ANNUAL REPORTS

FOR 2004 & 2005

AND
AUDITED FINANCIAL STATEMENTS
FOR
2002 AND 2003

ANNUAL REPORTS

FOR 2004 & 2005

AND

AUDITED FINANCIAL STATEMENTS

FOR

2002 AND 2003

TABLE OF CONTENTS

CHAIRMAN'S REMARKS

In accordance with Section 50 of the Energy Commission Act of 1997, (Act 541) of the Republic of Ghana, we submit the following to the Minister for Energy:

(i) Combined Annual Reports for the periods January to December, 2004 and January to December, 2005; and

(ii) Audited Financial Statements for the years ending 31st December 2002 and 31st December, 2003.

The challenges confronting the energy sector of the country intensified during the period under review. Among these were price hikes on the international markets for crude oil and petroleum products, resulting in increases in the local retail prices of such products. Supply interruptions unfortunately, became a regular feature of the power sector and resulted in frequent outages. This is attributed to a number of factors, including the use of over aged equipment that failed frequently and electricity demand that outstripped the supply capacity.

Woodfuel, the major energy source of the country, is still under tremendous pressure. Urgent steps must be taken to address future woodfuel supplies; otherwise a major environmental and economic disaster would be difficult to avoid.

The harnessing and development of alternative energy resources is of importance under the present circumstances as this could reduce some of the pressures on petroleum, electricity and woodfuel sub sectors.

There is a strong correlation between energy consumption and economic development in all countries. In 2003 a total of 5.83 million tonnes of oil equivalent (MTOE) of energy was consumed in Ghana. This rose to 6.16 MTOE in 2004. Energy consumption will continue to increase even faster if the Ghanaian economy is to grow at a rate higher than the current 6% per year to about 8 - 10% per year as projected by the National Development Planning Commission in order to achieve the country's development goal of middle income status of US$1,000 per capita by 2015. Timely implementation of the required increase in energy supply capacity in the country is by far the most significant challenge facing the energy sector today.

The Strategic National Energy Plan which is one of the important mandates of the Commission has now been finalised and delivered to the Ministry of Energy. The plan elaborates the energy resource base of the country, the energy required to transform the country's economy to a middle income status and projections of how these energy requirements could be met in the future.

In this context, a new comprehensive energy policy document has also been prepared and submitted to the Ministry. It is hoped that these policy recommendations will be adopted by government to guide the new direction in the development of the energy sector.

.....

Professor A.K. Addae
Ag. Chairman

20 October, 2006

1. THE COMMISSION

The Energy Commission underwent some changes in 2005. Nana Dasebre Osei Bonsu stepped down as Chairman in May, 2005 and Mr. Kofi Asante was replaced by Dr. A. K. Ofosu Ahenkorah as Ag.Executive Secretary. Prof. Andrews K. Addae is now the Acting Chairman. The current composition of the Commission is as follows:

1.	Prof. A. K. Addae	Ag. Chairman
2.	Prof. F.K.A. Allotey	Commissioner
3.	Prof. F. O. Akuffo	Commissioner
4.	Mr. J.K. Hagan	Commissioner
5.	Mr. Seth Asante	Commissioner
6.	Dr. A. K. Ofosu-Ahenkorah	Commissioner/Ag. Executive Secretary

Individual Commissioners continue to exercise responsibility for the various divisions of the Commission. The Commission therefore continues to pursue its primary functions, as enshrined in Act 541 and as amended by Act 691[1], which enjoins the Energy Commission:

- to recommend national policies for the development and utilisation of indigenous energy resources;
- to advise the Minister responsible for Energy on national policies for the efficient and safe supply of electricity, natural gas, and petroleum products, having regard to the national economy;
- to provide the legal, regulatory and supervisory framework for providers of energy in Ghana (i.e. licensing, prescription of uniform rules of practice by legislative instrument, inspection, monitoring and compliance of rules);
- to prepare, review and update from time to time indicative national plans to ensure that all reasonable demands for energy are met;
- to secure a comprehensive database for national decision making as regards the development and utilisation of energy resources available to the nation; and,
- to promote competition in the energy market and enforce standards of performance.

[1] The Energy Commission Act was amended following the passage of the NPA Act in July 2005. By section 87 of Act 691, the NPA assumed responsibility for regulating and supervising the downstream petroleum industry. The EC however retains the planning and efficiency functions in relation to petroleum products.

2. ENERGY SECTOR OVERVIEW

The total indigenous primary energy produced in Ghana in 2000 was 6.2 million tonnes of oil equivalent5, about eleven and half times the yearly average energy generated at Akosombo and Kpong hydroelectric plants. This rose to 6.6 million tonnes of oil equivalent by 2004 at an average growth rate of 2.4 percent per annum over the period 2000 - 2004.

The indigenous primary energy comprised 90-95 percent wood fuels (generally called biomass), 5-10 percent hydro energy and less than one percent solar energy. The hydro energy was supplied from Akosombo and Kpong dams in the form of electricity.

Solar energy is used for sun-drying crops, mainly cocoa, cereals, groundnuts, pepper and other commodities both for export and the local market. Solar energy for production of electricity was relatively negligible; about 140 tonnes of oil equivalent.

The net primary energy import which was about 1.9 million tonnes of oil equivalent in 2000 increased to 2.4 million tonnes of oil equivalent by 2004. It comprised 80-83 percent crude oil and about 15-19 percent petroleum products. Electricity imports and solar energy comprised about 0.2 and 0.1 percent on the average respectively during the period. The primary energy production and the net import make up the primary energy supply and totalled about 8.1 and 9.1 million tonnes of oil equivalent in 2000 and 2004 respectively.

Biomass in the form of firewood and charcoal still dominated the final energy reaching the consumer, averaging 63 percent over the period. Petroleum products and electricity followed with 27 percent and about 9 percent respectively.

Final energy supply, i.e. the energy that finally reached the consumer after transportation and transmission was about 6 million tonnes of oil equivalent in 2000 and about 6.3 million tonnes in 2004.

Energy losses, which is made up of technical and commercial losses, accounted for about 26 percent of the total primary supply of 6 million TOE in 2000 but increased to 30 percent of 6.3 million TOE in 2004[2].

[2] A significant amount of energy is lost during the conversion of energy from one form into another. Losses are incurred during energy transmission, distribution and sale. Technical losses occur in the equipment whilst commercial losses occur as a result of theft, non-payment of bills and non-collection. Apart from this a significant amount of energy that reaches the consumer is wasted due to the use obsolete end-use appliances and wasteful practices. It is estimated that the level of waste is around 20-30% of what gets to the consumer.

The residential/household sector of the economy on the average accounts for almost 50 percent of the country's energy consumption. The significant residential sector share of the nation's energy demand is due to the high usage of woodfuels comprising mainly firewood (almost 76 percent) and charcoal.

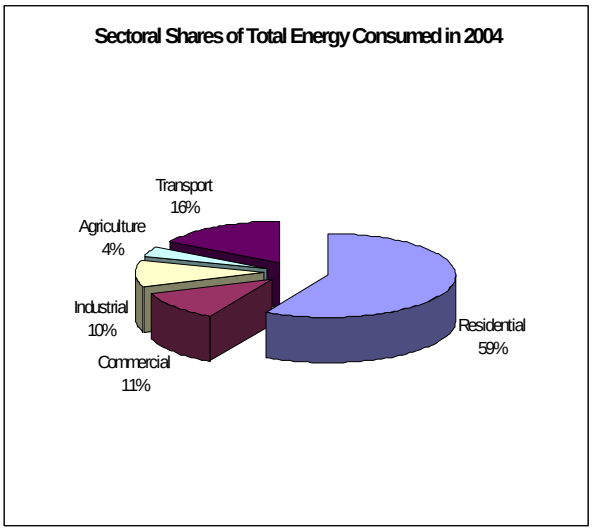


Figure 1: Sectoral Shares of Total Energy Consumed in 2004

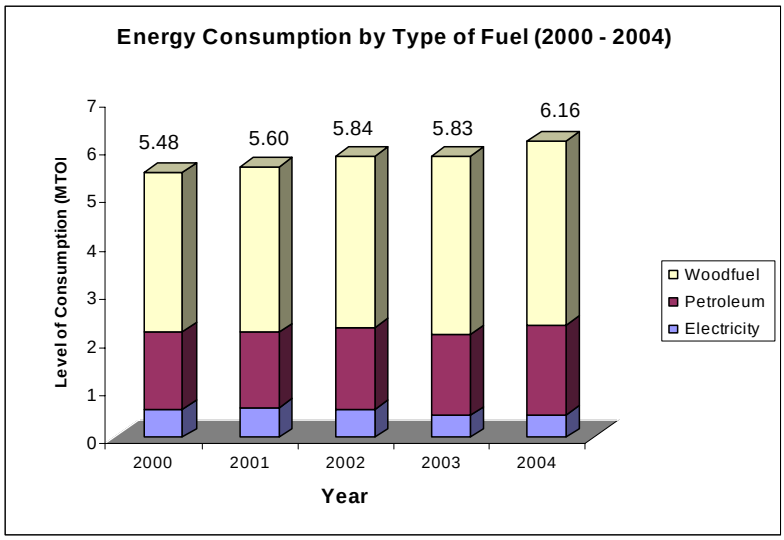


Figure 2: Energy Consumption by Type of Fuel (2000-2004)

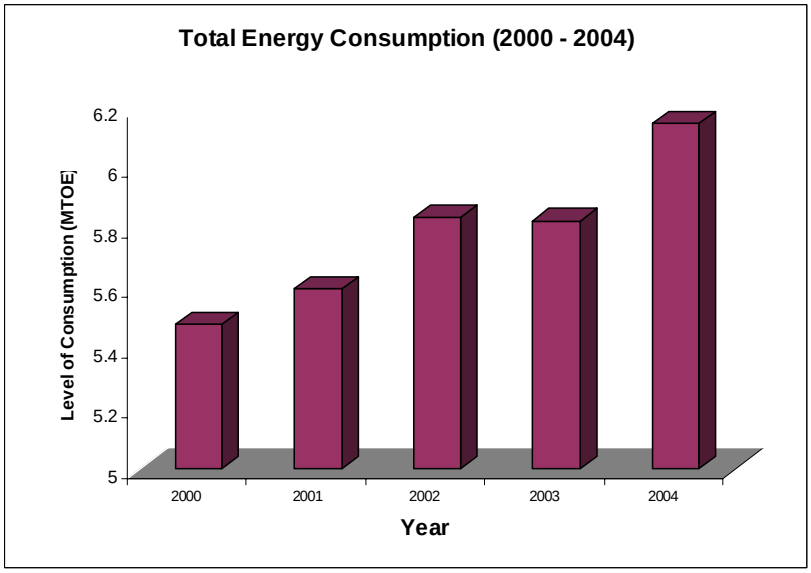


Figure 3:Total Energy Consumption 2000-2004[3]

[3] The sudden drop in energy consumption in 2003 was the result of the shut down of the Volta Aluminum Company's smelter, which accounted for a significant amount of electricity.

3. ACTIVITIES AND OPERATIONS

3.1 POWER

The Energy Commission has responsibility for regulating the entry and exit of service providers as well as the quality of service in the Power Sector. Specifically the Commission performs the following:

- licensing of electricity service providers;
- elaboration of technical codes and rules of practice for the electricity supply and distribution industry;
- elaboration and establishment of Standards of Performance Regulations to be used by electric power service providers and
- performs inspection and monitoring of compliance with technical codes and rules, standards of performance and licensing terms and conditions by service providers.

3.1.1 Licensing

In accordance with the Energy Commission (EC) Act 1997, Act 541, electricity service providers are required to obtain a license from the Commission (EC) in order to carry out operations in the sector.

Since its establishment the EC has issued, provisional licenses to three wholesale power or generators namely, the Takoradi Power Company (TAPCO), Takoradi International Company (TICO) and Western Power Company. As required by law one Electricity Transmission Utility (ETU) was issued with a provisional licence in 1999 whilst a provisional electricity distribution license has been issued to the Electricity Company of Ghana (ECG). All the provisional licenses granted had a validity period of two years. Most of these provisional licenses had expired by December 2002. In the case of a few of these licenses, (VRA's TAPCO and TICO licenses) the validity periods have been extended pending the issue of permanent final licenses.

Implementation of a program to grant final licenses to the service providers commenced in mid-2003. It involved the development of a comprehensive licensing and monitoring framework for electricity service providers including the review of terms and conditions of all provisional licenses.

A draft Licensing Manual for electricity service providers was consequently completed in October 2005. The draft manual is expected to be presented for review by the Energy Commission's

Electricity and Natural Gas Committee, which was established in 2005 and then forwarded for approval and adoption by the Commission. Subsequently, final licenses will be developed in line with the established framework and issued to service providers by March 2007.

3.1.2 Rules, Regulations & Standards

The following rules and regulations were completed during the 2004-2005 period.

3.1.2.1. Legislation on Appliance Energy Efficiency Standards Labelling (LI 1815)

The Energy Commission in collaboration with the Energy Foundation and the Ghana Standards Board (GSB) completed work on the first phase of the Ghana Electrical Appliance Labelling and Standards Programme (GEALSP) to develop efficiency standards and labels for major electrical appliances such as Air Conditioners, Refrigerators, lighting bulbs etc., all in an effort to promote the efficient utilisation of electrical energy.

The high rate of growth in demand for power that has been observed in Ghana since 1985 is straining the energy infrastructure, causing environmental damage and hindering economic growth. In fact the energy demand growth rate in the residential sector is higher than in the productive industrial sector and accounts for over 30% of electricity sold in the country. At the same time demand for major appliances and equipment-ranging from refrigerators, air conditioners and lighting equipment -is expected to continue its steady growth. In the absence of focused efforts to reduce energy consumption by appliances and equipment, within an imperfect market where inferior inefficient electrical goods could easily be dumped on unsuspecting consumers, electricity demand in the residential and commercial sectors will continue to grow rapidly in the country.

Whereas growth in demand for energy can be accommodated by some combination of supplying more energy and improving the efficiency of energy consumption, it has been established that energy efficiency standards and labels for appliances, equipment, and lighting are the most effective tools for ensuring energy efficiency in the residential and commercial sectors, limiting energy growth and at the same time stimulating economic growth.

The draft efficiency standards and appliance labelling legislative instrument (for non-ducted room air conditioners and Compact Fluorescent Lamps (CFL) received parliamentary approval in November 2005, making Ghana the first country in sub-Saharan Africa to introduce energy efficiency standards and labels for appliances.

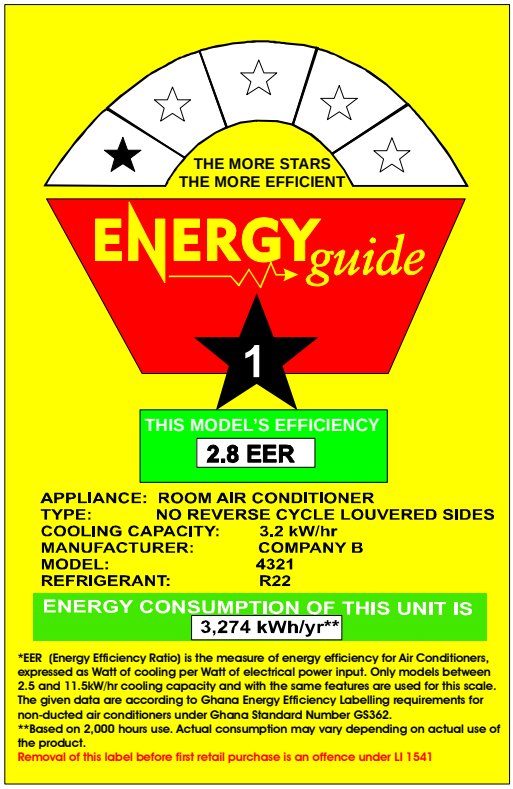


Figure 4. Room Air Conditioner Label

The Regulation is intended to introduce and enforce minimum energy efficiency standards which all appliances imported into Ghana or manufactured in Ghana for use in Ghana would have to meet. The aim is to provide a regulatory framework for sustaining an energy efficiency appliance market in the country, prevent the "dumping" of inferior inefficient electrical systems onto the Ghanaian market and also to protect unsuspecting consumers from purchasing inferior inefficient electrical appliances. To strengthen and sustain the enforcement of standards, energy labels which will provide clear and easily recognisable information for consumers about the energy consumption and performance of electrical appliances have also been introduced.

The most important part of the Ghana label is the 5 star energy efficiency rating scale, which provides a simple indication of efficiency from 5-star (most efficient) to 1-star (least efficient), thus enabling consumers to make an informed choice in making a purchasing decision.

According to the provisions of the regulations

- A non-ducted air conditioner manufactured or imported for use in Ghana shall in accordance with Ghana Standard 362:2001 have a minimum energy efficiency ratio of 2.8watts/watt.

- A self-ballasted fluorescent lamp manufactured or imported for use in Ghana shall in accordance with Ghana Standard GS 323:2003 have; (a) a minimum rated life of six thousand hours; and (b) a minimum efficacy measured in lumens per watt matching the lamp configuration (bare or covered with or without reflector) and lamp power rating. The minimum lamp efficacy is 33lumens per watt.

The Air Conditioner Standard is expected to be saving the equivalent of a 150MW generating plant by 2015. By 2020, this standard alone will be saving about 950GWh per year, freeing up nearly 250MW of generating capacity that can be used for other productive purposes, and that number will increase through 2030, all at net negative cost to the economy. In contrast, the 300-400MW Bui hydropower plant is estimated to cost nearly US$600 million.

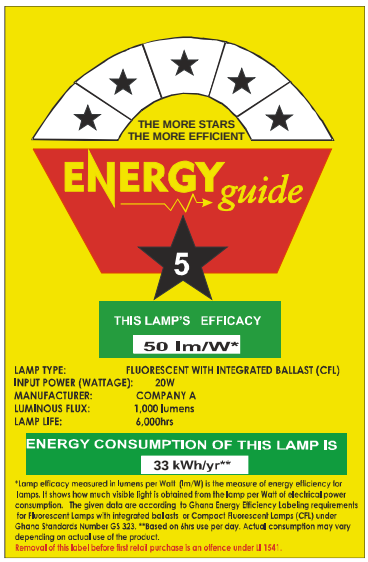


Figure 5. Lighting Label

3.1.2.2. Electricity Supply & Distribution (Technical & Operational) Rules, 2005

Drafting work on the Technical & Operational Rules for Electricity Supply & Distribution had been completed since the third quarter of 2002 following Parliamentary Sub-committee hearings conducted in July 2002. Due to technical difficulties it was not until the second half of 2005 that it was taken through the parliamentary process and passed in December 2005 as LI 1816. The regulations are the first to be developed and passed under section 28 of the Energy Commission Act to specify the rights and obligations of both consumers and the utilities that are or will be engaged in power supply in Ghana.

The legislation spells out conditions that need to be met by consumers before they are connected to the national grid and the responsiveness of the utilities in processing applications.

Other sections of the Legislation cover safety, precautions against atmospheric electricity, which causes a lot of disruptions during rains, lightening and thunderstorms. Illegal connection and supply parameters such as voltage and frequency have also been addressed. The issue of interruptions is also well catered for in the regulations.

3.1.2.3. Draft Standard of Performance Rules for Electricity Distribution & Supply

In-house finalisation of the Standards of Performance Rules for power distribution and supply resumed after the passage of the Technical and Operational Rules. This is because it was considered necessary to secure parliamentary ratification for the Technical and Operational

Rules before proceeding with the finalization of the Performance Standards Rules in order to ensure the removal of existing and perceived discrepancies between the two instruments.

3.1.2.4. Enforcement of Bulk Customer Classification Notice

A public notice issued by the Commission in July 2003 classified about 20 consumers as bulk customers in respect of electric power in line with the Commission's classification notice published earlier in June 2003. By this notice, a customer, whose demand is more than 3MVA and consumes a minimum of 6GWh of electricity per annum qualifies to operate in the deregulated power market and could be authorised to negotiate power supply contracts from suppliers of its own choice effective January 1, 2004.

Guidelines for setting tariffs for the regulated segments of the electricity industry which will serve as a guide for bulk customers in their negotiations with potential suppliers were issued by the PURC in early 2004. There were reported difficulties from both the utilities and bulk customers with regard to the power supply negotiations particularly with regard to the level of transparency of the tariff guidelines issued by the PURC. As a result, the PURC has issued a notice for all negotiations to be suspended until it the issues are resolved. Consequently, no executed power supply contracts have been lodged yet with the Commission.

3.1.2.5 Rules and Regulations for the Operation of the Wholesale Power Supply Market (WPSM) and Development of the National Grid Code

The EC is required by law to collaborate with the Ministry of Energy to establish rules and regulations for the operation of the proposed wholesale power supply market (ref. section 56 of Act 541) with a view to enhancing transparency and promoting private participation in the sector. Subsequent to the establishment of the rules & regulations for the WPSM the EC is required under section 28 of the Act to develop Technical and Operational Rules of Practice (i.e. the Grid Code) for the operation of the National Interconnection System.

Activities were initiated in June 2004 towards the development of the regulations at a consultative meeting/seminar organised by the Commission. The seminar sought to solicit views and ideas regarding the proposed structure of the wholesale power supply market and also to provide an overview of the rules and mechanisms for transmission service delivery that would guarantee open access and ensure transparency and fair competition in the electricity market of Ghana, bearing in mind sub-regional developments with respect to the establishment of the West African Power Pool (WAPP).

A firm decision by Government on outstanding policy issues, such as the framework for allocation of generation from the existing hydro resources, is very critical to the determination of the structure and operation of the wholesale power supply market. It is also important to decide on a clearly defined market structure before proceeding with the development of the Grid Code for the operations of the NIS.

Meanwhile, the VRA Act Amendment law was passed in 2005 allowing for the separation of the Transmission Department of the VRA and the establishment of an independent Electricity Transmission Utility (ETU) in consonance with the requirements established under the Energy Commission Act 1997, (Act 541). VRA is however required to continue to handle the transmission operation untl the market structure and relevant rules are established by the Energy Commission.

3.1.2.6 Rules & Regulations for Wiring and Electrical Installations in Building

In recent times the incidence of fire and the consequent destruction of life and property resulting from faulty electrical installations have become very rampant and impacted adversely on the national economy.

In line with Section 56 (iii), (iv) and (v) of the Energy Commission Act, Act 541, the Commission set up a Wiring Review Committee in October 2005 to review and update existing wiring regulations and provide for their enforcement through an LI under Act 541. The Committee started its work immediately after its inauguration and commenced with the review of the previous document with a view to bringing it up to the standards of current day practice in the industry. The activity is expected to culminate in the development of regulations for wiring and electrical installations in buildings and the establishment of a licensing and enforcement regime for electrical contractual services in Ghana

3.1.3 Establishment of the Electricity and Natural Gas Technical Committee

Section 29 of the Energy Commission Act, 1997 (Act 541) stipulates the establishment of a Technical Committee for Electricity and Natural Gas to assist the Commission with the development, implementation and monitoring of technical rules of practice to regulate operations and activities of the electricity and natural gas industries in the country. Specifically, the Electricity & Natural Gas Technical Committee is to function as a statutory advisory body to the Energy Commission in the delivery and performance of its technical mandates particularly relating to the development, establishment and implementation of technical rules, codes of practice and standards of performance for the operation of the electricity and natural gas industries.

Pursuant to this provision in the Act, a 16-member Technical Committee for Electricity and Natural Gas was established by the Commission in December 2005. The Committee is made up of technical experts drawn from the relevant industries. The following is a list of the members of the Electricity and Natural Gas Technical Committee as currently constituted:

Table 1: Membership of Technical Committee on Electricity and Natural Gas

	Name	Occupation	Position on Committee
1.	**Dr. E.K. Annan**	Managing Director, Nexans Kabelmetal Ltd, Tema	Chairman of Electricity Sub-Committee
2.	**Dr. E.B. Hagan**	Director, Industrial Research Institute, CSIR, Accra	Chairman of Natural Gas Sub-Committee
3.	**Mr. I. Mintah**	Chief, Public Affairs, Energy Commission	Convener
4.	**Mr. F. Gbeddy**	Chief, Power, Energy Commission	Secretary to the Electricity Sub-Committee
5.	**Mr. M. Asare**	Chief Programme Officer, Natural Gas Division, Energy Commission	Secretary to the Natural Gas Sub-Committee
6.	**Mr. J.E. Nyante-Nyadu**	Legal Drafting Office, Attorney General's Department	Member
7.	**Mr. R. Evans-Appiah**	Director, Planning, Volta River Authority	Member
8.	**Mr. J. Amakyi**	Divisional Manager, D &C Electricity Company of Ghana	Member
9.	**Mr. Thomas Manu**	Director, Exploration & Production, Ghana National Petroleum Corporation	Member
10.	**Mr. E. Lartey**	Director, Maintenance & Engineering, VALCO	Member (Representative of Association of Ghana Industries)
11.	**Mr. M. Opam**	Energy Expert	Member
12.	**Mr. S.K. Asare**	Energy Expert	Member
13.	**Mr. J. Dakpoe**	Energy Expert	Member
14.	**Mr. K. Gyasi**	Financial Expert	Member
15.	**Mr. K. Bentsi-Enchill**	Legal Expert	Member
16.	**Mr. E.K.A. Dickson**	(Consultant)	Energy Expert

Technical issues that relate to the technical regulation of the electricity and natural gas industries are therefore required to be deliberated upon by the Technical Committee with a view to advising the Commission in its decision making process.

3.1.4. Inspection & Monitoring Compliance

The Takoradi Thermal Power Station Complex and the Osagyefo Power Barge which was docked at the Takoradi Naval Base were visited as part of routine inspection checks and compliance monitoring activities of power installations over the period under review. Both the TAPCO and TICO power plants were found to be in good working condition and operating within stipulated environmental limits as reported in their respective quarterly performance statistics submissions. The Osagyefo Power Barge was also observed to have been receiving

satisfactory maintenance attention from dedicated staff provided by VRA to keep the barge in good condition, void of rust and undue deterioration arising from non-operation. The barge was however towed to and docked at its final destination at Effasu in 2005 whilst arrangements were still ongoing to secure a suitable source of fuel to put it into operation.

3.2. PETROLEUM AND NATURAL GAS

Until the establishment of the National Petroleum Authority in July 2005, the Energy Commission was responsible for all technical matters relating to the petroleum industry. The Commission was mandated to and performed the following functions, among others:

- Established procedures for the licensing of energy service providers in the natural gas, oil and petroleum sectors;
- Elaborated rules and regulations and codes of practice for the natural gas and oil industries;
- Undertook inspections of the facilities of service providers engaged in the production, marketing and retail of petroleum products, and
- Ensured that service providers engaged in the production, marketing and retail of petroleum products complied with rules, regulations and codes of practice prescribed by the Commission.

During the years under review the Commission undertook activities mainly in the following areas:

- Establishment of Rules and Regulations for Wholesale Petroleum Supply Market;
- Development of Standards of Performance/Codes of Practice for Energy Service Providers (ESPs);
- Inspection of Petroleum Price Billboards;
- Inspection of Petroleum Retail Outlets;
- Inspection of facilities of institutions/companies contracted by the Commission to set up systems for the inspection and calibration of Bulk Road Vehicles (BRVs) and Underground Storage Tanks (USTs);
- Development of Provisional/Final Licenses and Licensing of Energy Service Providers; and
- Development and Issuing of Construction Permits.

Highlights of these activities are provided below:

3.2.1. Establishment of Regulations for Wholesale Petroleum Supply Market

A Working Group was inaugurated on 29th January, 2004 to prepare the Rules and Regulations for the Wholesale Petroleum Supply Market. This became necessary as the existing regulations prepared as far back as 1959 (Petroleum Regulations LN 206 and Safety Petroleum Rules LN 207) have outlived their usefulness. The Committee, whose membership was made up of experts from the Industry, included representatives from the Ministry of Energy, the Tema Oil Refinery, the Environmental Protection Agency, the Oil Marketing Companies, the Ghana Standards Board, the Ghana Ports & Harbours Authority and the Ghana National Fire Service.

Twenty volumes of the Regulations covering the following subject areas were produced:

i) Above Ground and Underground Storage Tanks,

ii) OMCs and Stations,

iii) Air Ports (Joint User Hydrant Installations),

iv) Petroleum Refining

v) Carriage of Petroleum by Sea,

vi) Crude Oil and Petroleum Products Pipelines,

vii) Petroleum Storage Depots, and

viii) Rail Tank Wagons & Bulk Road Vehicles.

The documents have been passed on to the NPA for review and further processing into law.

3.2.2. Compliance Monitoring of Petroleum Price Billboards in the Greater Accra and Ashanti Regions

The Energy Commission undertook the inspection of Petroleum Price Billboards in the Greater Accra Region in April, 2004. The exercise was a follow-up of an earlier inspection undertaken in September, 2003, which covered 175 service and filling stations in the Greater Accra Region. The purpose of the inspection was to determine the extent to which OMCs had complied with the Commission's directive to erect billboards displaying the prices of petroleum products offered for sale at the retail outlets.

The compliance monitoring exercise revealed that 90% of service/filling stations located in the Greater Accra Region had complied with the Commission's directive to erect price billboards that conformed to the Commission's requirements.

The Commission also conducted compliance monitoring of petroleum price billboards in the Kumasi Metropolis in August and September, 2004. The exercise was a follow-up of an earlier inspection undertaken in December, 2003, which covered 98 service and filling stations in the 18 districts of the Ashanti Region.

The compliance monitoring exercise in the Ashanti Region revealed that out of the 45 petroleum product retail outlets inspected in the Kumasi Metropolis and the surrounding districts of Mampong, Offinso and Obuasi, 21 retail outlets, constituting 47%, had erected price billboards. It was also established that aggregate compliance with the directives to erect price billboards had increased to 70% as compared to the 2003 levels.

However the extent of compliance with the National Oil Loss Control Committee recommendation with respect to the use of the 10-litre can, approved by the Ghana Standards Board was abysmally low[4]. Out of a total of 50 retail outlets that were inspected during the exercise the compliance rate was less than 10%

3.2.3. Inspection of Facilities of Companies authorized to Calibrate BRVs and USTs

In order to decentralize the inspection and the calibration of Bulk Road Vehicles (BRVs) and Underground Storage Tanks (USTs) countrywide, the Commission in conjunction with the Ghana Standards Board (GSB), invited applications from individuals, suitably qualified corporate bodies or Agents to bid for contracts to set up systems for the calibration and inspection of BRVs and USTs at designated centres in Kumasi, Takoradi and Tema.

Four companies namely, Sonic Control Engineering Services, Industrial Engineering Consultants Limited, Nationwide Systems Limited and Brite Light Services Limited were successful in their bids. The companies have signed and entered into contractual agreements with the EC and have established systems and the necessary infrastructure to undertake the inspection, pressure testing and calibration of USTs and BRVs in assigned areas in the country.

In accordance with the contract, the companies were also to undertake the following assignments:

a) Acquisition, registration, and preparation of land for the construction and installation of the calibration facilities;

b) Procurement of equipment, devices and standards for the calibration and testing of USTs and BRVs;

c) Calibration of inspection standards, testing equipment and devices traceable to national standards;

[4] The GSB-approved 10-litre measuring can was recommended to provide a mechanism for the operators of petroleum product retail outlets to monitor the performance of their dispensing pumps as regards over/under-delivery of the pumps.

d) Compilation and documentation of statistics of particulars of the companies and the facilities available in the respective regions; and

e) Documentation of standard operation procedures for the calibration of BRVs and USTs.

The four companies, their centres and areas of jurisdiction are as shown in Table 1.

Table 2: Companies licensed to calibrate BRVs and USTs

Company	Sector	Regions of Jurisdiction	Centre
Sonic Control & Engineering Services	UST	Greater Accra	Tema
Nationwide Systems Limited	UST, BRV	Ashanti, Brong Ahafo, Northern, Upper East & Upper West	Kumasi
Industrial Engineering Consultants Limited	UST	Eastern & Volta	Tema
	BRV	Greater Accra, Eastern & Volta	
Brite Light Services Limited	UST, BRV	Western & Central	Takoradi

The Commission undertook an extensive inspection and monitoring of the progress of work at the various regional centres of the calibrating companies in December, 2004 to ascertain the status of work. This was with the view to advise further on issues pertaining to standardization, conformity assessment, construction, installation and acquisition of the facilities for a successful implementation of the programme.

The inspection team made the following observations:

- All the companies had started work on the facilities, but were at various stages

- All the companies had properly acquired lands and offices for their operations.

- Each company had employed technical and administrative staff with the requisite expertise and experience for the work to be undertaken.

- There was sufficient evidence that all the companies had acquired pieces of calibration equipment and devices for the work.

- The companies required technical assistance from the EC/GSB on specification, conformity assessment, constructional and other technical issues so as to reduce cost.

The inspection exercise revealed the state of readiness and preparedness

of the calibrating companies to undertake the testing, inspection and of calibration BRVs and USTs in their regions of jurisdiction.

3.2.4. Development of Licensing Framework for Energy Service Providers (ESPs)

In accordance with section 37 of the Energy Commission Act 1997, Act 541 all ESPs are obliged to obtain licenses from the Commission prior to operating their facilities. In line with the Commission's open door policy and its belief in consensus building, the Commission held several meetings with stakeholders in the petroleum industry to discuss the draft licensing frameworks it had developed. The purpose of these meetings was to incorporate stakeholders' suggestions, comments, views and inputs into the Provisional Licensing Framework.

In the years under review, licensing frameworks were developed for the regulation of the following service delivery activities in the downstream petroleum industry:

- Bulk Oil Storage and Transportation;
- Offshore Petroleum Product Bunkering of Ocean-Going Vessels, Trawlers and Fishing Vessels;
- Calibration of Bulk Road Vehicles (BRVs) and Underground Storage Tanks (USTs); and
- Distribution, Marketing and Sale of lubricants.

The Commission conducted audits on all the companies whose licenses were due for renewal in 2004. Table 3 shows the licensing status of all Oil Marketing Companies whose Provisional licenses were due for renewal in 2004.

Table 3: Oil Marketing Companies, whose provisional licenses were due for renewal in 2004

Name of OMC	Date of Issue	Expiry Date	Expected date of Renewal of License (60 days before the expiry date of license).	Status
Sonnidom Energy Limited (SEL)	1 March, 2002	1 March, 2004	1 January, 2004	Final License granted.
Unity Oil Company Limited.	1 June, 2002	1 June, 2004	1 April, 2004	Final License granted.
Universal Oil Company Limited.	1 June, 2002	1 June, 2004	1 April, 2004	Final License granted.
Glory Oil Company Limited	1 Sept., 2002	1 Sept. 2004	1 July, 2004	Final License granted.
Havilah Oil Company Limited.	1Sept., 2002	1 Sept., 2004	1 July, 2004	Final License granted.
Petro- Afrique	1 Sept., 2002	1 Sept., 2004	1 July, 2004	Not in good standing.
Petro-GH	1 Sept., 2002	1 Sept., 2004	1 July, 2004	Not in good standing.
Tropic Oil Limited	1 Jan. 1999	1 Jan. 2001	1 Nov. 2000	Not in good standing

The following criteria were used to determine the eligibility of any OMC for the grant and issue of a Petroleum Product Marketing Final License:

- Whether the OMC had satisfied all the requirements prior to the grant and issue of the Petroleum Product Marketing Provisional License as spelt out in the Commission's Public Notices ECN 001 and ECN003 respectively;

- Whether provision 8.1 as set forth in the Petroleum Product company had submitted the requisite performance statistics semi-annually and an annual report at the end of each twelve month period; and

- Whether the OMC's performance in terms of expansion, as spelt out in its Business Plan, had been satisfactory during the validity of its Provisional License.

3.2.5. Status of Register of Licenses for Energy Service Providers

A thorough review of the Commission's documentation indicated that fourteen (14) OMCs had fully satisfied the conditions mentioned in section 3.4 for the grant and issue of final licenses. The companies are:

Mobil Oil Ghana Limited	Oando Ghana Limited (formerly Unipetrol),
Shell Ghana Limited	Allied Oil Company Limited,
Ghana Oil Company Limited	Star Oil Company Limited
Total Ghana Limited	Fraga Oil Ghana Limited
Universal Oil Company Limited	Glory Oil Company Limited
Engen Ghana Limited	Havilah Oil Company Limited
Sonnidom Energy Limited	Unity Oil Company Limited

Final Licenses were issued to these companies.

Permits to import finished petroleum products, which were granted and issued to some companies were due for renewal. During the years under review, permits granted to Shell Ghana Limited, Coscharis Ghana Limited, Mobil Oil Ghana Limited, Ghana Oil Company Limited, Oils and Lubricants Limited to import finished petroleum products were renewed: Additionally, Kwabaffoe Enterprise, Aquatec Diving Services Limited, Graco Autoparts Limited, Kennetos Motors Limited and Corstor Ghana Limited were granted and issued permits to import finished petroleum products.

3.2.6. Development/Issuing of Construction Permits

It is mandatory for all ESPs, before commencing the construction of any facility to be used to provide services in the energy sector, to obtain authorization from the Commission. This authorization is the "Construction Permit" and is also part of the permitting conditions of the Environmental Protection Agency (EPA). It is required that an application for "Construction Permit" be accompanied by the following:

- An Indenture/Title to Land;
- Ghana National Fire Service Fire Report;
- A permit from the Environmental Protection Agency (EPA);
- Town & Country Planning Development & Building Permit;
- A copy of the drawing of the facility "To be Constructed";
- A sponsorship letter from an OMC (particularly for the construction of petroleum product retail outlets), and.
- Geodetic Report on the land (where appropriate)

The construction permit spells out the minimum requisite documentation that the proponent should have and how the facility should be constructed.

Thirteen (13) Construction Permits were issued to proponents during 2004. Before the grant and issue of "Construction Permits", the Commission's inspectors undertake on-the-spot physical inspection of the sites. The rationale for such inspections is to determine the compatibilities of the proposed activities with the land use and whether such facilities, when constructed and operational, would pose or constitute any serious threat to public health and safety. The inspectors' report and recommendations determine whether the "Construction Permit" would be granted or declined[5].

3.2.7. National Oil Loss Control Committee

Following persistent complaints from the Petroleum Retailers Association and other customers of the Oil Marketing Companies about short delivery of products from Tanker drivers and also from the motoring public about cheating at the forecourts, it was decided that the National Oil Loss Control Committee be reactivated. The task of the Committee, inter alia, was to make recommendations aimed at solving the problems associated with and contributing to the losses across the entire chain of supply, transportation and distribution.

The membership of the Committee was drawn from representatives of the Ministry of Energy, the Energy Commission, the Ghana Standards Board, the Petroleum Retailers Association, the Tema Oil Refinery, the Tanker Owners Union, the Ghana Tanker Drivers Union, the SGS, the Volta Lake Transport Company, the Oil Marketing Companies and the Bulk Oil Storage and Transportation Company.

The Committee made a number of recommendations. These can be found in the report entitled ***"Report of the National Oil Loss Control Committee"***. Among others, it was recommended that the Energy Commission mounts intensive educational campaigns on the Committee's findings and recommendations to all stakeholders engaged in the marketing, transportation, distribution and sale of petroleum products. The Dealers of petroleum product retail outlets and Tanker Drivers were to be educated on the phenomenon regarding the causes of apparent loss of petroleum products due to temperature variations.

[5] Follow-up inspections are also carried out, during construction, to ascertain the proponent's compliance with the permitting conditions.

In response to the NOLCC'S recommendations, the Energy Commission published an Educational Manual, **"Petroleum Products Transportation, Delivery, Retail and Loss Control".** This Manual has been circulated to all the stakeholders, including the OMCs, the Petroleum Retailers' Association (PRA), Tanker Owners' Union, BOST, TOR etc. The manual has proved very effective in reducing oil losses. The Educational Manual was launched in Kumasi in March, 2004.

3.2.8. Monitoring of Activities related to Premix Fuel

The Commission's activity in this area was carried out through the now defunct PREMIX COMMITTEE. The total lifting of premix by the OMCs for the year 2004 amounted to over 50 million litres. There was an appreciable increase in liftings until orders through the Ministerial Premix Fuel Secretariat were stopped.

The Cocoa Spraying Programme (CSP) progressed steadily during the period under review. Premix fuel liftings for the CSP did not have to pass through the approval mechanism of the Premix Fuel Secretariat as they were coordinated by the Cocoa Board itself.

In October, 2004, the Ministerial Committee on Premix Fuel was dissolved, following alleged pre-mix fuel diversions. A Task Force was established to deliberate on the way forward with regard to the allocation and distribution of premix fuel to the fishing communities of Ghana[6]. The Task Force recommended that OMCs should place direct orders of premix fuel to the Tema Oil Refinery for onward distribution among fishing communities of the country.

3.2.9. Unleaded Gasoline (Lead-In-Petrol Monitoring Programme)

The Commission in collaboration with the Tema Oil Refinery (TOR) Ltd. carried out random sampling of gasoline (petrol) in a number of retail outlets in the Accra/Tema metropolis to determine lead content by chemical analysis.

The results of the random exercise and analysis indicated that residual lead levels at the refinery meet the permissible standards of less than 0.013 gram Lead per litre of petrol. The results from 12 out of 20 outlets sampled (representing 60%) exceeded the standards. Given the relatively short period that the TOR started consigning unleaded gasoline to the market (1st December, 2003), these results were very encouraging.

3.2.10. Monitoring of the Installation of Positive Displacement (PD) Meters

In line with the recommendations of the National Oil Loss Control Committee, OMCs were required to install PD Meters at all their petroleum product retail outlets countrywide. Though the Commission had communicated to all OMCs that they should install PD Meters at their

various outlets by 30 June, 2004, the OMCs are yet to comply with the directive and the matter has been taken up by the NPA.

3.2.11. Petroleum Products Preservation/Purity (Specification of Products)

The EC collaborated with the Ghana Standards Board (GSB) to establish Standard Specifications for white products, namely GS 140 (1990) [gasoline], GS 141 (1990) [kerosene] and GS 142 (1990) [gas oil].

3.2.12. Contamination of Underground Water Sources at Former Adenta Mobil Service Station Area

Following complaints received in March, 2004 from some residents within close vicinity of the Mobil station at Adenta, about possible petroleum contamination of underground water sources, the Energy Commission took samples of the contaminated underground water to the Tema Oil Refinery for appropriate laboratory tests. In the meantime Mobil Ghana Limited was charged with the responsibility to supply the affected residents with potable water.

The result of the analysis indicated high traces of hydrocarbons in the underground water. Based on the findings of the analysis, the Commission convened a meeting of stakeholders to examine the issue and propose recommendations about how to address the socio-environmental concerns with respect to cleaning up of the contaminated site. Mobil Ghana Limited was further directed to conduct pressure tests on all underground storage tanks and where the results were positive, all USTs and accessories were to be removed following proper procedure.

A special survey to determine the extent of the effect of the contamination on the immediate environment was also undertaken by the Energy Commission. In consultation with Mobil Ghana Limited, the latter arranged with the Occupational Health Unit of the Ghana Health Service to assess the health status of the affected persons which were ninety-seven (97) in number. Mobil Ghana Limited was to be responsible for the medical expenses and compensation for the affected persons.

3.2.13. Monitoring of Unified Petroleum Pricing Fund (UPPF) Operations

One of the cardinal principles of Ghana's energy policy is to ensure the supply of petroleum products to all parts of the country at uniform prices, irrespective of geographical location.

[6] The Energy Commission was excluded from the membership list.

The Uniform Petroleum Prices Fund (UPPF) was therefore set up to pay for the transportation of petroleum products from the bulk depots (including TOR) to the retail outlets.

The Fund has been experiencing difficulties and as a result BOST has been unable to honour payments of all claims on the Fund. The Commission therefore prepared draft regulations to regulate the administration of the Fund and also to monitor the operations
of the Scheme.

3.2.14. Deregulation Issues

The deregulation of the Petroleum Downstream Sector was began as far back as September 1996. Since then the programme has been implemented in phases as follows:

1. TOR assumed responsibility for the procurement and importation of crude oil and finished products. Before then the Ghana National Petroleum Corporation was responsible for the importation of crude oil and petroleum products into Ghana. This was completed in September 1997.

2. The distribution network was decentralized through the use of the Bulk Oil Storage and Transportation (BOST) depots that are strategically located throughout the country. This was completed in 1998.

3. The next phase involved the publication and implementation of a more transparent automatic petroleum pricing formula (based on import parity) for the periodic setting and adjustment of the ex-refinery price to ensure full cost recovery at all times. This was completed in June 2001.

4. The distribution margins were adjusted to comparable levels within the West African sub-region to provide adequate incentives for the private sector to participate in the procurement, marketing and sale of petroleum products in Ghana and also to minimize and/or completely eliminate cross-border smuggling. This was initiated in January 2003.

5. The next step was to put in place the necessary petroleum marketing re-gulations for the procurement, marketing and sale of petroleum products by OMCs. These included "Visibly displaying ex-pump prices set by the OMCs at retail outlets". This has been in effect since December 2003.

3.2.15. Accelerated Deregulation

Government, in the first quarter of 2004, took the decision to accelerate the deregulation process through the harmonization of all procedures and definition of a regulatory framework for the full participation of the private sector in the petroleum sector.

To ensure successful implementation, the accelerated deregulation programme was implemented in phases as follows:

Phase 1: Importation of refined products by the Private Sector

The Tema Oil Refinery under this phase was restricted to its core business of processing crude oil for national consumption. The shortfall in supply of refined petroleum products declared in the operational period was to be imported by the private sector.

The first tender for the supply of 27,000 metric tonnes was opened on 31st of March 2004 by the National Petroleum Tender Board, which was established for the purpose. Five companies tendered for the contract and Shell Ghana Limited won on the basis of their competitive supplier's premium of $30 per metric tonnes as compared to the prevailing premium charged by suppliers to the sub-region which was about $40 per metric tonnes.

Table 4 below shows a summary of the products imported under the deregulation programme in year 2004.

Table 4: Summary of products imported under deregulation programme

Tender No.	**Product**	Quantity (MT)	Date	**FOB Cost (US$)**	**Freight/ Ins (US$)**	**CIF**	**Total CIF Value (US$)**	**Winner**
2004.NPTB/01/03	Gasoline	29,563.286	3/5/04	386.75	30.0	416.75	12,309,247.19	SHELL
2004.NPTB/02/05	Gasoline	27,714.688	24/6/04	367.45	25.80	393.25	10,898,801.06	GOIL
2004.NPTB/03/07	Gasoline	24,799.03	05/08/04	412.15	25.30	437.45	10,848,336.11	GOIL
2004.NPTB/04/08	Gasoline	27,267.522	24/09/04	425.70	24.75	450.45	12,007,339.50	STAR OIL
2004.NPTB/05/08	Gas Oil	29,980.66	19/9/04	375.6	15.45	387.47	11,616,716.46	SHELL
2004.NPTB/06/10	Gas Oil	32,890,172	2/11/04	483.30	6.00	489.30	16,111,076.06	ALLIED OIL
2004.NPTB/07/11	Gas Oil							GOIL
2004.NPTB/08/11	Gasoline	28,802.393	30/11/04	434.40	24.00	458.40	13,203,016.95	GLORY OIL

The table clearly shows that with competition, the small 'indigenous' OMCs such as Allied Oil, Glory Oil and Star Oil, can compete favourably with the multinational companies

Phase 2: Importation of Crude Oil by the Private Sector

The Private Sector, under this phase, will be encouraged to participate fully in the importation of crude oil for processing at TOR for sale to the local market and for export. TOR will then operate as a tolling refinery and will be mainly responsible for operation and maintenance of the plant.

Phase 3: Establishment of the National Petroleum Authority (NPA)

The National Petroleum Authority (NPA) was established by an Act of Parliament in June 2005 to regulate the downstream petroleum sector in Ghana. The NPA will among other things be responsible for the independent pricing of petroleum products in the country. Specifically, the NPA will review the petroleum pricing formula for the private sector

environment and adjust the distribution margins to comparable levels in the West African sub-region.

3.2.16. Functions of the NPA

The NPA is fully responsible for all matters relating to the Downstream Petroleum Industry. These include:

- Monitoring and publishing import parity prices of petroleum products;
- Reviewing & publishing a prescribed petroleum pricing formula;
- Monitor & publish maximum indicative ex-pump prices of petroleum products;
- Provide guidelines for marketing operations to promote competition and protect consumers;
- Conduct market research into international oil supply/demand & pricing, take inventory of petroleum products including strategic stocks;
- Licensing of petroleum service providers in the downstream petroleum sector.
- Inspection & monitoring of OMCs compliance with established rules, regulations and codes of practices, and
- Monitor the implementation of the UPPF.

The NPA commenced operations on July 28 2005, when the President inaugurated the Governing Board of the Authority. With this development the Energy Commission has ceased to perform all operational petroleum related functions. The EC however still maintains the planning functions relating to petroleum.

3.2.17. Natural Gas

With the establishment of the National Petroleum Authority (NPA) in July 2005, most of the functions of the Energy Commission that relate to petroleum have been ceded to the NPA with the exception of matters relating to natural gas. The Commission has the responsibility of developing, regulating, managing, monitoring and granting licenses for the transmission, wholesale supply, distribution and sale of natural gas.

In an effort to meet its responsibilities as mentioned above, the Commission, in 2005 established a Division to handle Natural Gas issues.

3.2.17.1. West African Gas Pipeline Project (WAGP)

The Commission participated in the following activities that took place during the period under review with respect to the West African Gas Pipeline Project:

1. Public Hearings on the WAGP, conducted in Tema, Takoradi and Accra in March 2004.

2. Review of the Final Draft Environmental Impact Assessment (EIA) on the WAGP in March 2004.

3. Participation in activities of the Core Review Group established by the Minister for Energy to review WAGP project documents prior to Cabinet and Parliamentary approval.

The West Africa Gas Pipeline Treaty received Parliament's ratification in August 2004 and the Pipeline Bill (Enabling Legislation) was passed in October 2004 paving the way for the construction of the WAGP. The Final Investment Decision (FID) was reached on 17 December, 2004 and construction of the pipeline commenced in 2005.

3.3 STRATEGIC PLANNING AND POLICY

The main goal of the Commission with respect to Strategic Planning and Policy is to develop and analyze viable policies that will ensure sufficient and sustainable energy supply to support the socio-economic development of the country. During the period under review, the activities of the Commission focused on two areas, namely:

- Drafting of the Strategic National Energy Plan (SNEP); and
- Compilation and processing of national energy statistics.

3.3.1 The Process of Energy Planning

An in-depth knowledge of the issues and challenges in the energy sector is crucial to policy formulation and planning. For this purpose the energy sector is broadly divided into demand-side and supply-side sub-sectors followed by the identification of the various demand and supply issues. In the Ghanaian situation the demand side is analyzed in terms of the energy requirements of Households, Industry, Commerce, Services, Transport, Agriculture and Fisheries. The Supply-side comprises electricity, petroleum (oil and gas) and renewable energies, including wood fuels. Several cross cutting issues such as environment, gender, efficiency and conservation also have a bearing on the energy sector. The analysis is carried out through the consolidation of existing data, filling-in the data gaps and creating a detailed energy balance.

3.3.2 Strategic National Energy Plan

The Strategic National Energy Plan (SNEP) is a comprehensive roadmap for the development of available energy sources and resources of the country. It outlines how to tap these economically and timely to ensure secured and adequate energy supply for sustainable economic growth into the future.

The specific objectives of the SNEP are to:

- Establish an effective national infrastructure for energy planning; and
- Create a consensus reference framework for the development of the energy sector.

The Project commenced in 2000 with the process of cataloguing available data and identifying data gaps. Where necessary consultants were engaged to collect the necessary data. Based upon an assessment of the existing institutional framework, energy demand and supply situation, issue papers on the various energy sub-sectors were prepared by the consultants which in turn served as discussion documents at stakeholders' consultative meetings. Issue groups made up of the stakeholders of each sector were formed to discuss the sectoral issue papers.

The SNEP which would be completed in 2006 comprises a main report which outlines the policies and four appendices covering in detail the following:

i Electricity Plan;

ii Petroleum Plan; and

iii Renewable Energy and Wood Fuel Plan; and

iv Energy Demand Sectors.

The SNEP was developed in close collaboration with all energy sector institutions and stakeholders.

3.3.3. National Energy Statistics

National Energy Statistics is a statistical handbook of energy production, transportation, losses and usage in the country. It covers the electricity, petroleum and the renewable sectors, including wood fuels. The share of energy consumption by the Demand sectors, i.e. Residential, Commercial and Service, Industrial, Agricultural and Transport are also included in the set of statistics. The last Energy Statistics for the country was published in 1998 by the Ministry of Energy. Compilation of data for the publication of the national energy statistics 2000 - 2005 continued during the period under review and is expected to be completed by the end of 2007.

3.3.4 Publications

The following publications were completed and issued during the period under review.

3.3.4.1. Energy Sector Technology Catalogue

The Commission completed the Energy Sector Technology Catalogue, which was developed as part of the SNEP project. The Technology Catalogue is a compendium of both qualitative and quantitative descriptions of present and projected future energy technologies and appliances, which are relevant to Ghana's economy. The Catalogue is required to provide a reliable and acceptable technology database for planning exercises. It also serves as a credible reference for the energy market in Ghana.

3.3.4.2. Least Cost Assessment of Power Generation Technologies and Demand-Side Appliances

Power generation technologies and demand-side appliances were assessed using the Integrated Resource Planning (IRP) methodology. IRP is a planning tool that looks at the

entire energy supply to demand chain on one scale. It allows both the supply-side technologies and Demand-Side Management programmes to be combined and ranked on one scale in the order of least cost option. Balancing the demand side with the supply side options provides an overview of the cheapest way to satisfy the need for energy services. The document is one of the outputs of SNEP and the results of the IRP analysis were used as input into the energy plans.

3.4 RENEWABLE ENERGY RESOURCES

The object of the Energy Commission is to regulate and manage the utilisation of energy resources in Ghana and co-ordinate policies in relation to them. The Commission is responsible for providing policy recommendations for the development and utilisation of indigenous energy resources which include renewable energy. The key areas of concern include: woodfuel, solar, wind, small hydro resources, bio-fuels and the promotion of renewable energy technologies. The Commission is also responsible for the development of regulations, codes and standards, as well as the licensing framework for the renewable energy market. Activities embarked on during the period under review include the following:

1. Off-grid Rural Electrification.

2. Solar and Wind Energy Resources Assessment (SWERA)

3. Bio-fuel Development

4. Appraisal and Grant of Licenses and Permits to Renewable Energy Service Providers and

5. Monitoring of Charcoal exports

3.4.1 Off-grid Rural Electrification

In order to establish the framework for private sector participation in off-grid rural electrification, the Energy Commission collaborated with the Energy Foundation to develop the Distributed Generation Framework, which will enable the development of small energy sources for supply of electricity to isolated communities and sale through the national grid thus putting renewable energy into the mainstream energy supply mix. The project was sponsored by the British High Commission in Ghana as part of the activities of the Renewable Energy & Energy Efficiency Partnerships (REEEP), of which Ghana is a Founding Partner.

The objective of the project is to develop a platform for the participation of the private sector in the development of the off-grid electricity market as well as promote Renewable Energy Systems for electrification. The EC has since then developed a Licensing Manual for electricity generation and supply to off-grid rural areas.

The Commission furthermore, completed a study of 533 communities in the Atwima, Offinso, Afram Plains, Fanteakwa, Kpando, Kete Krachi and East Gonja Districts with a view to providing the rural communities concerned with solar photovoltaic power. A report on the study identified specific target customers on whom to focus off-grid marketing efforts, using Solar Energy Service Providers, such as Willkins Engineering Ltd, etc. Tawo solar battery

charging centres of 500Wp each were installed at Gyereso and Wrapong in the Ashanti region.

3.4.2 Solar and Wind Energy Resources Assessment (SWERA)

The goal of the SWERA project was to develop adequate, accurate and reliable solar and wind energy resources data and information and evaluation tools for energy planning and policy.

The project assessed every part of Ghana for indications of wind energy potential with focus on the potential for large-scale grid-connected wind turbines for power production; and solar energy resource for the deployment of solar energy technologies for various applications (non-grid, grid-connected, heating, etc). The assessment was based on available data and site inspection.

Under the project, the following SWERA products were developed:

- Geographic Information Systems (GIS) data sets including the Electricity Company of Ghana grid network, road network, land cover and mini hydro sites.
- Medium resolution (40km) solar resource maps of Ghana for direct, diffused, global and latitude tilt radiation all based on satellite data.
- A high resolution (10km) solar resource map of Ghana from satellite data.

Risoe Laboratories of Denmark made available WAsP software for the analysis of wind data and also trained personnel in the use of the software.

The 40km resolution wind resource data provided by National Renewable Energy Laboratory (NREL) indicated that the wind regime along the Ghana-Togo border is very strong (about 8.0 m/s) and could support a large scale wind farm.

In view of this promising wind power potential, the United Nations Environmental Programme (UNEP) provided an additional US$16,000.00 (Sixteen Thousand US Dollars) to the Energy Commission in 2005 to undertake a wind measurement project at 4 sites in the Nkwanta, Amedzofe and Anloga areas. The wind measuring equipment for the wind resource measurement procured in 2005 are expected to be installed in early 2006.

3.4.3. National Biofuels Programme

Ghana's oil import bill has grown consistently from US$561 million in 2000 to US$816.6 million in 2004, representing 28% of total export earnings. The main objective of the biofuel

programme is to develop policies, strategies and implementation plans to accelerate the development of the bio-fuels industry.

In 2005, a National Biofuel Implementation Committee was inaugurated by the Minister of Energy to propose the required policy and regulatory regimes for bio-fuel production and use in the country, with emphasis on liquid biofuels i.e. bioalcohol as a substitute for petrol and biodiesel as a substitute for diesel.

The Committee was charged with the task of identifying all the major operational constraints, key issues and challenges and further formulate strategies and solutions for the way forward.

The Committee on its part established three sub-committees to deliberate on issues pertaining to the following areas of biofuel production:

- Cultivation and supply of the feedstock;
- Processing and Storage of biofuel and;
- Supply of bio-fuel, Blending and Supply of Product

The outcome of this exercise is the "National Bio-fuels Policy Recommendations" issued in November 2005. The Committee has submitted its report to the Minister for Energy for study.

3.4.4 Grant of Licences and Permits to Renewable Energy Service Providers

To ensure effective functioning of the renewable energy market, the Commission appraised and granted licences and permits to operators in the Renewable Energy Service industry.

3.4.4.1 Solar Energy Service Providers' License

The following companies were issued with licenses in 2004 authorising them to deal in solar energy technologies and services for a period of 2 years.

- Deng Limited;
- Wilkins Engineering Limited; and
- Terrasolar Ghana Limited.

3.4.4.2 Charcoal Export Permit

Export permits were also granted to the following companies to enable them export charcoal produced from sustainable plantations or from sawmill residues.

- Greencoal Ghana Limited;

- Beetel Limited;
- Big K Products Limited;
- R. B. Venture Limited; and
- Doven Enterprise

3.4.5. Monitoring of Charcoal exports

Compliance monitoring was conducted for charcoal exports. The monitoring exercise examined the sources of wood that is used for the production of charcoal, production methods, quantity of charcoal exported and their destinations. The exercise confirmed that all the five companies issued with permits to export charcoal conformed to the regulations. Data received from Ministry of Trade, Industries & Presidential Special Initiatives indicates that 5,658 tonnes of charcoal was exported during 2005 compared to 2,500 tonnes in 2004. This accounted for ¢10,613 million in foreign exchange earnings.

The exercise also revealed increased investments in efficient charcoal kilns for the production of charcoal by charcoal export companies. The wood waste resources and the improved technologies used for the production of charcoal are shown in the following sections:

Wood waste resources, recommended for use in charcoal production in Ghana for both the local market and for export.

Figure 6: Logging Residue

Figure 7: Sawmill Residue

Figure 8: Steel Kiln

Figure 9: Charcoal Gasification Plant

Figure 10: Charcoal produced from wood waste by Greencoal Ghana Ltd for export

3.5 INTERNATIONAL COLLABORATION

3.5.1 World Energy Council (WEC) Reorganisation Activities

The World Energy Council (WEC) is a non-profitable organisation of energy-affiliated institutions, companies, agencies and individuals organised on country basis, referred to as national committees.

The Objects of the WEC include:

1. Collating data and undertaking and promoting research into the means of supplying and using energy.

2. Undertaking actions, including but not limited to the holding of Congresses, workshops and seminars, to facilitate such supply and use of energy.

3. Collaborating with other organizations in the energy sector that have compatible goals.

By being a member of the WEC Ghana can reap the following benefits:

- Valuable contacts with energy experts worldwide;
- Collaboration, information-sharing across the energy industry;
- Cutting-edge programmes, technical work, specialized topical studies;
- Unbiased, up-to-date information on key energy issues;
- Authoritative publications addressing key energy issues; and;
- Full access to WEC's Global Energy Information System (GEIS) website and
- Participation in WEC-sponsored meetings, regional forums, conferences -networking.

In Ghana, the Volta River Authority (VRA) has in the past been the prominent energy agency that played the lead role in WEC activities in Ghana, with other energy-affiliated institutions and agencies not showing any serious participatory interest.

The Ghana WEC Committee reorganisation efforts continued during the year and it was possible for the Commission to host a maiden meeting that brought together various local institutions, organisations and agencies that were identified as potential candidates that could benefit from WEC activities to discuss issues relating to the formal establishment of the Ghana (WEC) Committee.

Following the adoption of a Constitution for the Ghana Committee of the WEC which has been named the Ghana Energy Association in late 2005, appointed an Interim Executive Committee made up of Mr. Erasmus Kalitsi as Chairman, VRA as Vice Chairman and the Energy Commission as Secretary. The Commission will also continue to host the Secretariat. Membership categories have also been agreed upon with corresponding annual subscriptions. The various agencies and organizations have been called upon to indicate their preferred choice of membership category and inform the Secretariat accordingly.

3.5.2. Participation in WEC Activities

The VRA and the Commission participated in the 16th and 17th Africa Regional Meetings held in Cairo, Egypt in March 2004 and in Sydney, Australia in September 2004 respectively. Furthermore, an 8-man Ghanaian delegation also participated in the 19th WEC Congress held in Sydney, Australia from September 5-9, 2004. In the same year Ghana participated in the Regional Meeting held in Nairobi, Kenya in April, as well as the Regional Meeting and Executive Assembly Meeting held in Colombo, Sri Lanka in November 2005.

3.5.3. Participation in UNFCCC activities

The Energy Commission received accreditation from the Ministry of Foreign Affairs to send delegates to the 11th Meeting of Partners of the United Framework Convention on Climate Change (COP/MOP 11) which was held in Montreal, Canada in December 2005. This was the first time the Commission was participating in Climate Change activities, although energy and climate change are so closely interwoven. The two delegates from the Commission spearheaded the promotion of Programmatic CDM projects, in which Ghana was a pioneer project developer, having developed project documents for the Ghana Room Air Conditioner Standards and the Compact Fluorescent Lamp Implementation Project. The campaign which was mounted by Ghana in collaboration with stakeholders such as the World Bank and other Annex 1 countries resulted in the meeting recognizing Programmatic CDM and establishing procedures for approval of such projects.

APPENDICES

Appendix 1

Licences Granted by the Energy Commission by December, 2004

Name of Company	Certificate of Incorporation	Registered Office	Type of License	Effective Date of License	Expiry Date of License
Agapet Limited.	CA – 1892	3rd Floor Asafoatse Kotei Bldg, Adjacent to ECOBANK, Tema	Provisional	1 May, 2003	1 May, 2005
Allied Oil Company Limited	70,786	No. 2, 5th Ringway Estate, Accra	Final	01 June 2003	01 June 2006
Dukes Petroleum Co. Ltd.	CA-8815	Wawase Road, Agona Swedru, Opposite Greenland Hotel	Provisional	01 August 2004	01 August 2006
Engen Ghana Limited	79,054	Engen House House No 13B Legon Road, Accra	Final	01 June 2004	01 June 2007
Excel Oil Company Ltd.	CA-5775	Near Nananom Spot, Community 12, Tema	Provisional	04 March 2004	04 March 2006
Fraga Oil Ghana Limited	50,381	H/No 581/4 Kokomleme, Accra	Final	01 July 2003	01 July 2006
Galaxy Oil Company Limited.	CA – 949	Junic House Community 6, Tema	Provisional	1 May, 2003	1 May, 2005
Ghana Oil Company Limited	1157	Junctions of Kojo Thompson and Adjabeng Roads, Accra	Final	01 July 2003	01 July 2006
Glory Oil Company Limited.	88,960	3rd Kuku Hill, Osu - Accra	Final	01 August 2004	01 August 2007
Havila Oil Co. Limited.	93,784	LOCAF-HOUSE Hse No.C105/6 Hill Street, East	Final	01 July 2004	01 July 2007

Havila Oil Co. Limited.	93,784	LOCAF-HOUSE Hse No.C105/6 Hill Street, East Kokomlemle	Final	01 July 2004	01 July 2007
LilliGold limited	CA-6909	No. ER91 Lucas House, Knustford Ave, Accra	Provisional	01 October 2003	01 October 2005
Mobil Oil Ghana Limited.	476	Mobil House 25, Liberia Road, Accra	Final	01 July 2003	01 July 2006
Nasona Ltd.	36,396	No. 10 Mango Tree Avenue, Asylum Down, Accra	Provisional	04 June 2004	04 June 2006
Oando Ghana Limited	44,082	B 35 AGOSTINO Neto Road, Airport Residential Area, Accra	Final	01 July 2003	01 July 2006
Obiba J. K. Ltd.	39,799	Fijai Junction, Takoradi	Provisional	01 June 2004	01 June 2006
Petro-Afrique.	90,032	House # F1002/2, Osu-Ako Adjei, Accra	Provisional	1 September, 2002	1 Sept. 2004
Petro- Gh Limited.	87,121	175 Giffard Camp Rd. 37 Military Hosp. Area, Accra	Provisional	1 Sept. 2002	1 Sept. 2004
Sahara Energy & Petroleum Resources.	CA-3500	7, North Ridge Kanda Highway Accra	Provisional	01 June 2004	01 June 2006
Shell Ghana Limited,	1541	Shell House High street, Accra	Final	01 July 2003	01 July 2006

Sonnidom Energy Limited.	99,254	Kinsby Junction, Achimota, Accra	Final	01 July 2004	01 July 2007
Star Oil Company Limited	81,746	Dansoman, Accra	Final	01 June 2003	01 June 2006
Top Oil Company Ltd		Community 12, Tema	Provisional		
Total Ghana Limited	1637	95, Kojo Thompson Road, Adabraka, Accra	Final	01 July 2003	01 July 2006
Tropic Oil Limited.	59,241	C522/3 Asylum Down Road, Accra	Provisional	1 January, 1999	01 January 2001
Unity Oil Company Limited.	85,714	Ofankor Accra-Nsawum Road	Final	01 July 2004	01 July 2007
Universal Oil Company Limited.	95,949	57 1st Lane West Madina, Accra	Final	01 July 2004	01 July 2007

Appendix II

Construction Permits Granted by the Energy Commission as at December, 2004.

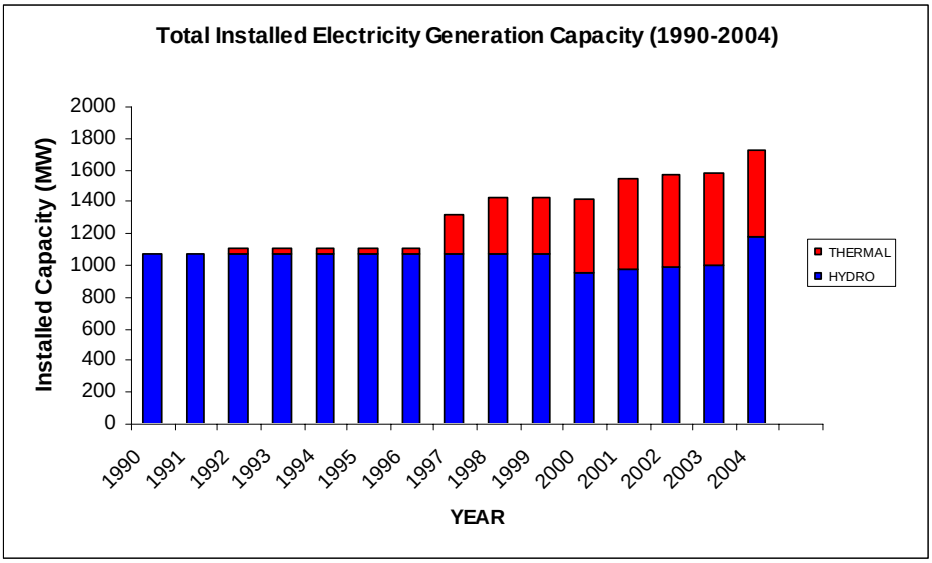
COMPANY	ESP Category	LOCATION	PEMIT NO.
Locaf Industries Limited	Bitumen Plant	Kotwi, Nkoranza, Ashanti R.	EC 01/04
Fraga Oil Ghana Limited	Retail Outlet	Berekum, Brong Ahafo	ECCP 058
Engen Ghana Limited.	Retail Outlet	Mim, Brong Ahafo	ECCP 058
Sahara Energy & Petroleum Resources Limited	Retail Outlet	Tema Harbour Area, Tema	EC 01/04
Total Ghana Limited	Retail Outlet	Ngleshie Amanfrom	EC 02/04
Tema Offshore Mooring Limited	Single Point/ Conventional Buoy Mooring Systems	Tema	EC 1/04

Appendix III

GHANA ENERGY STATISTICS

ENERGY SUPPLY

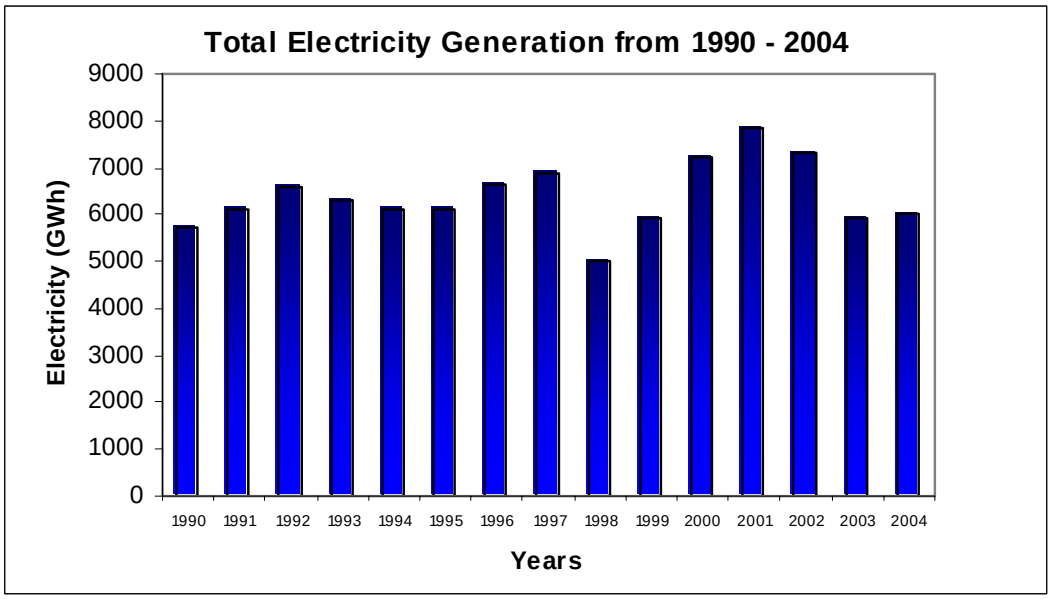
ELECTRICITY



Installed Electricity Generation Capacity from 1990-2004 (MW)

Generation	1990	1991	1992	1993	1994	1995	1996
Hydro	1072	1072	1072	1072	1072	1072	1072
Thermal	0	0	30	30	30	30	30
Total	1072	1072	1102	1102	1102	1102	1102

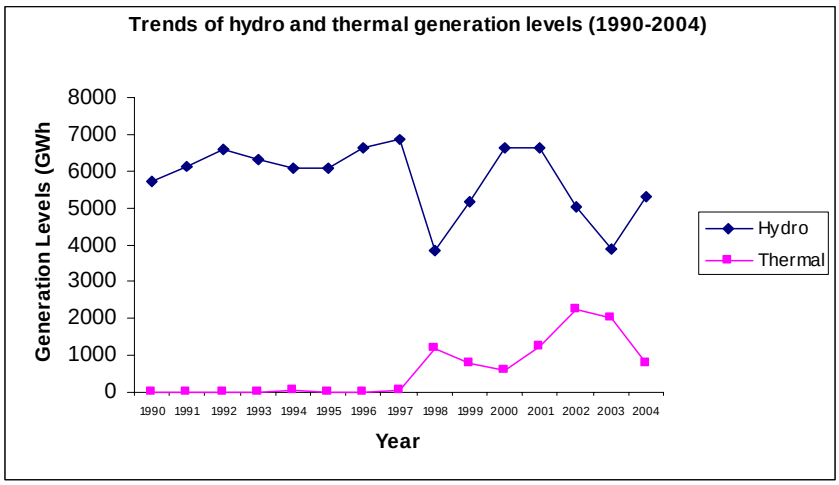
Generation	1997	1998	1999	2000	2001	2002	2003	2004
Hydro	1072	1072	1072	948	971	994	1002	1180
Thermal	250	360	360	470	580	580	580	550
Total	1322	1432	1432	1418	1551	1574	1582	1730



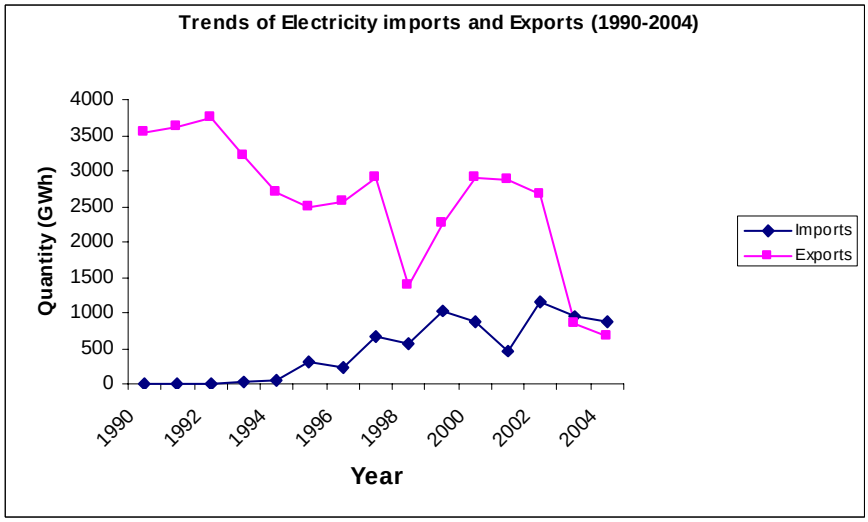
Hydro and Thermal Generation from 1990-2004 (GWh)

YEAR	1990	1991	1992	1993	1994	1995	1996
Hydro	5720.86	6108.67	6602.37	6291.17	6082.36	6097.4	6624.87
Thermal	0	0	0	21.95	27.57	18.95	1.99
Total	5720.9	6108.7	6602.4	6313.1	6109.9	6116.4	6626.9

YEAR	1997	1998	1999	2000	2001	2002	2003	2004
Hydro	6850.96	3830.32	5168.72	6609.7	6608.54	5035.85	3885.2	5280.9
Thermal	34.57	1182.4	755.59	613.02	1250.55	2259.68	2015.16	757.84
Total	6885.5	5012.7	5924.3	7222.7	7859.1	7295.5	5900.4	6038.7



Electricity Generation Mix



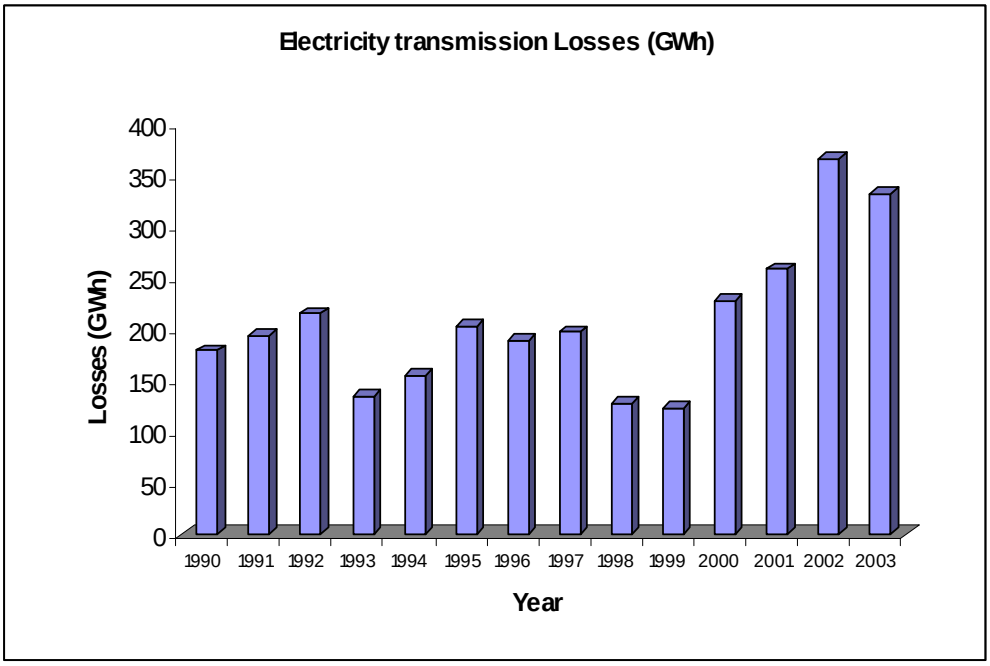
Electricity Exports and Imports from 1990-2004 (GWh)

Electricity	1990	1991	1992	1993	1994	1995	1996
Exports*	3549.54	3603.21	3748.12	3216.66	2693.87	2482.33	2560.52
Imports	4	7	1	32	61	320	228

Electricity	1997	1998	1999	2000	2001	2002	2003	2004
Exports*	2888.97	1386.46	2254.12	2896.82	2866.93	2674.32	854.23	675.26
Imports	660	573	1031	864	462	1146	940	878

*Export figures include the supply to Valco

Electricity Transmission Losses

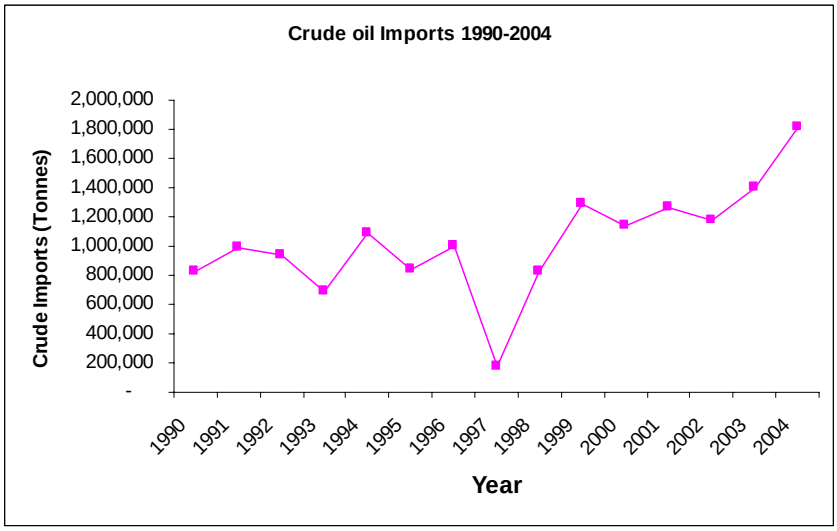


Electricity Transmission Losses from 1990-2004 (GWh)

Electricity	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**
Losses	179.72	194.34	215.85	135.32	155.56	203.66	189.26

Electricity	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Losses	197.39	128.3	123.26	228.63	259.11	368.17	333.15	205.22

PETROLEUM



Crude Oil Imports from 1990-2004 (Tonnes)

Year	1990	1991	1992	1993	1994	1995	1996
Imports	818,813	989,866	943,410	691,800	1,091,299	832,774	995,772

Year	1997	1998	1999	2000	2001	2002	2003	2004
Imports	178,129	825,158	1,293,495	1,131,834	1,262,872	1,179,364	1,406,205	1,813,464

Petroleum Product Production from 1990-2004 (Tonnes)

Year	1990	1991	1992	1993	1994	1995	1996
Production	717,991	897,471	878,003	688,297	983,938	834,579	900,654

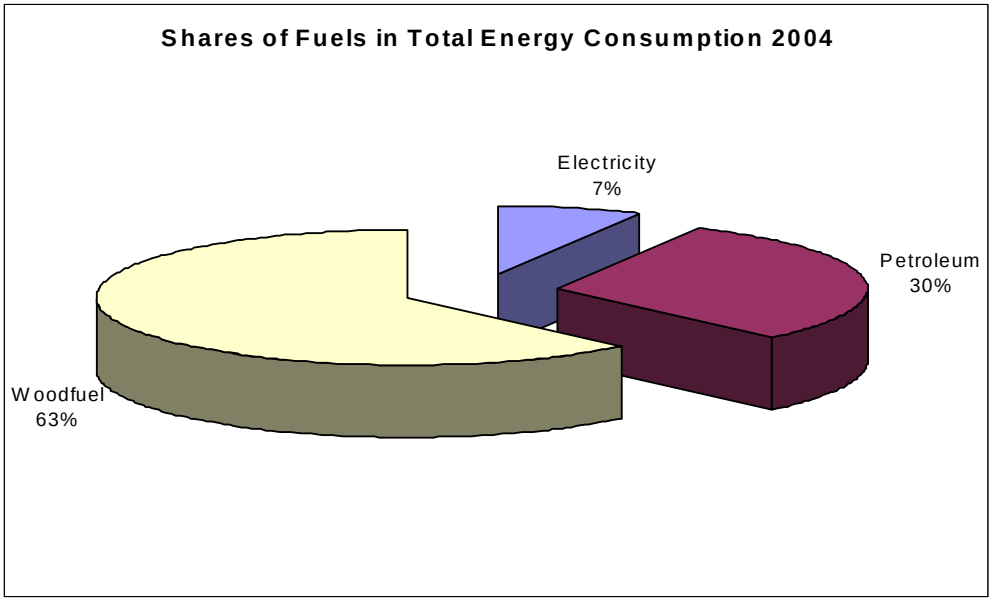
Year	1997	1998	1999	2000	2001	2002	2003	2004
Production	762	701,488	1,265,229	1,028,409	1,069,876	1,155,414	1,351,757	1,604,031

Petroleum Product Imports from 1990-2004 (Tonnes)

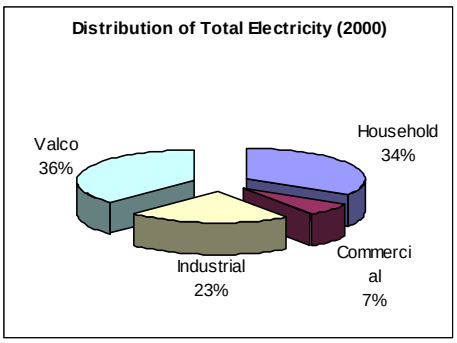
Year	1990	1991	1992	1993	1994	1995	1996
Imports	250,449	29,857	115,438	331,863	192,317	414,487	423,828

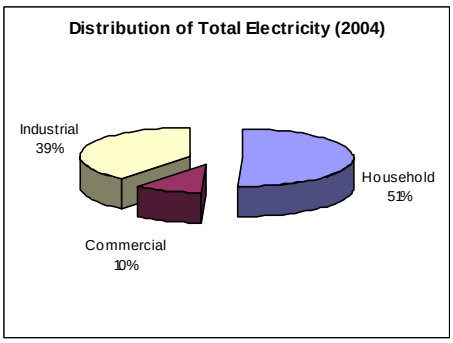
Year	1997	1998	1999	2000	2001	2002	2003	2004
Imports	1,255,879	960,792	748,856	816,344	800,938	749,692	569,049	579,476

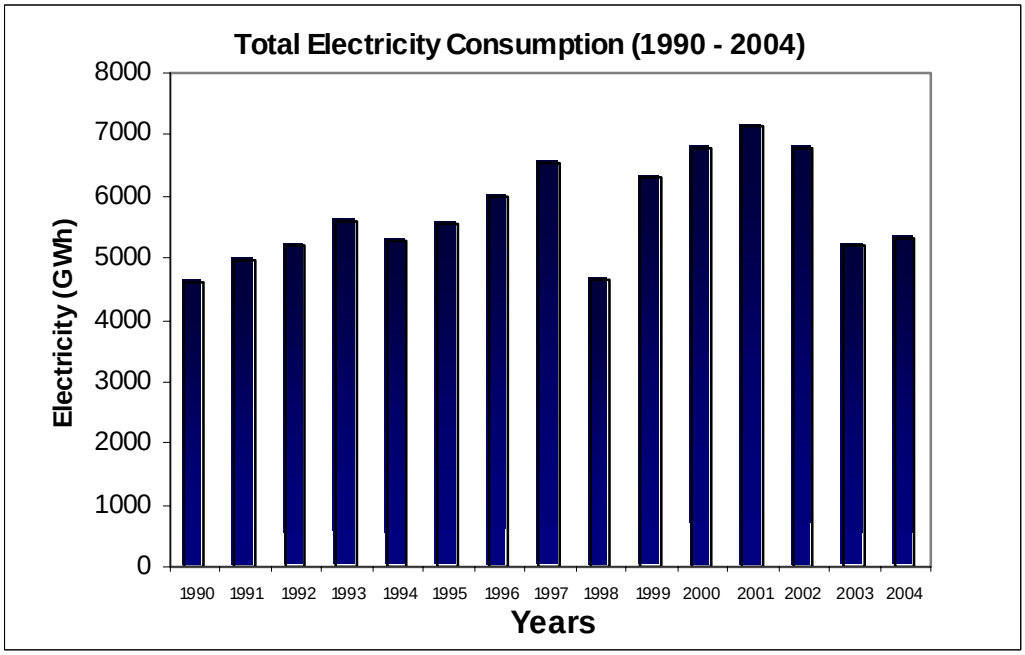
ENERGY CONSUMPTION



Electricity Consumption



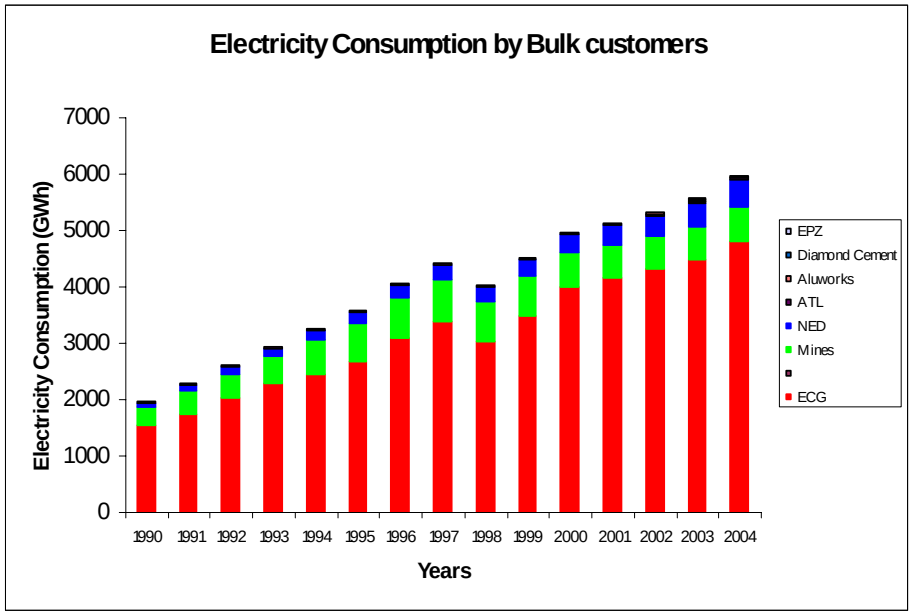




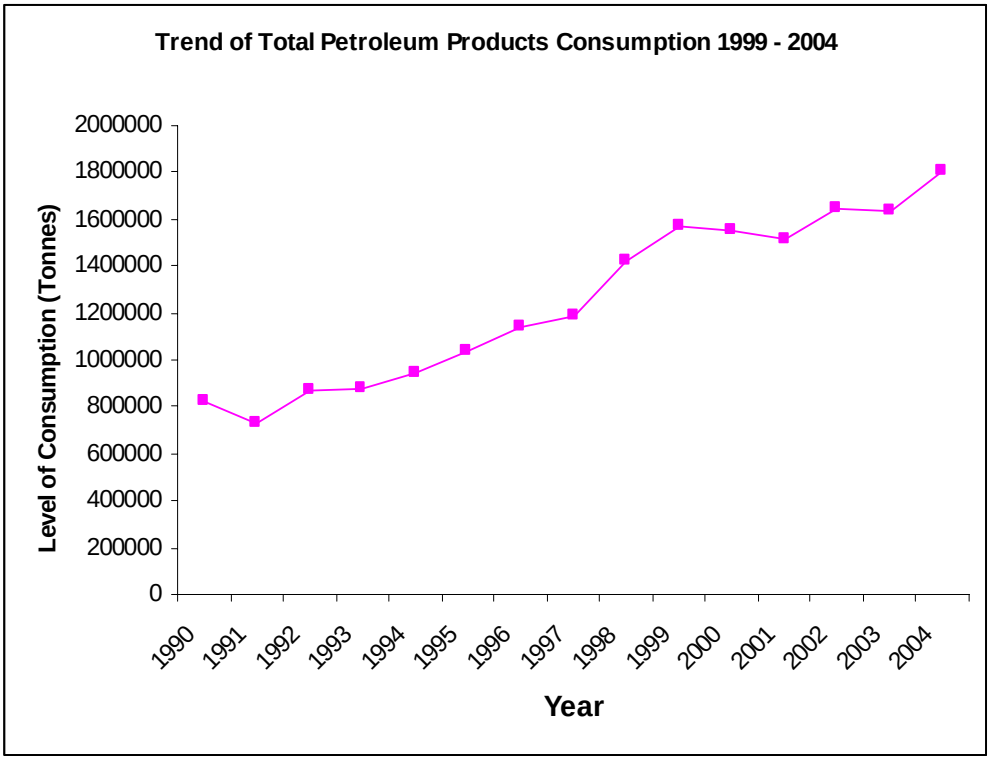
Total Electricity Consumption from 1990-2004 (GWh))

Year	1990	1991	1992	1993	1994	1995	1996
Consumption	4,621.9	5,268	5,195.8	5,569.5	5,280.6	5,536.1	5,965.2

Year	1997	1998	1999	2000	2001	2002	2003	2004
Consumption	6,501.9	4,686.4	6,283.36	6,747.5	7,127.26	6,794.47	5,212.33	5,303.57



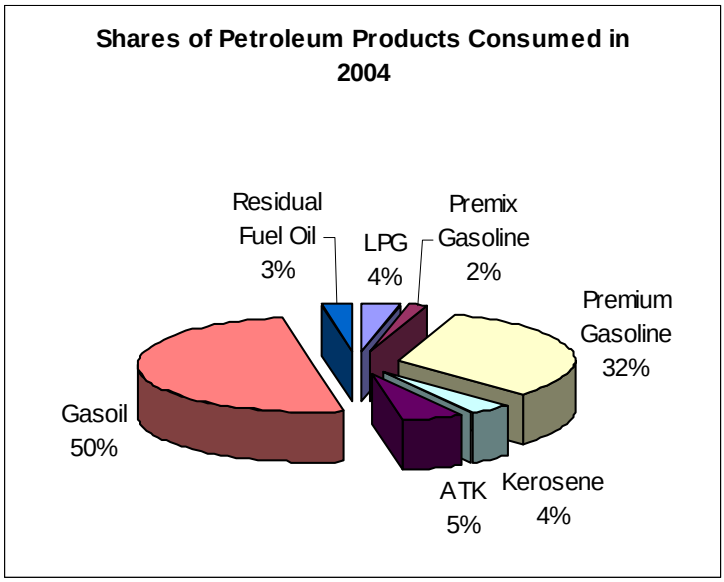
Petroleum Consumption



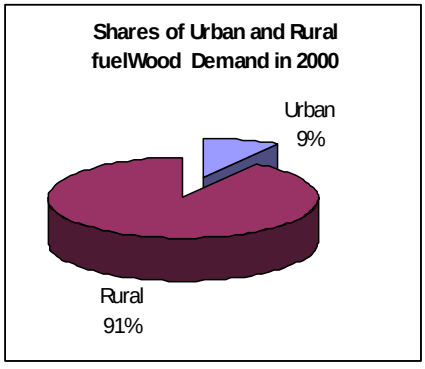
Total Petroleum Products Consumption from 1990-2004 (Tonnes)

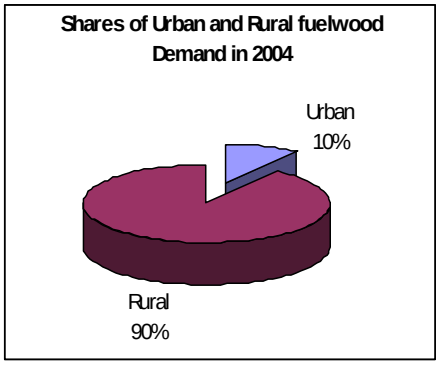
Year	1900	1991	1992	1993	1994	1995	1996	1997
Consumption	825,243	729,354	865, 235	875,671	943,894	1,039,010	1,140,960	1,188,517

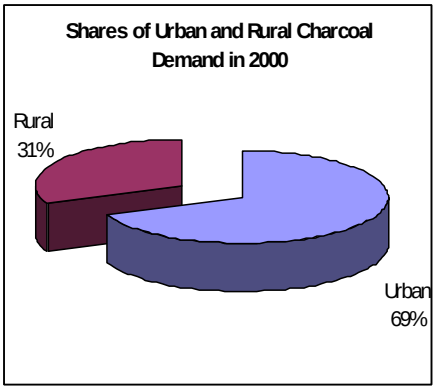
Year	1998	1999	2000	2001	2002	2003	2004
Consumption	1,418,464	1,571,613	1,551,000	1,511,282	1,641 778	1,636,574	1,807,240

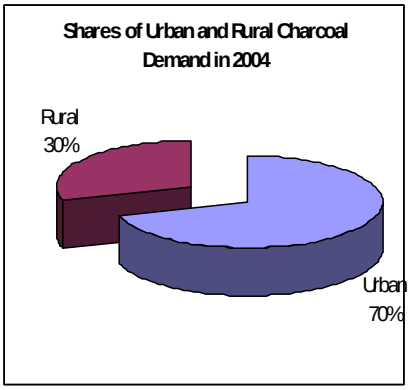


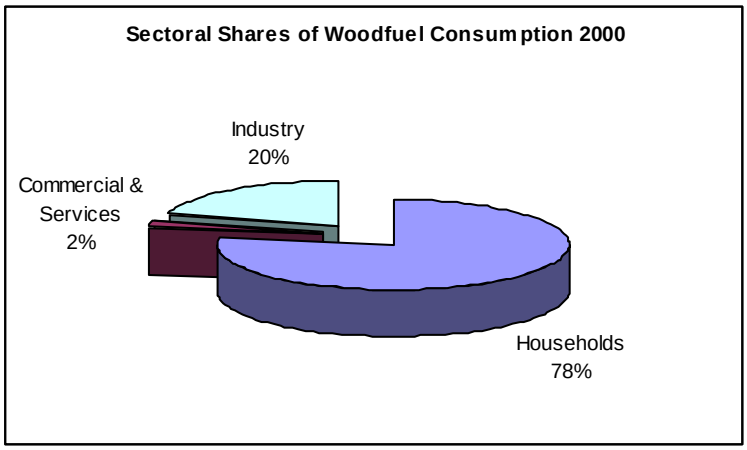
Woodfuel Consumption











- These graphs were generated from estimated woodfuel consumption figures.

Appendix IV

AUDITED FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER, 2002

REPORT OF THE COMMISSIONER

The Commission has the pleasure to present to the Honourable Minister of Energy the audited financial statements of the Commission for the year 31st December, 2002 and to report as follows:

PRINCIPAL ACTIVITIES

The principal activities of the Commission include the regulation and management of the utilization of energy resources in Ghana and the co-ordination of policies relating to them. In particular to:

- advise the Minister of Energy on national policies for the efficient, economical, and safe supply of electricity, natural gas, and petroleum products having due regard to the national economy;
- provide legal, regulatory and supervisory framework for providers of energy (i.e. licensing, monitoring, compliance, prescription of rules and regulations by legislative instruments);
- recommend national policies for the development and utilization of indigenous energy resources.

The Commission is also responsible for the management and administration of the Energy Fund which for this purpose includes the Controller and Accountant-General or his representative.

RESULTS

	¢'000
• **RECURRENT ACTIVITIES**	
The Commission made excess of income over Expenditure of	2,205,275
This is added to the restated balance on Accumulated Fund Account brought forward of	1,454,233
Balance on Accumulated Fund Account carried forward is	3,659,508
• **ENERGY FUND ACCOUNT**	
Balance as at 1st January, 2002	12,559,152
Net decrease in the year	(620,848)
Balance at 31st December, 2002	11,938,304

BY ORDER OF THE COMMISISON

COMMISSIONER

COMMISSIONER

REPORT OF THE AUDITORS FOR THE YEAR ENDED 31ST DECEMBER, 2002

We have audited the financial statements of the Commission set out on pages 57-61 which have been prepared under the historical cost convention and the accounting policies set out on page 62

Respective responsibilities of the Commissioners and Auditors

The Commissioners are responsible for the preparation of the financial statements. It is our responsibility to form an independent opinion, based on our audit, on those statements and to report our opinion thereon.

Basis of opinion

We conducted our audit in accordance with International Auditing Standards. An audit includes examination, on test basis, of evidence relevant to the accounts and disclosures in the financial statements. It also includes an assessment of the significant estimates and judgments made by the Commissioners in the preparation of the financial statements, and of whether the accounting policies set out on page 62 are appropriate to the Commission's circumstances, consistently applied and adequately disclosed.

We planned and performed our audit so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or other irregularity or error.

In forming our opinion we also evaluated the overall adequacy of the presentation of information in the financial statements.

Opinion

In our opinion, proper books of account have been kept and the financial statements, which are in agreement therewith, give a true and fair view of the state of affairs of the Commission as at 31st December, 2002 and of its results and movements on the Energy Fund account and cash flows for the year then ended and comply in all material respects with the Energy Commission Act, 1997 (Act 541)

STATE ENTERPRISES AUDIT CORPORATION

.....
(A.M. NYAMPONG)

AG. MANAGING DIRECTOR

4TH FLOOR REPUBLIC HOUSE

KWAME NKRUMAH AVENUE
ACCRA

DATE: 29thDecember, 2006

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 2002

	NOTES	2002 ¢'000	2001 ¢'000
INCOME			
Revenue grant	2	7,617,969	1,555,356
Transfers from Energy Fund		1,816,289	34,368
Transfers from Ministry of Energy	3	550,596	-
Other Income		4,452	6,085
PEPTA Grant	4	35,672	-
		10,024,978	1,195,809
EXPENDITURE			
Administration and general expenses	5	(7,819,703)	(1,661,890)
Excess of income over expenditure/ (Excess of expenditure over income		2,205,275	(466,081)

ACCUMULATED FUND ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 2002

		2002 ¢000	2001 ¢000
Balance as at 1st January		(5,971,870)	(5,505,789)
Prior year adjustment	6	7,426,103	-
Restated balance as at 1st January		1,454,233	(5,505,789)
Excess of income over expenditure/ (Excess of expenditure over income)		2,205,275	(466,081)
		3,659,508	(5,971,870)

The notes on pages 65 to 69 form an integral part of these financial statements

BALANCE SHEET AS AT 31ST DECEMBER, 2002

	NOTES	2002 ¢000	2001 ¢000
FIXED ASSETS	7	1,727,970	258,934
CAPITAL WORK-IN-PROGRESS	7A	3,307,534	_____-
CURRENT ASSETS			
Accounts receivable	8	293,310	224,787
Prepayments	9	426,838	11,996
Cash and bank balances	10	16,855,506	13,678,194
		17,575,654	13,914,977
CURRENT LIABILITIES			
		-	7,426,103
Set-up fund		6,272,382	-
Capital grant	12	3,659,508	(5,971,870)
Accumulated fund		11,938,304	12,559,152
Energy fund		21,870,194	14,013,385

..... **COMMISSIONER**

..... **COMMISSIONER**

The notes on pages 65 to 69 form an integral part of these financial statements

CASH FLOW STATEMENT FOR THE YEAR ENDED 31ST DECEMBER, 2002

	NOTES	2002 ¢'000	2001 ¢'000
Net cash inflow/(outflow) From operating activities	13	2,465,537	(292,024)
INVESTING ACTIVITIES			
Fixed assets purchased		(2,186,335)	(6,541)
Cost incurred on capital work in Progress		(3,307,534)	-
		(5,493,869)	(6,541)
FINANCING ACTIVITIES			
Transfers from Energy Fund		6,826,492	-
Net cash inflow/ (outflow) from Operating, investing and financing Activities in the year		3,798,160	(298,565)
Net cash inflow/ (outflow) from Energy Fund in the year		(620,848)	6,484,317
Total net cash inflow in the year		3,177,312	6,185,752
Cash and cash equivalents at 1st January		13,678,194	7,492,442
Cash and cash equivalents at 31st December		16,855,506	13,678,194

MOVEMENTS IN CASH AND CASH EQUIVALENTS

	Balance at 31st December			changes in the year	
	2000 ¢'000	2001 ¢'000	2002	2001 ¢000	2002 ¢'000
Energy Fund Bank Account	6,074,835	12,559,152	11,938,304	6,484,317	(620,848)
Energy Commission Operation Bank Accounts	1,417,607	1,119,042	4,917,202	298,565)	3,798,160
	7,492,442	13,678,194	16,855,506	6,185,752	3,177,312

The notes on pages 65 to 69 form an integral part of these financial statements

REPORT OF THE AUDITORS ON MOVEMENTS ON THE ENERGY FUND ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 2002

We have audited the accompanying Statement of Movements on the Energy Fund Account set out on page 8 for the year ended 31st December, 2002.

It is the responsibility of the Commissioners to maintain proper accounting records for the Fund. Our responsibility is to express an independent opinion on the statement of movements on the Fund Account.

We conducted our audit in accordance with generally accepted auditing standards. We planned and performed our audit to enable us obtain reasonable assurance that the Fund Account is free from material misstatement. We believe that our audit provided a reasonable basis for our opinion.

In our opinion, the statement of movements on the Energy Fund account give a true and fair view of the financial position of the fund as at 31st December, 2002.

STATE EMTERPRISES AUDIT CORPORATION

.....
(A.M. NYAMPONG)
AG. MANAGING DIRECTOR

4TH FLOOR REPUBLIC HOUSE
KWAME NKRUMAH AVENUE
ACCRA

DATE: 29thDecember, 2006

STATEMENT OF MOVEMENTS ON THE ENERGY FUND ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 2002

		2002	2001
		¢'000	¢'000
RESOURCES			
Balance at bank at 1st January		12,559,152	6,074,835
CASH INFLOWS IN THE YEAR			
Petroleum levy		7,831,465	6,440,185
Bui Dam development documentation		207,971	-
Licensing fees		252,000	78,500
Total cash available		20,850,588	12,593,520
EXPENDITURES			
Transfers made in the year in Respect of:			
Capital expenditure of the Energy Commission		6,826,492	-
Administration expenses:			
General	¢1,098,211		
Bui Dam Development Committee	¢718,078		
		1,816,289	-
Expenses incurred on Behalf of Ministry of Energy		269,503	-
Training and conferences – Local		-	8,926
Training – Foreign		-	25,442
Total expenditures		8,912,284	34,368
Balance at bank at 31st December		11,938,304	12,559,152

The notes on page 65 to 69 form an integral part of these financial statements.

NOTE TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31ST DECEMBER, 2002

NOTE 1: ACCOUNTING POLICIES

The following are the significant accounting policies adopted by the Commission in the preparation of the financial statements

a) BASIS OF ACCOUNTING

The financial statements have been prepared under the historical cost convention.

b) FIXED ASSETS

Fixed assets are stated at the cost of purchase together with any incidental useful economic lives of the assets concerned.

Depreciation is charged on fixed assets on a straight-line basis over the expected useful economic lives of the assets concerned.

The principal annual rates used for this purpose are:

Office furniture and fittings	-	12½%
Motor Vehicles	-	25%
Plant, machinery and equipment	-	20%
Computers and accessories	-	33%
Wind measurement equipment	-	20%

c) GRANTS

(i) Deferred credit

Grants received in the form of fixed assets or for the purchase of fixed assets are credited to a deferred credit account and amortized by equal installments over the expected useful lives of the related fixed assets.

(ii) **Revenue grant**

Revenue based grants are credited to the income and expenditure account as and when received and utilized.

d) FOREIGN CURRENCY TRANSACTIONS

Transactions involving foreign currencies are translated into cedis at the exchange rates prevailing at the date of transaction. Monetary assets and liabilities are translated at the ruling rates at the balance sheet date. Exchange differences arising are dealt with in the income and expenditure account.

e) DEBTORS

Debtors are stated at book value. Specific provisions are made for debts considered doubtful.

f) ENERGY FUND

The Energy fund is accounted for on cash basis.

		2002	2001
		¢'000	¢'000
NOTE 2:	**REVENUE GRANTS**		
	Subvention from Government Of Ghana	7,063,859	935,319
	Capital grant amortized	554,110	220,037
		7,617,769	1,155,356
NOTE 3:	**TRANSFER FROM MINISTRY OF ENERGY**		
	This represents the balances transferred from the bank accounts of former Technical Wing of Ministry of Energy to the Energy	550,596	-
NOTE 4:	**PEPTA GRANT**		
	This represents grants received from The Ministry of Finance in respect of the Public Enterprises Privatization Technical Assistance (PEPTA,) IDA Credit No. 2877 GH. The purpose of these grants Was for public education on the efficient use Of electricity and petroleum products; productive Use of electricity; and also for advertisement Requesting expression of interest for Consultancy services in the PEPTA Project	35,672	-
NOTE 5:	**ADMINISTRATIVE AND GENERAL EXPENSES**		
	Research and consultancy expenditure	962,390	290,435
	Commissioners' allowances	233,040	48,786
	Staff cost	2,542,354	492,224
	Stationery and printing	178,546	62,033
	Insurance	116,671	16,287
	Traveling and transport	349,826	35,295
	Office accommodation	506,915	100,000
	Premises expenses	-	21,232
	Audit fees	115,000	73,125
	Telephone, postage and network services	117,871	49,625
	Training, seminars and conference	480,037	37,167
	Repairs and maintenance	121,873	26,886
	Medical expenses	184,573	35,859
	Miscellaneous expenses	-	28,307
	Office consumables	136,695	42,999
	Motor vehicle running expenses	317,578	77,837
	Advertising expenses	70,291	7,200
	Bui Dam Development Committee expenses	646,556	-

	Depreciation	717,299	216,593
	Bank charges	1,199	-
	Utilities	20,989	-
		7,819,703	1,661,890
NOTE 6:	**PRIOR YEAR ADJUSTMENT** This represents correction of amount wrongly treated as set-up fund in the year ended 31st December, 1999	7,426,103	-

NOTE 7: FIXED ASSETS

	Motor Vehicles	**Office Furniture & Equipment**	**Computer Accessories**	**Wind Measure Equipment**	**Total**
	¢'000	**¢'000**	**¢'000**	**¢'000**	**¢'000**
COST					
Balance At 1/1/2002	511,862	220,626	141,087	24,613	898,188
Additions in the year	1,969,541	51,551	165,243	-	2,186,335
Balance at 31/12/2002	2,481,403	272,177	306,330	24,613	3,084,523
DEPRECIATION					
At 1/1/2002	383,895	102,426	138,164	14,769	639,254
Charge in the Year	620,351	34,022	58,003	4,921	717,299
Balance at 31/12/2002	1,004,246	136,448	196,167	19,692	1,356,553
NET BOOK VALUE					
At 31/12/2002	1,477,157	135,729	110,163	4,921	1,727,970
At 31/12/2001	127,967	118,200	2,923	9,844	258,934

		2002	2001
		¢'000	¢'000
NOTE 7A:	**CAPITAL WORK-IN-PROGRESS**	3,307,534	-

This represents various payments made on account to contractors for the partitioning and furnishing of the Commission's new office on Plot 40, Spintex Road, Accra.

		2002	2001
		¢'000	¢'000
NOTE 8:	**ACCOUNTS RECEIVABLE**		
	Staff loans	230,450	224,787
	Solar and Wind Energy Resource Assessment (SWERA) current account	34,860	-
	Sundry debtors	28,000	-
		293,310	224,787
NOTE 9:	**PREPAYMENTS**		
	Rent	369,767	-
	Insurance	57,071	11,997
		426,838	11,997
NOTE 10:	**CASH AND BANK BALANCES**		
	Energy Fund bank account	11,938,304	12,559,152
	Energy Commission accounts	4,917,202	1,119,042
		16,855,506	13,678,194
NOTE 11:	**ACCOUNTS PAYABLE**		
	Danish Embassy – unutilized Funds for Solar Dryer Project	463,449	-
	Solar Dryer Project creditors	79,159	-
	Statutory debts	-	8,749
	Telephone/postages and network	4,364	-
	Premises expenses	-	8,800
	Audit fees	181,094	118,125
	Utilities	-	5,240
	Medical – SSNIT Hospital	12,898	2,945
	Rent – PMMC	-	16,667
		740,964	160,526

NOTE 12: CAPITAL GRANT

This represents transfers from the Energy Fund for the acquisition of fixed assets for the Commission.

Grant received in the year	6,826,492	-
Less Amount amortized	554,110	-
Balance at 31st December	6,272,382	-

NOTE 13: RECONSILIATION OF EXCESS OF INCOME OVER EXPENDITURE TO NET CASHFLOW FROM OPERATION ACTIVITIES

Excess of income over expenditure	2,205,275	(466,081)
Depreciation	717,299	216,593
Capital grant amortized	(554,110)	(220,037)
(Increase) / decrease in receivables	(68,523)	10,473
(Increase) / decrease in prepayment	(414,842)	71,338
Increase in payable	580,438	95,690
	2,466,537	(292,024)

Appendix V
AUDITED FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER, 2003

REPORT OF THE COMMISSIONERS

The Commission has the pleasure to present to the Honourable Minister of Energy the audited financial statements of the Commission for the year ended 31st December, 2003 and to report as follows:

PRINCIPAL ACTIVITIES

The principal activities of the Commission include the regulation and management of the utilization of energy resources in Ghana and the co-ordination of policies relating to them. In particular to:

- Advise the Minister of Energy on national policies for the efficient, economical, and safe supply of electricity, natural gas, and petroleum products having due regard to the national economy;
- Provide legal, regulatory and supervisory framework for providers of energy (i.e. licensing, monitoring, compliance, prescription of rules and regulations by legislative instruments);
- Recommend national policies for the development and utilization of indigenous energy resources.

The Commission is also responsible for the management and administration of the Energy Fund which for this purpose includes the Controller and Accountant-General or his representative.

RESULTS	**¢'000**
• **RECURRENT ACTIVITIES**	
The Commission made excess of expenditure over income of	(3,181,858)
This is added to the restated balance on accumulated Fund Account brought forward of	3,659,508
Balance on Accumulated Fund Account carried forward is	477,650
• **ENERGY FUND ACCOUNT**	
Balance as at 1st January, 2003	11,938,304
Net Decrease in the year	(4,411,806)
Balance at 31st December, 2003	7,526,498

BY ORDER OF THE COMMISSION

....

COMMISSIONER **COMMISSIONER**

REPORT OF THE AUDITORS FOR THE YEAR ENDED 31ST DECEMBER, 2003

We have audited the financial statements of the Commission set out on page 69 - 73 which have been prepared under the historical convention and the accounting policies set out on page 74.

Respective responsibilities of the Commissioners and Auditors

The Commissioners are responsible for the preparation of the financial statements. It is our responsibility to form an independent opinion, based on our audit, on those statements and to report our opinion thereon.

Basis of opinion

We conducted our audit in accordance with International Auditing Standards. An audit includes examination, on test basis, of evidence relevant to the accounts and disclosures in the financial statements. It also includes an assessment of the significant estimates and judgments made by the Commissioners in the preparation of the financial statements, and of whether the accounting policies set out on page 74 are appropriate to the Commission's circumstances, consistently applied and adequately disclosed.

We planned and performed our audit so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or other irregularity or error.

In forming our opinion we also evaluated the overall adequacy of the presentation of information in the financial statements.

Opinion

In our opinion, proper books of account have been kept and the financial statements, which are in agreement therewith, give a true and fair view of the state of affairs of the Commission at 31st December, 2003 and of its results and cash flows for the year then ended and comply in all material respects with the Energy Commission Act, 1997 (Act 541).

STATE ENTERPRISES AUDIT CORPORATION

.....
(A.M. NYAMPONG)
AG. MANAGING DIRECTOR

4TH FLOOR REPUBLIC HOUSE
KWAME NKRUMAH AVENUE
ACCRA

DATE: 29thDecember, 2006

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 2003

	NOTES	2003 ¢'000	2002 ¢'000
INCOME			
Revenue grant	2	8,284,412	9,434,258
Grant for Bui Development Committee	2A	989,265	-
Transfers from Ministry of Energy	3	-	550,596
Other Income		-	4,452
PEPTA Grant	4	-	35,672
		9,273,677	10,024,978
EXPENDITURE			
Personnel Emoluments	5	3,057,318	2,542,354
Administrative and general expenses	6	7,917,090	4,630,793
Service activity expenses	7	377,875	-
Bui Development Committee expenses		1,103,252	646,556
		(12,455,535)	(7,819,703)

ACCUMULATED FUND ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 2003

		2003 ¢'000	2002 ¢'000
Balance as at 1st January		3,659,508	(5,971,870)
Prior year adjustment	8	-	7,426,103
Restated balance as at 1st January		3,659,508	1,454,233
Excess of income over expenditure/ (Excess of expenditure over income)		(3,181,858)	2,205,275
Balance as at 31st December, 2003		477,650	3,659,508

This notes on pages 77 to 82 form an integral part of these financial statements.

BALANCE SHEET AS AT 31ST DECEMBER, 2003

	NOTES	2003 ¢'000	2002 ¢'000
FIXED ASSETS	9	4,278,664	7,727,970
Work-in-progress	9A	6,030,231	3,307,534
		10,308,895	5,035,504
CURRENT ASSETS			
Accounts receivable	10	176,938	293,310
Prepayments	11	5,863,573	426,838
Cash and bank balances	12	10,407,848	16,855,506
CURRENT LIABILITIES			
Accounts payable	13	1,205,890	740,964
NET CURRENT ASSETS		15,242,469	16,834,690
TOTAL NET ASSETS EMPLOYED		25,551,364	21,870,194
FINANCED BY			
Capital grant	14	17,547,216	6,272,382
Accumulated fund		477,650	3,659,508
Energy fund		7,526,498	11,938,304
		25,551,364	21,870,194

....

COMMISSIOINER **COMMISSIONER**

This notes on pages 77 to 82 form an integral part of these financial statements.

CASH FLOW STATEMENT FOR THE YEAR ENDED 31ST DECEMBER, 2003

	NOTES	2003 ¢'000	2002 ¢'000
Net cash inflow/ (outflow) From operating activities	15	(6,954,414)	2,465,537
INVESTING ACTIVITIES			
Fixed assets purchased		(4,160,208)	(2,186,335)
Cost incurred on capital work In progress		(2,707,674)	(3,307,534)
		(6,867,882)	(5,493,869)
FINANCING ACTIVITIES			
Transfers from Energy Fund		13,786,444	6,826,492
Net cash inflow/ (outflow) from Operating, investing and financing Activities in the year		(2,035,852)	3,798,160
Net cash inflow/ (outflow) from Energy Fund in the year		(4,411,806)	(620,848)
Total net cash inflow in the year		(6,447,658)	3,177,312
Cash and cash equivalents at 1st January		16,855,506	13,678,194
Cash and cash equivalents at 31st December		10,407,848	16,855,506

MOVEMENTS IN CASH AND CASH EQUIVALENTS

	Balances at 31st December			Changes in the year	
	2001 ¢'000	2002 ¢'000	2003 ¢'000	2002 ¢'000	2003 ¢'000
Energy Fund Bank Accounts	12,559,152	11,938,304	7,526,498	(620,848)	(4,411,806)
Energy Commission Operations Bank Accounts	1,119,042	4,917,202	2,881,350	3,798,160	(2,035,852)
	13,678,194	16,855,506	10,407,848	3,177,312	(2,447,658)

The notes on pages 77 to 82 form an integral part of these financial statements

REPORT OF THE AUDITORS ON MOVEMENTS ON THE ENERGY FUND ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 2003

We have audited the accompanying Statement of Movements on the Energy Fund account for the year ended 31st December, 2003

It is the responsibility of the Commissioners to maintain proper accounting records for the Fund. Our responsibility is to express an independent opinion on the statement of movements on the Fund account.

We conducted our audit in accordance with generally accepted auditing standards. We planned and performed our audit to enable us obtain reasonable assurance that the Fund account is free from material misstatement. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the statement of movements on the Energy Fund account give a true and fair view of the financial position of the Fund as at 31st December, 2003.

STATE ENTERPRISES AUDIT CORPORATION

.....
(A.M. NYAMPONG)
AG. MANAGING DIRECTOR

4TH FLOOR REPUBLIC HOUSE
KWAME NKRUMAH AVENUE
ACCRA

DATE: 29thDecember, 2006

STATEMENT OF MOVEMENTS ON THE ENERGY FUND ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 2003

	2003 ¢'000	2002 ¢'000
RESOURCES		
Balance at bank at 1st January	11,938,304	12,559,152
CASH INFLOWS IN THE YEAR		
Petroleum levy	10,498,240	7,831,465
Bui Dam development documentation	-	207,971
Licensing fees	1,046,400	252,000
Total cash available	23,482,944	20,850,588
EXPENDITURES		
Transfers made in the year in Respect of:		
Capital expenditure of the Energy Commission	13,786,444	6,826,492
Administrative expenses:		
General	1,977,250	1,098,211
Bui Dam Development Committee	192,332	718,078
Bank charges	420	-
Expenses incurred on Behalf of Ministry of Energy	-	269,503
Total expenditures	15,956,446	8,912,284
Balance at bank at 31st December, 2003	7,526,498	11,938,304

The notes on pages 77 to 82 form an integral part of these financial statements

NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31ST DECEMBER, 2003

NOTE 1: ACCOUNTING POLICIES

The following are the significant accounting policies adopted by the Commission in the preparing of the financial statements

a) **BASIS OF ACCOUNTING**

The financial statements have been prepared under the historical cost convention.

b) **FIXED ASSETS**

Fixed assets are stated at the cost of purchase together with any incidental costs of acquisition.

Depreciation is charged on fixed assets on a straight-line basis over the expected useful economic lives of the assets concerned.

The principal annual rates for this purpose are:

Office furniture and fittings	-	12½%
Motor Vehicles	-	25%
Plant, machinery and equipment	-	20%
Computers and accessories	-	
Wind measurement equipment	-	20%

c) **GRANTS**

(i) **Deferred credit**

Grants received in the form of fixed assets or for the purchase of fixed assets are credited to a deferred credit account and amortized by equal installments over the expected useful lives of the related fixed assets.

(ii) **Revenue grant**

Revenue based grants are credited to the income and expenditure account as and when received and utilized.

d) **FOREIGN CURRENCY TRANSACTIONS**

Transactions involving foreign currencies are translated into cedis at the exchange rates prevailing at the date of transaction. Monetary assets and liabilities are translated at the ruling rates at the balance sheet date. Exchange differences arising are dealt with in the income and expenditure account.

e) **DEBTORS**

Debtors are stated at book value. Specific provisions are made for debts considered doubtful.

f) **ENERGY FUND**

The Energy Fund is accounted for on cash basis.

		2003 ¢'000	2002 ¢'000
NOTE 2:	**REVENUE GRANTS**		
	Subvention from Government of Ghana	3,795,552	7,063,859
	Transfers from Energy Fund	1,977,250	1,816,289
	Capital grant amortized	2,511,610	554,110
		8,284,412	9,434,258
NOTE 2A:	**GRANTS FOR BUI DEVELOPMENT COMMITTEE**		
	Government grant	796,934	-
	Transfers from Energy Fund	192,331	-
		989,265	-
NOTE 3:	**TRANSFER FROM MINISTRY OF ENERGY**		
	This represents the balances transferred From the bank accounts of former Technical Wing of Ministry of Energy to the Energy Commission.	-	550,596
NOTE 4:	**PEPTA GRANT**		
	This represents grants received from the Ministry of Finance in respect of the Public Enterprises Privatization Technical Assistance (PEPTA), IDA Credit grants was for public education on the efficient use of electricity and petroleum products, productive use of electricity; and also for advertisement requesting expression of interest for consultancy services in the PEPTA Project.	-	35,672
NOTE 5:	**PERSONAL EMOLUMENTS**		
	Basic pay	2,078,151	1,745,365
	Allowances	749,393	575,479
	Gross pay	2,827,544	2,320,844
	Employer's 12 ½ % SSNIT Contribution	229,774	221,510
		3,057,318	2,542,354

NOTE 6:	**ADMINISTRATIVE AND GENERAL EXPENSES**	**2003 ¢'M**	**2002 ¢'M**
	Research and consultancy expenditure	272,594	962,390
	Commissioner's allowances	386,373	233,040
	Stationery and printing	359,584	178,546
	Insurance	198,037	116,671
	Traveling and transport	163,224	349,826

Overtime and Honorarium	59,977	-
Office accommodation	1,469,627	506,915
Audit fees	138,000	155,000
Telephone, postage and network services	192,267	117,871
Training, seminars and conferences	433,45	480,037
Rent – Residential Accommodation	240,000	-
Repairs and maintenance	702,913	121,873
Medical expenses	401,696	184,573
Foreign Travels	370,933	-
Office consumables	150,977	136,695
Motor vehicle running expenses	259,461	317,578
Advertising expenses	183,278	70,291
End of Year Staff Awards	40,000	-
Depreciation	1,609,514	717,299
Bank charges	1,775	1,199
Utilities	283,410	20,989
	7,917,090	4,630,793

NOTE 7: SERVICE ACTIVITY EXPENSES

Renewable Energy	87,404	-
Petroleum	268,566	-
Power	8,735	-
Strategic Policy Planning	13,170	-
	377,875	-

NOTE 8: PRIOR YEAR ADJUSTMENT 7,426,103

This represents correction of amount wrongly treated as set-up fund in the Accounts for the year ended 31st December, 1999

NOTE 9: FIXED ASSETS

	Motor Vehicles ¢'000	**Fittings Furniture & Equipment ¢'000**	**Computers & Accessories ¢'000**	**Plant & Equipment ¢'000**	**Total ¢'000**
COST					
Balance At1/1/2003	2,481,403	272,177	306,330	24,613	3,084,523
Additions in the year	1,324,799	1,548,611	847,530	439,268	4,160,208
Balance at 31/12/2003	3,806,330	1,820,788	1,153,860	463,881	7,244,731

DEPRECIATION

At 1/1/2003	1,004,246	136,448	196,167	19,692	1,356,553
Charge in the Year	951,551	227,598	337,590	92,77	1,609,514
Balance at 31/12/2003	1,955,797	364,046	533,757	112,46	2,966,067

NET BOOK VALUE

At 31/12/2003	1,850,405	1,456,742	620,103	351,414	4,278,664
At 31/12/2002	1,477,157	135,729	110, 163	4,921	1,727,970

		2003 **¢'000**	**2002** **¢'000**
NOTE 9A:	**WORK IN PROGRESS**	6,030,231	3,307,534

This represents various payments made on account to contractors for the partitioning and furnishing of the Commission's new office on Plot 40, Spintex Road, Accra.

		2003 **¢'000**	**2002** **¢'000**
NOTE 10:	**ACCOUNT RECEIVABLE**		
	Staff loans	148,938	230,450
	Sound and Wind Energy Resource Assessment (SWERA) current account	-	34,860
	Sundry debtors	28,000	28,000
		176,938	293,310

NOTE 11: PREPAYMENTS

Rent	5,665,921	426,838
Insurance	177,170	57,071
Others	80,482	-
	5,863,573	426,838

NOTE 12: CASH AND BANK BALANCES

Energy Fund Bank account	7,526,498	11,938,304
Energy Commission accounts	2,881,350	4,917,202
	10,407,848	16,855,506

NOTE 13: ACCOUNTS PAYABLE

Danish Embassy-unutilized Funds for Solar Dryer Project	439,264	463,449
Solar Dryer Project creditors	103,344	79,159
Internal Revenue Service	165,169	-
Telephone/postages and network	6,276	4,364
Accrued Rent	240,000	-
Premises expenses, repairs & maintenance	11,353	-
Audit fees	240,484	181,094
Medical – SSNIT Hospital	-	12,898
	1,205,890	740,964

		2003 ¢'000	2002 ¢'000
NOTE 14:	**CAPITAL GRANT** This represents transfers from the Energy Fund for the acquisition of fixed assets for the Commission.		
	Balance brought forward	6,272,382	-
	Grants received in the year	13,786,444	6,836,492
		20,058,826	-
	Less Amount amortized in the year	2,511,610	554,110
	Balance at 31st December	17,547,216	6,272,382

NOTE 15:	**RECONCILIATION OF EXCESS OF INCOME OVER EXPENDITURE TO NET CASHFLOW FROM OPERATING ACTIVITIES**		
	Excess of income over expenditure/		
	(Excess of expenditure over income)	3,181,858	2,205,275
	Depreciation	1,609,514	717,299
	Capital grant amortized	(2,511,610)	(554,110)
	(Increase)/decrease in receivables	116,372	(68,523)
	(Increase)/decrease in prepayment	(5,451,758)	(424,842)
	Increase in payables	464,926	580,438
		(8,954,414)	2,465,537