	537	na	2.9%	1.2%	0.2%	2.3%	na
CO ₂ Emissions/Capita (t of CO ₂ /inhabitant)	0.9	0.9	0.9	0.9	0.8	0.8	0.4%	-0.5%	-0.7%	-0.9%	0.4%
Import Dependency (%)	-98.2	-74.0	-80.0	-74.8	-78.1	-84.7	-5.5%	1.6%	-1.3%	4.4%	8.5%

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

(2) Estimates



AFRICA : MAIN INDICATORS										
	1980	1985	1990	1994	1995	1996	85/80	90/85	95/90	96/95
	Annual % Change									
Gross Inland Consumption (Mtoe)	260.2	321.6	363.8	397.4	407.6	412.7	4.3%	2.5%	2.3%	1.2%
Public Thermal Power Generation	35.6	49.8	58.1	66.1	68.7	70.9	7.0%	3.1%	3.4%	3.3%
Autoprod. Thermal Power Generation	3.7	3.3	2.8	3.3	3.5	3.5	-2.4%	-2.9%	4.3%	-1.4%
Energy Branch	9.2	13.3	18.5	18.7	19.6	19.9	7.6%	6.8%	1.1%	1.7%
Final Energy Consumption	202.6	228.5	255.8	272.8	282.9	288.3	2.4%	2.3%	2.0%	1.9%
Industry	49.4	52.3	56.9	51.8	54.1	55.4	1.2%	1.7%	-1.0%	2.3%
Transport	30.6	35.4	37.1	39.0	40.7	41.8	3.0%	0.9%	1.9%	2.7%
Tertiary-Domestic	122.6	140.8	161.7	182.1	188.1	191.1	2.8%	2.8%	3.1%	1.6%
Energy Intensity (toe/1990 MEUR)	789.9	883.4	909.3	960.4	957.3	927.1	2.3%	0.6%	1.0%	-3.2%
Public Thermal Power Generation	108.1	136.9	145.3	159.8	161.4	159.4	4.8%	1.2%	2.1%	-1.2%
Autoprod. Thermal Power Generation	11.3	9.1	7.1	7.9	8.2	7.8	-4.3%	-4.7%	3.0%	-5.7%
Industry	149.9	143.7	142.3	125.1	127.1	124.4	-0.8%	-0.2%	-2.2%	-2.1%
Transport	93.0	97.3	92.7	94.2	95.6	93.9	0.9%	-1.0%	0.6%	-1.7%
Tertiary-Domestic	372.0	386.6	404.3	440.0	441.9	429.4	0.8%	0.9%	1.8%	-2.8%
Energy per Capita (Kgoe/inhabitant)	582	623	613	606	605	596	1.4%	-0.3%	-0.3%	-1.4%
Industry	110	101	96	79	80	80	-1.7%	-1.1%	-3.5%	-0.4%
Transport	68	69	63	59	60	60	0.0%	-1.8%	-0.7%	0.0%
Tertiary-Domestic	274	273	273	278	279	276	-0.1%	0.0%	0.5%	-1.1%
Electricity Share (%)										
Final Energy Consumption	7.0%	7.7%	8.7%	9.1%	9.2%	9.1%	2.0%	2.3%	1.2%	-1.4%
Industry	17.1%	19.2%	20.7%	23.8%	23.6%	23.8%	2.3%	1.5%	2.7%	0.6%
Transport	1.2%	1.2%	1.0%	1.1%	1.1%	1.0%	-1.1%	-2.5%	0.3%	-2.6%
Tertiary-Domestic	4.3%	5.1%	6.2%	6.7%	6.8%	6.6%	3.2%	3.9%	2.0%	-3.7%
Total Renewable Consumption (Mtoe)	131.6	148.5	168.2	184.0	188.3	192.7	2.4%	2.5%	2.3%	2.4%
Hydro	5.2	4.2	4.6	4.8	4.9	5.2	-4.2%	1.8%	1.4%	5.4%
Biomass	126.3	144.2	163.3	179.0	183.1	187.1	2.7%	2.5%	2.3%	2.2%
Other	0.0	0.0	0.3	0.3	0.3	0.4	30.6%	47.1%	-1.7%	27.2%
Renewable intensity (toe/1990MEUR)	399.4	407.8	420.5	444.7	442.2	432.9	0.4%	0.6%	1.0%	-2.1%
Renewable per capita (Kgoe/inhabitant)	282.3	275.9	272.2	269.3	268.3	267.5	-0.5%	-0.3%	-0.3%	-0.3%
CO₂ Emissions (Mt of CO₂)	415.1	488.9	547.3	568.9	598.8	609.5	3.3%	2.3%	1.8%	1.8%
Public Thermal Power Generation	128.3	175.8	204.9	228.8	238.1	246.5	6.5%	3.1%	3.0%	3.5%
Autoprod. Thermal Power Generation	14.0	12.2	10.3	11.9	12.9	12.6	-2.7%	-3.3%	4.5%	-1.8%
Energy Branch	22.1	31.0	43.7	42.5	43.9	44.4	7.0%	7.1%	0.1%	1.1%
Industry	111.1	108.7	112.3	87.4	91.6	92.1	-0.4%	0.7%	-4.0%	0.5%
Transport	93.9	108.0	112.8	118.2	123.4	126.7	2.8%	0.9%	1.8%	2.7%
Tertiary-Domestic	45.7	53.0	63.0	80.2	89.0	87.2	3.0%	3.5%	7.2%	-2.0%
Carbon Intensity (tn of CO₂/toe)	1.6	1.5	1.5	1.4	1.5	1.5	-1.0%	-0.2%	-0.5%	0.5%
Public Power Generation	3.2	3.2	3.2	3.1	3.1	3.1	0.1%	-0.3%	-0.3%	0.0%
Public Thermal Power Generation	3.6	3.5	3.5	3.5	3.5	3.5	-0.4%	0.0%	-0.3%	0.3%
Autoprod. Power Generation	3.4	3.2	3.3	3.2	3.3	3.2	-1.0%	0.3%	0.0%	-1.1%
Autoprod. Thermal Power Generation	3.8	3.7	3.6	3.6	3.7	3.6	-0.4%	-0.4%	0.2%	-0.4%
Energy Branch	2.4	2.3	2.4	2.3	2.2	2.2	-0.6%	0.3%	-1.0%	-0.6%
Industry	2.3	2.1	2.0	1.7	1.7	1.7	-1.6%	-1.0%	-3.0%	-1.8%
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	0.4	0.5	0.5	0.2%	0.7%	4.0%	-3.5%
CO₂ per Capita (kg of CO₂/inhabitant)	928	947	923	867	889	881	0.4%	-0.5%	-0.7%	-0.9%
Industry	248	210	189	133	136	133	-3.3%	-2.1%	-6.4%	-2.1%
Transport	210	209	190	180	183	183	-0.1%	-1.9%	-0.7%	0.0%
Tertiary-Domestic	102	103	106	122	132	126	0.1%	0.7%	4.5%	-4.6%
CO₂ per unit of GDP (tn of CO₂/1990 MEUR)	1260	1343	1368	1375	1406	1369	1.3%	0.4%	0.6%	-2.6%
Public Thermal Power Generation	389	483	512	553	559	554	4.4%	1.2%	1.8%	-1.0%
Autoprod. Thermal Power Generation	43	34	26	29	30	28	-4.7%	-5.1%	3.2%	-6.1%
Energy Branch	337	298	281	211	215	207	-2.4%	-1.2%	-5.2%	-3.9%
Industry	285	297	282	286	290	285	0.8%	-1.0%	0.6%	-1.8%
Transport	139	146	157	194	209	196	1.0%	1.6%	5.8%	-6.2%
Tertiary-Domestic	1260	1343	1368	1375	1406	1369	1.3%	0.4%	0.6%	-2.6%



NORTH AFRICA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1995	1996	1997(2)	85/80	90/85	95/90	96/95	97/96
Annual % Change											
Primary Production	205.7	199.4	238.5	254.7	260.9	272.1	-0.6%	3.6%	1.3%	2.4%	4.3%
Solids	0.4	0.4	0.3	0.4	0.3	0.3	1.3%	-7.8%	4.0%	-22.2%	1.8%
Oil	182.9	156.0	177.7	181.9	183.0	185.1	-3.1%	2.6%	0.5%	0.6%	1.1%
Natural gas	19.1	39.4	56.6	68.1	73.1	82.0	15.6%	7.5%	3.8%	7.3%	12.3%
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Hydro & Wind	1.0	0.9	1.0	1.0	1.1	1.2	-3.1%	2.7%	0.6%	11.2%	6.4%
Geothermal	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other	2.3	2.7	3.0	3.4	3.4	3.5	2.9%	2.1%	2.5%	1.2%	1.6%
Net Imports	-157.0	-131.3	-158.9	-161.6	-165.7	-175.6	-3.5%	3.9%	0.3%	2.5%	6.0%
Solids	0.6	1.9	2.3	2.5	3.0	3.2	27.6%	3.7%	1.2%	21.2%	6.5%
Oil	-149.4	-112.4	-131.6	-128.6	-129.5	-132.1	-5.5%	3.2%	-0.5%	0.7%	2.1%
Crude oil	-140.8	-93.6	-105.5	-100.9	-103.0	na	-7.8%	2.4%	-0.9%	2.1%	na
Oil products	-8.6	-18.8	-26.1	-27.7	-26.5	na	16.8%	6.8%	1.2%	-4.5%	na
Natural gas	-8.2	-20.8	-29.6	-35.5	-39.2	-46.7	20.6%	7.3%	3.7%	10.4%	19.0%
Electricity	0.0	0.0	0.0	0.0	0.0	0.0	84.6%	-11.1%	7.2%	-56.9%	132.3%
Gross Inland Consumption	44.2	65.4	80.5	90.8	92.4	96.1	8.1%	4.2%	2.4%	1.7%	4.0%
Solids	1.1	2.2	2.7	2.9	3.3	3.5	14.7%	4.2%	0.9%	15.3%	4.3%
Oil	28.9	41.1	46.9	51.0	50.7	52.6	7.3%	2.7%	1.7%	-0.6%	3.7%
Natural gas	10.9	18.6	26.9	32.6	33.9	35.4	11.2%	7.7%	3.9%	3.9%	4.5%
Other (1)	3.3	3.5	4.0	4.4	4.5	4.6	1.2%	2.3%	1.9%	3.4%	3.3%
Electricity Generation in TWh	39.1	66.9	91.5	111.8	116.3	na	11.4%	6.5%	4.1%	4.0%	na
Nuclear	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Hydro & wind	11.6	9.9	11.3	11.6	13.0	na	-3.1%	2.7%	0.6%	11.2%	na
Thermal	27.5	57.0	80.2	100.1	103.3	na	15.7%	7.1%	4.5%	3.2%	na
Generation Capacity in GWe	10.9	17.7	23.9	32.2	32.4	na	10.2%	6.2%	6.1%	0.6%	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%	1.6%	0.0%	na
Thermal	7.6	14.3	20.2	28.2	28.4	na	13.6%	7.2%	6.8%	0.7%	na
Average Load Factor in %	40.8	43.1	43.7	39.7	41.0	na	1.1%	0.3%	-1.9%	3.4%	na
Fuel Inputs for Thermal Power Generation	9.0	15.0	18.6	25.4	25.5	na	10.8%	4.4%	6.4%	0.4%	na
Solids	0.4	0.3	0.7	1.4	1.3	na	-1.0%	15.3%	14.6%	-5.0%	na
Oil	5.5	8.2	9.6	10.4	10.1	na	8.4%	3.2%	1.6%	-3.1%	na
Gas	3.1	6.4	8.3	13.6	14.1	na	15.5%	5.2%	10.4%	3.5%	na
Geothermal	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Other	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	26.2	32.6	37.0	33.9	34.8	na	4.5%	2.5%	-1.8%	2.8%	na
Non-Energy Uses	1.9	3.3	3.7	5.7	5.6	na	11.4%	2.6%	9.1%	-2.2%	na
Total Final Energy Demand	29.0	40.8	47.2	53.4	55.3	na	7.1%	3.0%	2.5%	3.6%	na
Solids	0.7	1.6	1.7	1.4	1.6	na	18.9%	0.7%	-2.9%	8.0%	na
Oil	20.8	27.9	30.5	32.5	33.5	na	6.0%	1.8%	1.3%	3.1%	na
Gas	2.4	4.1	5.5	7.5	7.9	na	11.6%	5.7%	6.4%	5.9%	na
Electricity	2.8	4.5	6.6	8.7	9.0	na	10.3%	8.0%	5.6%	3.8%	na
Heat	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Other	2.3	2.7	3.0	3.3	3.4	na	2.9%	2.1%	2.4%	1.1%	na
CO₂ Emissions in Mt of CO₂	114.9	168.5	203.8	226.2	231.4	240.1	8.0%	3.9%	2.1%	2.3%	3.8%
Indicators											
Population (Million)	88.35	101.09	114.09	126.84	129.33	131.94	2.7%	2.4%	2.1%	2.0%	2.0%
GDP (index 1985=100)	91.1	100.0	109.2	118.2	124.2	127.1	1.9%	1.8%	1.6%	5.1%	2.3%
Gross Inl Cons./GDP (toe/1990 MEUR)	396.5	534.3	602.0	627.4	607.3	617.2	6.1%	2.4%	0.8%	-3.2%	1.6%
Gross Inl Cons./Capita (toe/inhabitant)	0.50	0.65	0.71	0.72	0.71	0.73	5.3%	1.8%	0.3%	-0.2%	1.9%
Electricity Generated/Capita (kWh/inhabitant)	442	662	802	881	899	na	8.4%	3.9%	1.9%	2.0%	na
CO ₂ Emissions/Capita (t of CO ₂ /inhabitant)	1.3	1.7	1.8	1.8	1.8	1.8	5.1%	1.4%	0.0%	0.3%	1.7%
Import Dependency (%)	-343.4	-195.0	-192.1	-172.4	-174.0	-178.0	-10.7%	-0.3%	-2.1%	0.9%	2.3%

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

(2) Estimates



NORTH AFRICA : MAIN INDICATORS										
	1980	1985	1990	1994	1995	1996	85/80	90/85	95/90	96/95
	Annual % Change									
Gross Inland Consumption (Mtoe)	44.2	65.4	80.5	86.3	90.8	92.4	8.1%	4.2%	2.4%	1.7%
Public Thermal Power Generation	8.4	14.3	17.7	23.6	24.5	24.5	11.1%	4.4%	6.6%	0.3%
Autoprod. Thermal Power Generation	0.6	0.7	0.9	1.0	1.0	1.0	5.0%	3.8%	1.4%	2.4%
Energy Branch	6.4	9.2	14.6	11.5	12.0	12.3	7.7%	9.6%	-3.8%	2.0%
Final Energy Consumption	28.9	40.7	47.1	50.8	53.2	55.2	7.1%	3.0%	2.5%	3.6%
Industry	11.0	14.8	17.4	16.0	17.2	18.3	6.2%	3.2%	-0.1%	5.9%
Transport	8.9	12.8	12.7	12.8	13.3	13.7	7.7%	-0.2%	0.9%	2.7%
Tertiary-Domestic	9.0	13.0	17.0	22.0	22.7	23.2	7.6%	5.5%	5.9%	2.4%
Energy Intensity (toe/1990 MEUR)	396.5	534.3	602.0	605.2	627.4	607.3	6.1%	2.4%	0.8%	-3.2%
Public Thermal Power Generation	75.6	116.6	132.6	165.9	168.9	161.2	9.1%	2.6%	5.0%	-4.6%
Autoprod. Thermal Power Generation	5.3	6.1	6.7	6.9	6.7	6.5	3.1%	1.9%	-0.2%	-2.6%
Industry	98.3	121.0	129.7	111.9	119.1	120.0	4.2%	1.4%	-1.7%	0.7%
Transport	79.5	104.9	94.8	89.6	91.8	89.7	5.7%	-2.0%	-0.6%	-2.3%
Tertiary-Domestic	81.1	106.5	127.4	154.5	156.8	152.8	5.6%	3.6%	4.2%	-2.6%
Energy per Capita (Kgoe/inhabitant)	634	825	904	890	920	918	5.4%	1.8%	0.4%	-0.2%
Industry	157	187	195	165	175	181	3.5%	0.8%	-2.2%	3.9%
Transport	127	162	142	132	135	136	5.0%	-2.6%	-1.1%	0.8%
Tertiary-Domestic	130	165	191	227	230	231	4.9%	3.0%	3.7%	0.5%
Electricity Share (%)										
Final Energy Consumption	9.5%	11.1%	14.1%	16.5%	16.4%	16.4%	3.0%	4.9%	3.0%	0.1%
Industry	13.0%	12.5%	14.3%	21.3%	20.5%	20.2%	-0.8%	2.8%	7.5%	-1.9%
Transport	0.1%	0.2%	0.3%	0.4%	0.4%	0.4%	8.5%	13.1%	5.2%	1.8%
Tertiary-Domestic	14.6%	20.2%	24.1%	22.3%	22.5%	22.8%	6.6%	3.6%	-1.3%	1.2%
Total Renewable Consumption (Mtoe)	3.3	3.5	4.0	4.3	4.4	4.5	1.2%	2.3%	1.9%	3.4%
Hydro	1.0	0.9	1.0	0.9	1.0	1.1	-3.1%	2.7%	0.6%	11.2%
Biomass	2.3	2.7	3.0	3.4	3.3	3.4	2.9%	2.1%	2.4%	1.1%
Other	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-
Renewable intensity (toe/1990MEUR)	29.8	28.8	29.6	30.2	30.0	29.6	-0.7%	0.5%	0.3%	-1.6%
Renewable per capita (Kgoe/inhabitant)	37.6	34.9	34.7	34.7	34.3	34.8	-1.5%	-0.2%	-0.2%	1.4%
CO₂ Emissions (Mt of CO₂)	114.9	168.5	203.8	216.1	226.2	231.4	8.0%	3.9%	2.1%	2.3%
Public Thermal Power Generation	24.4	40.5	50.4	66.0	68.7	68.6	10.6%	4.5%	6.4%	-0.2%
Autoprod. Thermal Power Generation	1.8	2.3	2.8	3.0	3.0	3.0	5.0%	3.8%	1.4%	2.4%
Energy Branch	16.0	23.3	36.7	29.4	30.6	31.2	7.7%	9.6%	-3.6%	1.9%
Industry	27.5	37.7	43.2	35.5	39.0	41.6	6.5%	2.7%	-2.0%	6.8%
Transport	27.2	39.3	38.8	38.8	40.3	41.4	7.7%	-0.3%	0.8%	2.6%
Tertiary-Domestic	17.9	25.3	31.9	43.4	44.7	45.6	7.1%	4.8%	7.0%	2.0%
Carbon Intensity (tn of CO₂/toe)	2.6	2.6	2.5	2.5	2.5	2.5	-0.2%	-0.3%	-0.3%	0.6%
Public Power Generation	2.6	2.7	2.7	2.7	2.7	2.7	0.7%	0.1%	0.0%	-0.9%
Public Thermal Power Generation	2.9	2.8	2.8	2.8	2.8	2.8	-0.4%	0.0%	-0.2%	-0.5%
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	2.5	2.5	2.5	0.0%	-0.1%	0.2%	-0.1%
Industry	2.5	2.5	2.5	2.2	2.3	2.3	0.3%	-0.5%	-1.9%	0.9%
Transport	3.1	3.1	3.1	3.0	3.0	3.0	0.0%	0.0%	-0.2%	-0.1%
Tertiary-Domestic	2.0	1.9	1.9	2.0	2.0	2.0	-0.5%	-0.7%	1.0%	-0.3%
CO₂ per Capita (kg of CO₂/inhabitant)	1648	2125	2287	2230	2290	2299	5.2%	1.5%	0.0%	0.4%
Industry	394	476	484	366	394	413	3.8%	0.3%	-4.0%	4.8%
Transport	390	496	435	400	408	411	5.0%	-2.6%	-1.3%	0.8%
Tertiary-Domestic	257	319	358	448	453	453	4.4%	2.3%	4.8%	0.2%
CO₂ per unit of GDP (tn of CO₂/1990 MEUR)	1030	1376	1524	1516	1563	1521	6.0%	2.1%	0.5%	-2.7%
Public Thermal Power Generation	219	331	377	463	474	451	8.6%	2.6%	4.7%	-5.0%
Autoprod. Thermal Power Generation	16	19	21	21	21	20	3.1%	1.9%	-0.2%	-2.6%
Energy Branch	246	308	323	249	269	273	4.6%	0.9%	-3.6%	1.6%
Industry	244	321	290	272	279	272	5.7%	-2.0%	-0.8%	-2.3%
Transport	161	206	239	305	309	300	5.1%	2.9%	5.3%	-2.9%
Tertiary-Domestic	1030	1376	1524	1516	1563	1521	6.0%	2.1%	0.5%	-2.7%



SUB-SAHARAN AFRICA : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1995	1996	1997(2)	85/80	90/85	95/90	96/95	97/96
							Annual % Change				
Primary Production	326.5	366.8	423.1	468.0	488.0	521.8	2.4%	2.9%	2.0%	4.3%	6.9%
Solids	69.4	103.3	105.4	115.4	115.5	122.8	8.3%	0.4%	1.8%	0.1%	6.4%
Oil	127.5	114.0	146.1	158.8	174.5	196.3	-2.2%	5.1%	1.7%	9.9%	12.5%
Natural gas	1.3	3.1	5.0	6.7	6.5	6.6	18.7%	9.9%	6.0%	-2.0%	1.4%
Nuclear	0.0	1.4	2.2	2.9	3.1	3.3	-	9.7%	6.0%	4.2%	6.8%
Hydro & Wind	4.2	3.3	3.6	3.9	4.1	4.2	-4.5%	1.6%	1.6%	4.0%	2.6%
Geothermal	0.0	0.0	0.3	0.3	0.4	0.4	30.6%	47.1%	-1.7%	27.2%	0.0%
Other	124.0	141.6	160.5	179.9	184.0	188.2	2.7%	2.5%	2.3%	2.2%	2.3%
Net Imports	-103.6	-110.4	-136.9	-149.2	-162.7	-190.4	1.3%	4.4%	1.7%	9.0%	17.1%
Solids	-18.9	-32.0	-33.4	-37.3	-37.6	-40.9	11.1%	0.9%	2.2%	0.8%	8.7%
Oil	-84.6	-78.4	-103.3	-111.8	-124.7	-149.3	-1.5%	5.7%	1.6%	11.6%	19.7%
Crude oil	-90.5	-84.5	-107.0	-116.7	-130.7	na	-1.4%	4.8%	1.7%	12.0%	na
Oil products	5.8	6.1	3.7	4.9	6.0	na	0.9%	-9.6%	6.2%	22.2%	na
Natural gas	0.0	0.0	0.0	0.0	0.0	-0.1	-	-	-	-	-
Electricity	0.0	0.0	-0.1	-0.1	-0.3	-0.1	-	66.7%	1.6%	217.8%	-68.5%
Gross Inland Consumption	216.0	256.2	283.2	316.8	320.3	329.1	3.5%	2.0%	2.3%	1.1%	2.8%
Solids	50.4	71.3	71.9	78.3	79.7	81.9	7.2%	0.2%	1.7%	1.7%	2.8%
Oil	36.0	35.5	39.9	45.0	43.1	44.7	-0.3%	2.4%	2.4%	-4.1%	3.6%
Natural gas	1.3	3.1	5.0	6.7	6.5	6.6	18.7%	9.9%	6.0%	-2.0%	0.4%
Other (1)	128.2	146.3	166.4	186.8	190.9	195.9	2.7%	2.6%	2.3%	2.2%	2.6%
Electricity Generation in TWh	158.2	195.6	228.8	256.3	270.4	na	4.3%	3.2%	2.3%	5.5%	na
Nuclear	0.0	5.3	8.4	11.3	11.8	na	-	9.7%	6.0%	4.2%	na
Hydro & wind	48.9	38.8	42.0	45.4	47.2	na	-4.5%	1.6%	1.6%	4.0%	na
Thermal	109.3	151.5	178.4	199.6	211.5	na	6.7%	3.3%	2.3%	5.9%	na
Generation Capacity in GWe	34.4	45.2	58.5	62.6	62.6	na	5.6%	5.3%	1.4%	0.0%	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%	1.0%	0.0%	na
Thermal	23.3	30.0	40.0	43.2	43.2	na	5.2%	5.9%	1.6%	0.0%	na
Average Load Factor in %	52.4	49.4	44.6	46.7	49.3	na	-1.2%	-2.0%	0.9%	5.5%	na
Fuel Inputs for Thermal Power Generation	30.3	38.2	42.7	47.1	49.3	na	4.7%	2.3%	2.0%	4.6%	na
Solids	27.3	33.8	38.2	42.4	44.4	na	4.4%	2.5%	2.1%	4.8%	na
Oil	2.1	2.5	2.3	2.5	2.5	na	3.7%	-2.1%	1.7%	2.2%	na
Gas	0.9	1.8	1.8	1.9	1.9	na	14.2%	0.4%	0.9%	0.3%	na
Geothermal	0.0	0.0	0.3	0.3	0.4	na	30.6%	47.1%	-1.7%	27.2%	na
Other	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Average Thermal Efficiency in %	31.0	34.1	35.9	36.4	36.9	na	1.9%	1.0%	0.3%	1.2%	na
Non-Energy Uses	2.3	3.7	4.9	7.9	8.2	na	9.7%	5.9%	9.9%	3.9%	na
Total Final Energy Demand	187.8	204.7	228.4	251.8	255.3	na	1.7%	2.2%	2.0%	1.4%	na
Solids	20.3	16.4	15.8	14.6	12.7	na	-4.2%	-0.7%	-1.6%	-13.4%	na
Oil	31.5	32.7	35.4	38.7	40.3	na	0.8%	1.6%	1.8%	4.1%	na
Gas	0.6	1.0	1.4	1.5	1.6	na	10.5%	7.1%	1.9%	5.3%	na
Electricity	11.4	13.1	15.5	17.3	17.1	na	2.8%	3.4%	2.2%	-1.3%	na
Heat	0.0	0.0	0.0	0.0	0.0	na	-	-	-	-	na
Other	124.0	141.6	160.3	179.7	183.8	na	2.7%	2.5%	2.3%	2.2%	na
CO₂ Emissions in Mt of CO₂	300.2	320.5	343.5	372.6	378.1	627.8	1.3%	1.4%	1.6%	1.5%	66.0%
Indicators											
Population (Million)	377.66	437.12	503.99	574.88	591.18	607.51	3.0%	2.9%	2.7%	2.8%	2.8%
GDP (index 1985=100)	90.2	100.0	110.2	116.3	121.2	125.5	2.1%	2.0%	1.1%	4.3%	3.5%
Gross Inl Cons./GDP (toe/1990 MEUR)	991.2	1060.2	1063.6	1127.3	1093.2	1084.8	1.4%	0.1%	1.2%	-3.0%	-0.8%
Gross Inl Cons./Capita (toe/inhabitant)	0.57	0.59	0.56	0.55	0.54	0.54	0.5%	-0.8%	-0.4%	-1.7%	0.0%
Electricity Generated/Capita (kWh/inhabitant)	419	447	454	446	457	na	1.3%	0.3%	-0.4%	2.6%	na
CO ₂ Emissions/Capita (t of CO ₂ /inhabitant)	0.8	0.7	0.7	0.6	0.6	1.0	-1.6%	-1.5%	-1.0%	-1.3%	-0.2%
Import Dependency (%)	-47.1	-42.6	-47.7	-46.4	-50.1	-57.2	-2.0%	2.3%	-0.6%	7.9%	14.2%

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

(2) Estimates



SUB-SAHARAN AFRICA : MAIN INDICATORS

	1980	1985	1990	1994	1995	1996	85/80	90/85	95/90	96/95
	Annual % Change									
Gross Inland Consumption (Mtoe)	216.0	256.2	283.2	311.1	316.8	320.3	3.5%	2.0%	2.3%	1.1%
Public Thermal Power Generation	27.2	35.6	40.4	42.5	44.3	46.4	5.5%	2.6%	1.8%	4.9%
Autoprod. Thermal Power Generation	3.1	2.5	1.9	2.3	2.5	2.5	-4.0%	-5.3%	5.6%	-2.8%
Energy Branch	2.8	4.1	3.9	7.1	7.5	7.6	7.5%	-0.9%	14.2%	1.2%
Final Energy Consumption	173.7	187.8	208.7	222.1	229.7	233.1	1.6%	2.1%	1.9%	1.5%
Industry	38.4	37.5	39.6	35.8	36.9	37.1	-0.5%	1.1%	-1.4%	0.7%
Transport	21.8	22.6	24.4	26.2	27.4	28.1	0.7%	1.6%	2.3%	2.7%
Tertiary-Domestic	113.5	127.7	144.7	160.0	165.4	167.9	2.4%	2.5%	2.7%	1.5%
Energy Intensity (toe/1990 MEUR)	991.2	1060.2	1063.6	1147.1	1127.3	1093.2	1.4%	0.1%	1.2%	-3.0%
Public Thermal Power Generation	124.7	147.1	151.7	156.7	157.5	158.4	3.4%	0.6%	0.8%	0.6%
Autoprod. Thermal Power Generation	14.4	10.5	7.3	8.5	9.0	8.4	-6.0%	-7.1%	4.4%	-6.8%
Industry	176.3	155.2	148.7	132.1	131.2	126.7	-2.5%	-0.9%	-2.5%	-3.4%
Transport	99.9	93.5	91.6	96.7	97.5	96.0	-1.3%	-0.4%	1.2%	-1.5%
Tertiary-Domestic	521.0	528.5	543.4	590.0	588.7	573.0	0.3%	0.6%	1.6%	-2.7%
Energy per Capita (Kgoe/inhabitant)	572	586	562	557	551	542	0.5%	-0.8%	-0.4%	-1.7%
Industry	102	86	79	64	64	63	-3.3%	-1.8%	-4.0%	-2.1%
Transport	58	52	48	47	48	48	-2.2%	-1.3%	-0.3%	-0.1%
Tertiary-Domestic	301	292	287	286	288	284	-0.6%	-0.4%	0.0%	-1.3%
Electricity Share (%)										
Final Energy Consumption	6.6%	7.0%	7.4%	7.5%	7.5%	7.3%	1.2%	1.3%	0.3%	-2.7%
Industry	18.3%	21.8%	23.4%	24.9%	25.1%	25.6%	3.6%	1.5%	1.4%	1.9%
Transport	1.7%	1.8%	1.4%	1.5%	1.4%	1.3%	0.5%	-4.2%	-0.7%	-3.2%
Tertiary-Domestic	3.5%	3.5%	4.1%	4.5%	4.6%	4.3%	0.1%	2.7%	2.7%	-7.3%
Total Renewable Consumption (Mtoe)	128.2	145.0	164.3	179.7	183.9	188.2	2.5%	2.5%	2.3%	2.3%
Hydro	4.2	3.3	3.6	3.8	3.9	4.1	-4.5%	1.6%	1.6%	4.0%
Biomass	124.0	141.6	160.3	175.6	179.7	183.8	2.7%	2.5%	2.3%	2.2%
Other	0.0	0.0	0.3	0.3	0.3	0.4	30.6%	47.1%	-1.7%	27.2%
Renewable intensity (toe/1990MEUR)	588.5	599.8	616.9	662.5	654.5	642.4	0.4%	0.6%	1.2%	-1.9%
Renewable per capita (Kgoe/inhabitant)	339.6	331.6	325.9	321.5	319.9	318.4	-0.5%	-0.3%	-0.4%	-0.5%
CO₂ Emissions (Mt of CO₂)	300.2	320.5	343.5	352.8	372.6	378.1	1.3%	1.4%	1.6%	1.5%
Public Thermal Power Generation	103.9	135.3	154.5	162.8	169.4	177.9	5.4%	2.7%	1.9%	5.0%
Autoprod. Thermal Power Generation	12.2	9.9	7.6	8.9	9.9	9.6	-4.1%	-5.3%	5.5%	-3.0%
Energy Branch	6.1	7.7	7.0	13.1	13.3	13.3	4.9%	-1.9%	13.8%	-0.7%
Industry	83.6	70.9	69.2	51.9	52.7	50.5	-3.2%	-0.5%	-5.3%	-4.2%
Transport	66.7	68.7	74.0	79.4	83.0	85.3	0.6%	1.5%	2.3%	2.7%
Tertiary-Domestic	27.7	27.7	31.1	36.7	44.3	41.6	0.0%	2.3%	7.3%	-6.1%
Carbon Intensity (tn of CO₂/toe)	1.4	1.3	1.2	1.1	1.2	1.2	-2.1%	-0.6%	-0.6%	0.4%
Public Power Generation	3.4	3.4	3.3	3.3	3.3	3.3	0.3%	-0.3%	-0.1%	0.1%
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%	0.6%	-0.1%	-1.3%
Autoprod. Thermal Power Generation	3.9	3.9	3.9	3.9	3.9	3.9	-0.1%	0.0%	0.0%	-0.2%
Energy Branch	2.1	1.9	1.8	1.8	1.8	1.7	-2.4%	-1.1%	-0.3%	-1.9%
Industry	2.2	1.9	1.7	1.4	1.4	1.4	-2.8%	-1.6%	-4.0%	-4.8%
Transport	3.1	3.0	3.0	3.0	3.0	3.0	-0.2%	-0.1%	0.0%	0.0%
Tertiary-Domestic	0.2	0.2	0.2	0.2	0.3	0.2	-2.3%	-0.2%	4.5%	-7.4%
CO₂ per Capita (kg of CO₂/inhabitant)	795	733	681	631	648	640	-1.6%	-1.5%	-1.0%	-1.3%
Industry	221	162	137	93	92	85	-6.0%	-3.3%	-7.8%	-6.8%
Transport	177	157	147	142	144	144	-2.3%	-1.4%	-0.3%	-0.1%
Tertiary-Domestic	73	63	62	66	77	70	-2.9%	-0.6%	4.5%	-8.6%
CO₂ per unit of GDP (tn of CO₂/1990 MEUR)	1378	1326	1290	1301	1326	1291	-0.8%	-0.6%	0.6%	-2.7%
Public Thermal Power Generation	477	560	580	600	603	607	3.3%	0.7%	0.8%	0.7%
Autoprod. Thermal Power Generation	56	41	28	33	35	33	-6.1%	-7.1%	4.4%	-7.0%
Energy Branch	384	293	260	191	187	172	-5.2%	-2.4%	-6.3%	-8.1%
Industry	306	284	278	293	295	291	-1.5%	-0.5%	1.2%	-1.5%
Transport	127	115	117	135	158	142	-2.1%	0.3%	6.2%	-9.9%
Tertiary-Domestic	1378	1326	1290	1301	1326	1291	-0.8%	-0.6%	0.6%	-2.7%

