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M. O. Ojo
Central Bank of Nigeria

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DIVERSIFICATION AND PROMOTION OF EXPORT OF NIGERIA'S ENERGY PRODUCTS

By

Dr. M. O. Ojo
Director of Research
Central Bank of Nigeria



DR. M. O. OJO

Director of Research, CBN

INTRODUCTION

Energy is a critical input in the economic development process. It is expended in one form or the other in agricultural production activities, especially food processing and transportation, and in the production of farm inputs such as fertilizer, pesticides and agricultural equipment. Energy is equally necessary for industrial operations or facilitating the running of plant and machinery of manufacturing units. It is also required for household cooking & lighting and for the construction and operation of the infrastructure needed for schools, health care services and water supply. Indeed, the levels of energy supply and consumption are strong indicators of overall economic performance. According to the United Nations World Energy Supplies Report, 1990, the levels of energy development and utilization vary across the world. The developing nations which account for 52.2% of world population produce 21% of world energy and account for only about 14% of the total world energy consumption, while the demand for energy in the industrialized countries is invariably higher than the supply in those countries. Admittedly, there is the tendency for the

industrialized countries to engage in energy conservation devices through the development of energy intensive appliances, while shifting to alternative and non-renewable energy sources. But, it can be reasonably assumed that the market for energy products will continue to grow especially as it is difficult to dispense with energy resources in the day-to-day economic activities.

The apparent and relative abundance of energy resources in Nigeria calls for exploring the full economic benefits desirable from their exploitation. So far, Nigeria has not succeeded in diversifying her energy sources and thus the energy sub-sector remains dominated by the petroleum component. There is need for rapid transformation of the sub-sector through technological development resulting in massive production and diversification to satisfy local consumption and the export market to boost foreign exchange earnings. There is hope for a breakthrough in this direction under a medium to long-term planning framework to develop the nation's energy resources. The modalities for achieving this goal form the focus of this paper. Specifically, the objectives of the paper are to examine the struc-

ture and performance of the energy sub-sector in Nigeria, explore the possibility of exploitation of other known energy resources yet to be tapped and to make proposals for their production, expansion and diversification, as well as export promotion. The rest of the paper is structured into four sections. Section 2 reviews the structure and performance of the energy sub-sector from 1986 to date. Section 3 examines the potentials for diversification and export promotion of energy products in Nigeria. Section 4 discusses efforts at diversifying the production and export promotion of energy products and the constraining factors, while section 5 contains the summary and policy recommendations.

STRUCTURE AND PERFORMANCE OF NIGERIA'S ENERGY SUB-SECTOR

Nigeria is endowed with a varied and abundant energy resource base. A significant proportion of Nigeria's energy products is dominated by hydrocarbon mineral resources comprising: crude petroleum, condensate, liquefied natural gas (LNG), associated gas, liquefied petroleum gas (LPG) and coal. Other energy products are electric power, uranium, solar energy and forest woodfuel. With

proven reserves of about 21 billion barrels and a preponderant weight in aggregate mining production, crude petroleum is Nigeria's predominant energy resource. Crude petroleum and refined products constitute the bulk of commercial energy, currently representing nearly 48.0 per cent of aggregate energy consumption, while natural gas, hydro-electric power and coal account for 36.8, 15.5 and 0.1 per cent, respectively (Table 1).

Petroleum

Output of crude petroleum in Nigeria is subject to OPEC production quota and technical production agreements. Daily production has averaged 1.7 million barrels per day between 1986 and 1995 and is based on the joint production sharing agreements between the Federal Government and oil prospecting companies. Crude petroleum production attained the current peak of 715.400 million barrels in 1995 when it accounted for 12.4 per cent of the GDP. The export volume averaged 84.2 per cent of the total production between 1986 and 1995 and provided the largest source of foreign exchange earnings for the country. At 486.584 million barrels in 1986, crude petroleum exports accounted for 90.8 per cent of the total production. It rose to 548.249, 585.838 and 604.300 million barrels in 1990, 1991 and 1992, respectively (Table (2). Average domestic consumption of crude petroleum was 15.7 per cent of aggregate output between 1986 and 1995. It rose from 49.345 million barrels or 9.2 per cent of total production in 1986 to 112.310 and 127.786 million barrels in 1990 and 1993, but declined to 98.550 million barrels in 1995.

There are four refineries in the country with a combined capacity of 445.000 barrels per day. The bulk of the refined products is consumed locally, but some heavier products are

exported. At full capacity, the four refineries cannot produce enough to meet the local demand, thus allowing for some importation, especially of the light products. The issue of oil price subsidy has been of persistent interest in Nigeria. This subsidy is reflected, first, by the opportunity cost of selling crude oil to the local refineries, second, by the excess of refining and distribution costs over the gross revenue from product sales and third, by the cost of bridging operations in trying to ensure that petroleum products are evenly distributed between zonal areas in situations of shortfalls between supply and demand. Effective devaluation of the naira exchange rate tended to increase the subsidy element in domestic oil pricing. The smuggling of these products into the neighbouring countries was thus encouraged. The subsidy element and associated malpractices have, however, subsided substantially with the upward price adjustments effected towards the end of 1994

Gas

Gas exploitation is closely associated with crude oil production. Associated gas is usually trapped with crude petroleum in the soil but released during crude oil mining. On account of the fact that associated gas is inflammable, it is normally flared by oil prospecting firms. About 98 per cent of associated gas produced in Nigeria is flared while the rest is consumed locally. Gas flared rose from 13,917 million cubic metres (mm³) in 1986 to 26,070.3 mm³ in 1995, averaging 77 per cent of total gas produced. Often, associated gas is re-injected into the ground for enhanced recovery. From 18,739 and 18,085 mm³ in 1986 and 1987, output of associated gas rose to 20,253 and 25,053 mm³ in 1988 and 1989, respectively. It reached a peak of 33,445 mm³ in 1993 (Table 3). The volume of asso-

ciated gas utilized locally has ranged between 4,822 and 7,536 mm³ thus averaging 23.7 per cent of total production between 1986 and 1995.

The liquefied petroleum gas (LPG) is produced by the nation's four refineries. Output of LPG rose steadily from 166,794 tonnes in 1991 to 273,778 and 334,052 tonnes in 1992 and 1993, respectively, before it declined to 96,464 tonnes in 1994. It rose to 118,399 tonnes in 1995. Both the First and Second Port Harcourt Refineries accounted for the largest share of LPG output followed by the Warri Refinery (Table 4).

The Nigerian Liquefied Natural Gas (LNG) project estimated to cost about US\$4.3 billion is just beginning to take-off. Construction works have started with the consortium of Technic, Snampogetti, MW Kellogg Company and Japanese Gasoline Corporation (JGC) mandated to complete the project and ensure the export of LNG by early 1999. The LNG project has been restructured with the new equity holdings of the shareholders comprising, the Nigerian National Petroleum Corporation (NNPC), Shell Gas International (Shell), Cleag Limited (ELF) and Agip International with share-holding of 49.25.6, 15 and 10.4 per cent, respectively.

Electric Power Generation and Consumption

Total electric power generation rose from 10,765.6 million kilowatt hours (kwh) in 1986, to 12,813.1 and 14,833.8 million kwh in 1989 and 1992, respectively, and reached a high of 15,531 million kwh in 1994. However, electric power generation declined by 7.2 per cent to 14,482 million kwh in 1995 owing largely to the shortfall in gas supply which constrained output of thermal energy as well as the damage to the hydro-generating equipment at Kainji Dam. The National Electric Power (NEP)

Plc. accounts for 99.2 per cent of total electricity generated while thermal energy purchased from private firms contributes only 0.8 per cent. At 8,872.0 million kwh, the volume of thermal energy generated by NEP Plc. in 1995 declined by 9.9 per cent, while the volume of hydro-electric power generated at 5,500 million kwh similarly decreased by 1.1 per cent (Table 5). Aggregate electricity consumption rose from 7,374.7 million kwh in 1987 to 8,556.3, 8,699.0 and 9,435.9 million kwh in 1989, 1992 and 1995, respectively. Domestic electricity consumption accounted on the average for 63.6 per cent of total electric power generated between 1986 and 1995. The balance (36.4 per cent) represented export supply of electric power to the neighbouring countries, notably Niger Republic, and system losses.

Coal Production And Consumption

With about 700 million tonnes of proven coal reserves, coal production in Nigeria has, nevertheless, declined steadily over the years. Available information shows that 144,441 tonnes of coal were produced in 1981, but the quantity produced fell by 20 per cent to 114,598 tonnes in 1987 and further by 25.4 per cent to 85,487 in 1988. Production of coal fell averagely by 11.7 per cent between 1988 and 1990 (Table 6). However, production improved significantly to 137,658 tonnes in 1991 before it declined sharply to 87,005, 25,000 and 20,000 tonnes in 1992, 1994 and 1995, respectively. As in the development of other solid mineral groups, the production of coal has been constrained largely by the use of obsolete machinery and equipment, scarcity of spare parts for repairs and maintenance, incessant electric power disruptions, flooding of the mining sites and relative high production cost reflected in wages

and transportation costs. The entire output of coal is consumed locally as no export of coal has officially been recorded.

Woodfuel

The rain forest and savannah grasslands in the south and middle belt of Nigeria, occupying approximately 35 per cent of Nigeria's total land area of 91 million hectares, provides solid sources of dried woods used as fuel for domestic cooking. Estimated consumption of woodfuel in 1991 was 103 mm³, almost twice the volume of other energy sources combined, reflecting the predominant dependence of the rural populace on forest energy resources. Woodfuel is exploited largely for domestic consumption and no form of exportation of woodfuel has been recorded.

Overview of The energy Sub-sector

As the above analysis shows, the production of energy products in Nigeria has been on steady increase with the expansion of the economy over the years. It should also be added that the increased use of energy products by both industrialised and developing countries had led to higher demand for energy products in the international market. Arising from these trends, investment has been stepped up to boost the production of some known energy products in Nigeria. For instance, between 1988 and 1995, crude oil, gas and electric energy generation recorded average growth rates of 5.3, 8.1 and 3.3 per cent, respectively. Similarly, LPG production recorded an annual growth rate of 11.9 per cent between 1991 and 1995 while production of coal declined by 13.4 per cent owing to the highlighted production constraints. The growth performance in the energy sub-sector

has been significant but not sufficient to sustain a strong export component. Within the energy sub-sector, only crude oil and electric power are currently being exported. Export of crude oil had an average growth rate of 6.1 per cent between 1988 and 1995. With production expansion and diversification, it is hoped that more refined oil products will enter into the world market. There is enormous export potential, especially in the gas sub-group which is currently being wasted through flaring or re-injection into the ground. Hopefully, the potential will be partly realised when the LNG project comes on stream in 1997. The establishment of the Federal Ministry of Solid Minerals will also create the impetus for the exploration of other energy resources for which the country is abundantly endowed and whose exploitation will boost both domestic production and enhance higher export earnings. The nature of the potentials in the energy sub-sector needs some further articulation.

POTENTIALS FOR DIVERSIFICATION AND PROMOTION OF EXPORT OF ENERGY PRODUCTS

Product and export diversification in the Nigerian energy sub-sector is justifiable on the basis of the current monolithic nature of Nigeria's export structure, with the heavy leaning on crude oil exports. Following the collapse of the world oil market in the early 1980s, and the subsequent fluctuating prices which culminated until recently in a sharp drop in crude oil prices in the international markets, it seems apparent that crude oil exports should not be looked upon to guarantee sustained growth of Nigeria's economy in the long run. In the short-run, however, petroleum provides a major source of investment capital for the development of other energy components. A seem-

ing decline in the petroleum sub-sector needs to be arrested as quickly as possible. A great deal of potential for diversification and export lies in concerted efforts to expand the condensate activities, refurbish the local refineries, take up investments in overseas refineries, accelerate the development of petrochemicals and fertilizer and institute appropriate pricing mechanisms in the sub-sector. Moreover, the increasing demand for energy products in the global market, especially by the developing countries, the low production levels, the faltering exports, performance and dwindling foreign exchange receipts from non-oil exports, provide further justification for the diversification and promotion of export of Nigeria's energy products. A reflection on the structure of energy sub-sector reviewed earlier shows that while the production of energy products has been a long-standing activity, effective production on commercial scale has hardly begun. And much more, the diversification that could result in increased export volume of energy products has not really taken root. In view of the inability to realise the expected gains from the nation's abundant endowment of energy resources, and based on the performance of each of the energy products in terms of the supply to the current market, it is important to look at specific energy products for which diversification is feasible and viable but yet unachieved.

Gas

As an emerging fuel, the significance and role of natural gas will continue to grow in future, based on the proven reserves of natural gas which is estimated at over 105 trillion cubic feet, about 18.0 billion barrels of oil equivalent. But the performance of the gas industry relative to the structure and the proven reserves of gas

indicates relatively low exploitation in the country. Data from the Organisation of Petroleum Exporting Countries (OPEC) point to a rapid growing rate of world gas consumption from the equivalent of 22 million barrels of oil per day in 1979 to 23.8 million barrels of oil equivalent (mboe) in 1983, and 27.9 mboe in 1987, rising to a significant 46.5 mboe per day in 1991. Thus, the delay in the take-off of the liquefied natural gas (LNG) project and the loss of more than 257,000 barrels of oil per day through gas flaring depict great loss to the economy. If the nation's export base is diversified by processing Nigeria's gas reserves for the export market, natural gas will contribute substantially to future total export earnings. However, the Federal Government is addressing the issue by encouraging oil companies to establish gas injection plants in order to minimise the phenomenon of waste through flaring, imposing fines for default. Noticeably, some oil companies still prefer to flare gas and pay the stipulated penalty. So far, efforts being actualized to encourage gas injection include the LNG project and the Escravos Gas project by Chevron.

Coal

There are about 700 million tonnes of proven reserves of coal in Nigeria as stated earlier. But over the years, exploitation of coal has been neglected, while aggregate output has remained negligible and declining owing to the major shift from the use of coal to thermal and hydro power sources for electricity generation and declining household consumption of coal. No export of coal has so far been recorded, as the annual coal output which constitutes a small proportion of total commercial energy is consumed locally. In spite of the strong demand for coal among some of Nigeria's trading partners, the industry's limited supply capability has

constrained the drive for coal export. A large deposit of coal is virtually useless without exploitation. There is therefore, the need for massive infusion of capital investments for the acquisition of new machinery and equipment for the mining of coal. In recognition of the export potential of coal as an alternative source of foreign exchange generation, the Federal Government recently released N500 million for the reactivation of the coal industry. If the production of coal is increased, more coal could be made available for the export market.

Solar Energy

Nigeria is located within the humid tropical belt of Africa which provides much of intense scorching heat from the sun which can be tapped as solar energy during the day. This solar energy could be tapped, stored and packaged into energy cell units of batteries for export. But in spite of the abundance of this relatively cheap energy source and its ready application for electricity power generation, lack of relevant technology tends to undermine its wide application, thus accounting for the little motivation to exploit this energy source on commercial scale. Currently, limited use of this source is being experimented in Sokoto State.

Woodfuel

The forest woodfuel serves as a viable source of exportable energy products to some West African countries within ECOWAS that lie within the Savannah and Sahel grassland regions but devoid of forest vegetation that provides woodfuel. Apart from woodfuel being cut into chips as energy source in the small-scale and cottage industries, the saw dust derived from sawn timbers and processed into chips or wood billets can serve as energy source and exported to these West African countries. The pursuit of this goal is assumed to be consistent with the

need to avoid environmental degradation associated with excessive forest exploitation.

EFFORTS AT DIVERSIFICATION AND EXPORT PROMOTION OF NIGERIA'S ENERGY PRODUCTS

The analysis so far indicates the existence of great potentials in the production and export of energy products in Nigeria. Only limited success has been achieved in exploiting the potentials. We need to briefly review the efforts made and the constraints experienced.

Measures for Diversification and Export Promotion

Achieving a mark in export supply has been found to depend partly on private entrepreneurship and partly on Government's commitment to provide incentives and export facilities to boost production. The Federal Government of Nigeria, while noting the dwindling revenue from both the crude oil and non-oil exports introduced some economic reforms to restructure and diversify the productive base. These measures in the main provide subsidies and rebates to reduce cost, boost production, stimulate and diversify exports.

The fiscal measures designed for production diversification as well as export stimulation include tax concessions as related to pioneer status, research & development, dividends and investment in economically disadvantaged areas. Export promotion measures have also been adopted to achieve price competitiveness and ultimately market expansion and extension. These include the import duty drawback, export licence waiver, introduction of the foreign currency domiciliary account scheme, export adjustment fund, discount window facilities for short-term export bills, export credit insurance scheme to insure genuine exporters against some

political and other risks including default in payment, export development fund to provide financial assistance to private exporting firms to cover part of the initial expenses and export expansion fund used to provide cash inducement for exporters who have exported a minimum of N50,000 worth of semi-processed or manufactured products. Other areas of Government's involvement in export diversification and promotion include: the setting up of industrial development banks, to offer specialized services which include provision of soft loans and advances to large, medium and small scale and cottage type industries on concessionary terms; and the establishment of relevant bodies and agencies, with such responsibilities which include active participation in foreign trade fairs, joint export marketing, establishment of commercial desks, showrooms and trade centres in selected Nigerian Missions abroad. Prominent among such agencies are the Nigerian Export Promotion Council (NEPC) and the Nigerian Export-Import Bank (NEXIM).

Factors Inhibiting Diversification & Export

There is a consensus that the actions taken so far have not been particularly effective. In specific terms, we can claim that the Nigerian economy is far from achieving a credible diversified export base, particularly of energy products. The various factors constraining the diversification and increased exports can be discussed under macro-economic and industry-specific problems.

(a) Macro-Economic Factors:

First, until recently, the private sector participation in the exploitation of solid minerals, especially energy resources, was low owing to Government's monopoly and control of the extractive industries while the priva-

tization of the relevant mineral resource based public enterprises is yet to be carried out. Second, in spite of the high potential for exports of energy products, new markets are lacking owing to inadequate information. The prospective exporters have little or no knowledge as to which markets exist and in what form the products would be offered to the markets and what could be gained from exports of energy products. Other major constraints on export diversification in the energy sub-sector include: inadequate capital and relevant technology, lack of an effective policy framework, poor infrastructural facilities, high production costs and a fragile industrial base.

(b) Industry-Specific Factors:

In the electric power segment, the constraints include: over-investment in power generation to the detriment of transmission and distribution infrastructure; equipment failures and the negative effect on the reliability of electricity supply; enormous annual losses through erratic power supply; and inefficient distribution system. In the petroleum sub-sector, the main constraints are: financial constraints which hinder Government's plan to expand proven crude petroleum reserves and increase production capacity; and frequent petroleum fuel product shortages owing to inadequate product pricing, inconsistent performance of the refineries marketing and distribution system, as well as malpractices such as smuggling and fraud.

In spite of these constraints, it should be noted that Nigeria has been in the vanguard of promoting the creation of regional and continental markets in Africa. Government has been instrumental in the attempts to secure these new markets, while expanding the existing ones, through bilateral trade agreements with Nigeria's trading partners. Such efforts have yielded

some dividends in improving trading relations with countries in the ECOWAS sub-region. The sales of Nigeria's electricity power to neighbouring countries such as the Niger Republic provides a good example. Also, in response to the global changes, Nigeria is gradually shifting in favour of privatization and the enhancement of the private sector as the prime mover of the economy. In this regard, Government is concerned with the provision of conducive economic environment for promoting foreign investment and transfer of technology to the country. This has underlined the abrogation of the Exchange Control Act which inhibited the free transfer of investment resources and the promulgation of the Nigeria Investment Promotion Decree in the second half of 1995.

SUMMARY AND RECOMMENDATIONS

The paper has emphasized the significant roles of energy production, consumption and exports in economic development. It reviewed the structure of production of the Nigerian energy sub-sector and its influence on output and export performance. It noted that while Nigeria is endowed with huge energy reserves and big market potentials for energy products, not much of the energy reserves have been effectively exploited on commercial scale. The paper identified the Government's initial monopoly and control of the extractive industries as partly responsible for the little private investments on gas and coal exploitation on commercial scale, and that the neglect of energy infrastructures had resulted in poor operational performance for both the domestic and export markets. The paper noted the monolithic nature and preponderance of crude oil in total exports and foreign exchange earnings, the dwindling receipts from oil and non-oil exports and the conse-

quences of the non-diversification of the nation's economy. The paper reviewed the measures adopted by the government to stimulate production and diversification of exports of energy products and brought into focus the various macro and industry-specific constraints of the energy sub-sector. In spite of the constraining factors, it underlined the promotional role of the government and touched on the recent abrogation of the Exchange Control Act and the coming on stream of the Nigeria Investment Promotion Decree which is essentially installed to facilitate rapid inflow of foreign investment capital.

On the basis of the above analysis, the paper can prescribe fundamental and comprehensive changes in the energy sub-sector. Among these are the need for:

- (i) Speedy rehabilitation of the petroleum industry, with emphasis on the refurbishment of the local refineries, and increased investment in downstream operations both locally and abroad,
- (ii) Privatisation rather than commercialisation of electric power distribution for greater efficiency. The private sector should further be encouraged to participate in the distribution of electric power at both wholesale and retail ends;
- (iii) Rehabilitation of the existing electric power generating units and strengthening of the transmission and distribution infrastructures;
- (iv) Closer co-operation and coordination between the gas supply system and the operation of the electric power system to minimize power outages owing to shortages in gas supply;
- (v) Rehabilitation of the refineries to make them operate efficiently. There is need to get the private

sector with proven track records into the management of the refineries;

- (vi) Massive infusion of private capital into coal exploitation like other principal solid minerals. Government should allow and give licences to private entrepreneurs to prospect for coal exploitation and exportation;
- (vii) Sustained Government pressure for minimum gas flaring which constitutes a waste and loss to the economy. Investors could be attracted to this area with incentives that would enhance maximum gains;
- (viii) Rapid investment in research & development, including technological development on how best to tap energy sources, e.g. solar energy for use in the electric power sector and coal for economic utilization by the local steel industry, thus conserving foreign exchange;
- (ix) Encouragement of the small-scale entrepreneurs in the processing of saw dust into chips used mostly to provide heat in the furnaces. Target markets could be focused in the West Africa sub-region where forest trees are scanty. Re-forestation to replenish the exploited forest trees resources should be embarked upon;
- (x) The establishment of engineering infrastructures that would rehabilitate the existing obsolete machinery and equipment used in the mining sector to overcome the frequent break-down as a result of their decrepit conditions. Initial earnings from the exports of energy products would enable replacement or rehabilitation of the machinery and equipment to be effected;

(xi) Regional & sub-regional co-operation in securing Nigeria's pre-eminence in Africa and ECOWAS sub-region. This would enable Nigeria to have a market advantage as a major energy supplier to other countries in the continent;

(xii) Renewed interest in solid energy resources. The newly established Federal Ministry of Solid Minerals should function to facilitate rapid development of solid energy products by improving both the funding and logistics for their development and diversification;

(xiii) Intensification of geological exploration to establish the availability of other energy resources; and

(xiv) Collation and dissemination of known energy source data for policy formulation and operators.

In conclusion, we wish to suggest the sustained pursuit of the emerging paradigm of economic reform in the developing countries as a viable and credible strategy of diversification and export promotion in the Nigerian energy sub-sector. This is to encourage private sector investment which global experience has identified to be

a major factor in economic growth and development. The role of the public sector in the Nigerian energy sub-sector looms large and is certainly not totally in line with its desirable role to ensure macro-economic stability, provide complementary infrastructure and develop the nation's human resources. Indeed, continued government domination in the management of domestic energy facilities may exacerbate the financial losses presently associated with the operation of these facilities. It is, however, recognized that, even with full commitment, the shift towards privatisation in the energy sub-sector would be generally gradual given the existing complex economic and political situation.

Table 1

ENERGY CONSUMPTION
(Tonnes of coal equivalent (TCE))

	1986	1987	1986	1989	1990	1991	1992	1993	1994	1995	Average
Coal	80,310	84,934	79,314.4	63,471	55,642.5	106,173.8	71,839.7	2,828.2	12,965.5	14,924.4	
% share	0.4	0.4	0.4	0.3	0.2	0.4	0.2	0.1	0.4	0.1	0.2
Hydro-power	1,775,379	1,476,840	1,504,235	4,278,150	6,646,900	7,083,300.9	7,416,844.4	7,252,315.5	7,237,870.9	3,936,672	
% share	8.4	7.8	8.0	17.1	23.3	25.0	23.3	23.1	24.1	15.5	17.5
Natural Gas	4,296,384	4,609,234	4,763,994	8,485,007.9	8,511,579	8,927,053	7,318,165.0	9,763,234.3	10,671,215.1	9,343,331.9	
% share	20.2	24.4	25.3	34.0	29.8	31.6	23.0	31.1	35.5	36.8	29.1
Petroleum Products	15,060,891	12,755,792	12,514,973	12,121,128.5	13,350,820.5	12,164,536.3	16,994,461.0	14,329,990.2	12,166,161.7	12,079,083.9	
% share	71.0	67.4	66.3	48.6	46.7	43.0	53.5	45.7	42.5	47.6	53.2
TOTAL	21,212,964	18,926,800	18,862,516.4	24,947,757.4	28,564,942	28,281,063.1	31,801,310.1	31,348,368.2	30,088,153.1	25,374,012.2	100.0
Index of Energy Consumption (1985 = 100)	495	419.7	412.1	409.4	96.9	88.7	123.2	104.0	91.2	89.8	

SOURCE: Central Bank of Nigeria

Table 2
CRUDE OIL PRODUCTION AND EXPORT
('000 Barrels)

Year	Production	Export	Percentage of Production	Domestic Consumption	Percentage of Production
1986	535929	486584	90.8	49345	9.2
1987	483269	390514	80.8	92755	19.2
1988	529602	435797	82.3	93805	17.7
1989	625908	522481	83.5	103427	16.5
1990	660559	548249	83.0	112310	17.0
1991	689850	585838	84.9	104012	15.1
1992	711340	604300	85.0	107040	15.0
1993	691400	563614	81.5	127786	18.5
1994	696800	588260	84.4	108540	15.6
1995	715400	616850	86.2	98550	13.8

SOURCE: Nigerian National Petroleum Corporation (NNPC)

Table 3
PRODUCTION AND UTILISATION OF ASSOCIATED GAS IN NIGERIA
(Million Cubic Metres)

Year	Production	Utilisation	% of Production	Flaring	% of Production
1986	18,739	4,822	26.0	13,917	74.0
1987	18,085	4,794	28.1	12,291	71.9
1988	20,253	5,516	27.3	14,737	72.7
1989	25,053	6,323	25.2	18,730	74.8
1990	28,163	6,343	22.5	21,820	77.5
1991	31,587	7,000	22.2	24,588	77.8
1992	32,465	7,058	21.7	25,406	78.3
1993	33,445	7,536	22.5	25,908	77.5
1994	32,683	6,733	20.6	25,950	79.4
1995	32,980	6,910	20.9	26,070	79.1

SOURCE: Nigerian National Petroleum Corporation (NNPC)

Table 4
LPG PRODUCTION
(Metric Tonnes)

Refinery	1991	1992	1993	1994	1995
New Port Harcourt	127639	144000	87402	62000	100,000
Old Port Harcourt*	nil	nil	nil		
Kaduna	18155	27778	3650	11000	8076
Warri	21000	102000	43000	234644	10323
Total	166794	273778	334052	96464	118399

*The Old Port-Harcourt Refinery was under repairs in 1991, 1992 and 1993

SOURCE: Central Bank of Nigeria

Table 5
ELECTRIC POWER GENERATION AND CONSUMPTION
(Million KWH)

Year	Generation	Industrial	Commercial & Str. Light	Residential	Total	Percentage of Total Consumption
1986	10765.6	2457.6	742.4	4174.7	7374.7	68.5
1987	11265.4	2576.5	789.8	4105.1	7471.4	66.3
1988	11654.1	2549.6	1039.1	3888	7476.7	64.2
1989	12813.1	2258.8	1710.7	4586.8	8556.3	66.8
1990	13463.1	2034.4	1887.1	3948.5	7870	58.5
1991	14166.6	2234.5	2023.6	3771.7	8029.8	56.7
1992	14833.8	2183.4	2163.2	4370.1	8716.7	58.8
1993	14504.6	2066.9	2714.4	3217	7998.3	55.1
1994	15531	1887.6	2709.4	5641.3	10238.3	65.9
1995	14482.6	2037.2	2448.9	4949.8	9435.9	65.2

SOURCE: National Electric Power Authority (NEPA)

Table 6
COAL PRODUCTION (1986 - 1995)
(Tonnes)

Year	Coal Production
1986	144,411
1987	114,598
1988	85,487
1989	80,882
1990	77,520
1991	137,658
1992	87,005
1993	40,831
1994	25,000
1995	20,000

SOURCES: Federal Ministry of Mines and Power
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Nigeria Coal Corporation

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