PARLIAMENTARIAN FORUM ON ENERGY LEGISLATION AND SUSTAINABLE DEVELOPMENT

GHANA'S EXPERIENCE WITH POWER SECTOR REFORM: LEGISLATIVE AND POLICY ISSUES";

Presented by:

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ABSTRACT

The Ghana Power Sector Reform Programme (PSRP) was initiated a decade ago with the aim of introducing sweeping reforms intended to remove perceived policy, regulatory and institutional barriers that were hampering private sector participation and investment in the power sector.

The agenda that was developed for implementation of the reforms required changes in the legal and regulatory framework and also re-structuring of the Electricity Supply Industry (ESI). In 1997, Parliament passed two laws, (i) Public utilities Regulatory Commission (PURC) Act 538, and (ii) Energy Commission (EC) Act 541, which established the requisite legal and regulatory frameworks and the associated institutions for the reforms. Parliament has also, recently, passed another law, the Volta River Development (Amendment) Bill, which is intended to pave the way for implementing the re-structuring agenda of the ESI. Other key legislative instruments are currently being prepared for consideration and approval of Parliament. It is intended that, the requisite parliamentary processes on the reforms in the power sector would be completed to help the refoms.

The successes achieved so far have not been without their peculiar challenges. The paper focuses on the successes and challenges and the role Parliament has played in the reform process.

1.0 BACKGROUND AND INTRODUCTION

The Power Sector in Ghana is vested in the Ministry of Energy which sets out the policy and guidelines for power generation, transmission and distribution for the sector.

The Volta River Authority (VRA), is the state-owned public power generation and transmission authority in Ghana. The VRA owns and operates the 1020 MW Akosombo hydropower plant, Ghana's icon symbol of progress and development, and holds it in trust for the people of Ghana. It is responsible for ensuring the integrity of the Volta dam, one of the largest man-made lakes in the world, and stands sentry in respect of all activities in and within the Volta River Basin. Besides Akosombo hydro plant, the Authority owns and operates a second 160MW hydro generating station at Kpong, downstream of Akosombo.

The VRA also has a 330MW combined cycle thermal plant at Aboadze and has joint venture ownership of a second 220MW open-cycled thermal plant at the same site and was later topped up with a further 110 MW. VRA also has a subsidiary called Northern Electricity Department (NED) since 1987 which distributes power to the northern sector of Ghana.

The Electricity Company of Ghana (ECG) is also a state-owned private company which is the premier national distributor and retailer of electric power. It currently

operates in the six southern regions of Ghana. It sells power to bulk customers, the mines and other industrial entities.

Ghana's electric power market consists of wholesale (deregulated) and retail (regulated) sections. The VRA dominates the wholesale market, sells power to the ECG and export power to Ghana's neighbors-Togo, Benin and Burkina Faso.

2.0 POWER SECTOR REFORMS

With a customer population of about 1,500,000, demand for power has grown to outwit supply resulting in overloaded network coupled with obsolete plants which makes power delivery very difficult. The load on the distribution infrastructure has grown at about 10% a year, but there had not been adequate investment and expansion of the distribution infrastructure to match the growth in load. Before 1996, utilities in Ghana were faced with low tariff regime (average End User Tariff (AEUT) 4-5 US cents, high domestic demand growth (10%), no reserve margin in generation, overloaded and aged distribution networks, and lack of investment capital.Facing these challenges, Ghana initiated, adopted and formulated a policy in the Power Sector in 1996 with dual objectives of creating the necessary enabling environment for the efficient and transparent generation, transmission and distribution of electricity as a business in Ghana as well as

encouraging private sector participation. To accomplish this, **power sector reform committee** was set up which proposed **a four- point** action plan to:

- Introduce a new legislation to establish a four-tier regulatory framework which will set “rules of practice and “standards of performance” covering all aspects of power sector operation
- introduce competition in wholesale power supply transaction with “open access” transmission services to facilitate competition in the supply of power to large customer and distribution utilities
- re-organize the existing state-owned utilities into “Strategies Business Units, “improve management accountability to corporate boards of directors, and also re-capitalize the power utilities through public-private partnership and joint ventures: and
- introduce specific guidelines and procedures to ensure transparency in the setting of tariff for the power sector

From the action plan, Parliament enacted two laws for establishment of two regulatory institutions, namely, Public Utilities Regulatory Commission (PURC) and the Energy Commission (EC) through Act 538 and 541 respectively. The PURC is concerned with the economies of utilities and tariffs. It is an independent body tasked among others to:

- To provide guidelines on rate chargeable for provision of utility services.
- To examine and approve rates chargeable for provision of Utility Services
- To protect the interest of customers and providers of utility services

- To initiate and conduct investigations into standard of quality of services given to consumers
- To promote fair competition among public utilities

The EC is responsible for granting licenses to qualified operators in the energy sector as well as enforcing their compliance with regulations, “rules of practice and standards of performance.

- To regulate and manage the utilization of energy resources in Ghana and coordinate policies in relation to them
- To recommend national policies for the development and utilization of indigenous energy resources
- Advice the Minister on national policies for the efficient, economical and safe supply of electricity; national gas and petroleum products having due regard to the national economy;
- Receive and assess applications and grant licenses under the Act to public utilities for the transmission of wholesale supply, distribution and sale of electricity and natural gas.
- Establish and enforce, in consultation with PURC, standards of performance for public utilities engaged in the transmission, wholesale supply, distribution and sale of electricity and natural gas.

In order to be very effective PURC through the Ministry of Energy brought two Legislative Instruments which have enhanced their services, termination of Services regulations and Complaints and Customer Services regulations. This

has helped to give the people of Ghana the power to complain for ECG to improve. Secondly, ECG also does not have the power to disconnect with proper notice or measures to dialogue with the people. They always try and avoid confrontation with customers. Within the framework of the Power sector reform, generation is to be decoupled from transmission and made competitive. Other players like Independent Power Producers (IPPS) could enter the market and give VRA the necessary competition. VRA could also enter into joint venture with investors to set up other generating stations.

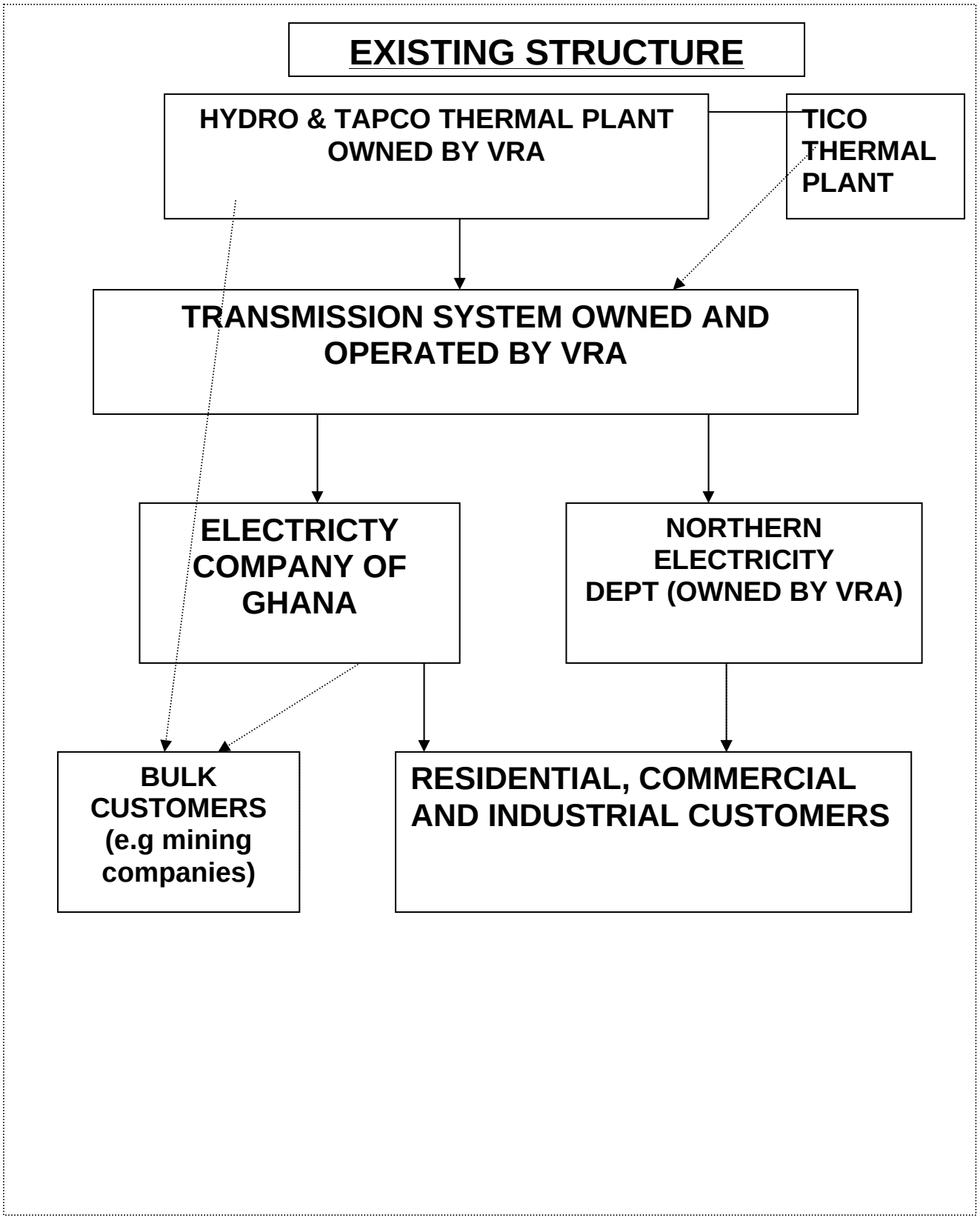
In 1998, VRA went into a joint venture with an American Investor to set up a 660 MW Thermal plant at Takoradi in the Western Region of Ghana. ECG was also privatized under the Statutory Corporation (Conversion to Companies) Act 461 in 1997 and has since then operated under the Companies Code, Act 179 with the Ghana Government as the sole shareholder. Due to the strategic importance of the power sector in the economic and social development of Ghana, outright sale is impossible because of public outcry against full privatization.

2.1 CURRENT POWER SECTOR REFORM

In 2004 the Government of Ghana defined a new policy framework for reform in the power sector with following new objectives in addition the existing ones:

1. Ghana to become a net export of power by 2008
2. Ensure economic achievement of tariffs

3. Assist sector institutions to concentrate on their core activities to promote efficient and cost effectiveness and improve their management
4. Deliver stable power and highly quality customer service
5. Obtain funds to finance capital improvements needed to improve service.


EXISTING STRUCTURE
HYDRO & TAPCO THERMAL PLANT OWNED BY VRA
TICO THERMAL PLANT
TRANSMISSION SYSTEM OWNED AND OPERATED BY VRA
ELECTRICTY COMPANY OF GHANA
NORTHERN ELECTRICITY DEPT (OWNED BY VRA)
BULK CUSTOMERS (e.g mining companies)
RESIDENTIAL, COMMERCIAL AND INDUSTRIAL CUSTOMERS

The key issues in the policy framework include:

1 Reconstituting VRA into separate entities- VRA to be responsible for generation from the hydro power stations at Akosombo and Kpong

2 Aboadze Thermal Power Company to own and operate the Aboaze Thermal plant

3. To create a Transmission Utility Company to create open access to both generators and distributors.

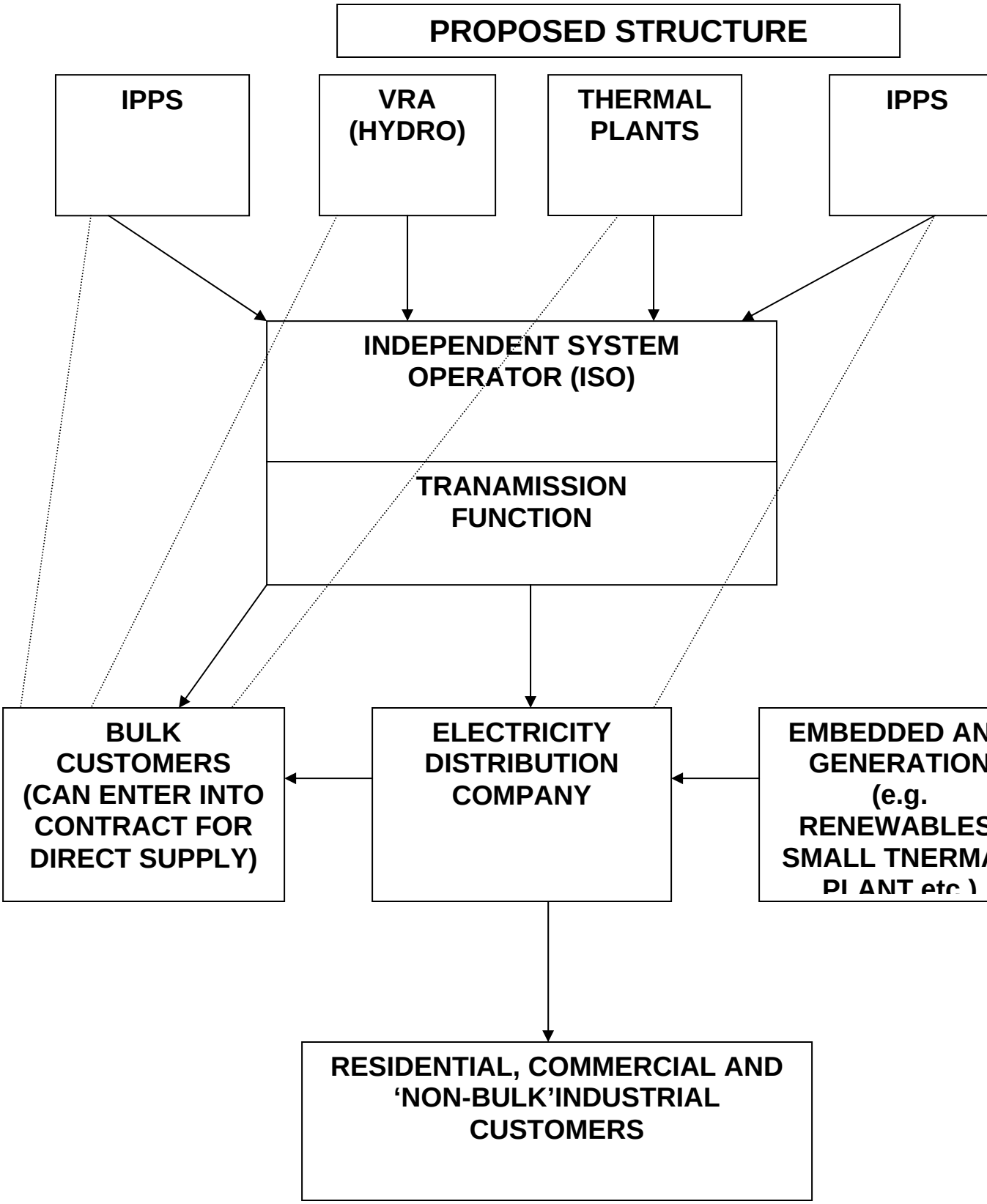
4. Reconstitute ECG and NED into a single distribution Company

5. Engage Management Support Services to manage the affairs of newly created Electricity Company of Ghana

6. Develop Rules for the operation of the Electricity Market

7. Ensure the enactment of appropriate legal statutes on the technical and operational rules for the provision of electricity services

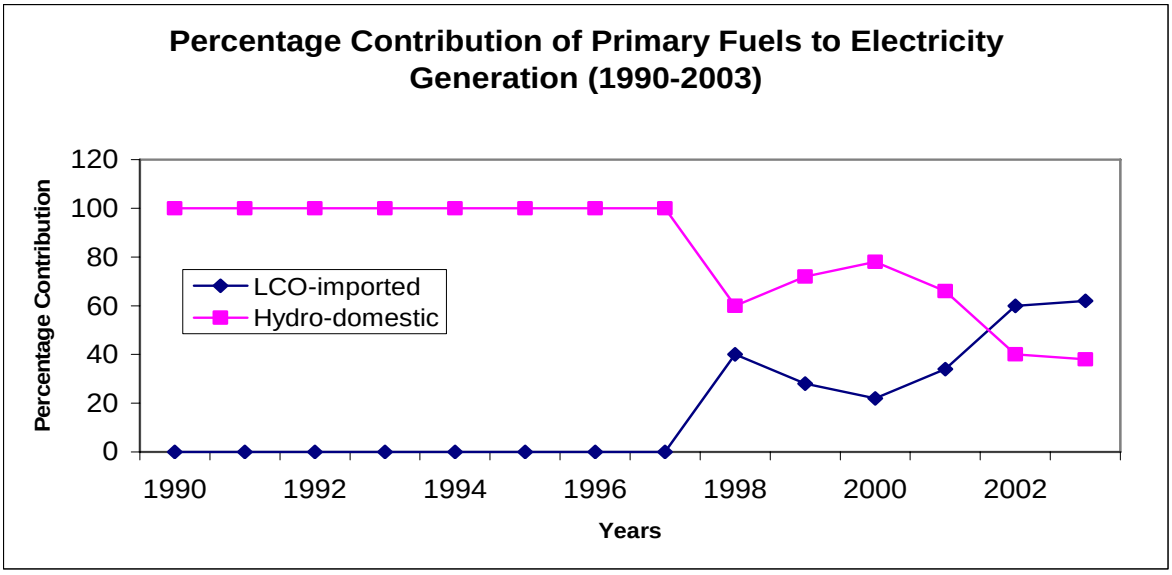
8. Strengthen the regulatory institutions to improve their performance to meet challenges of the power as reformed


PROPOSED STRUCTURE
IPPS
VRA (HYDRO)
THERMAL PLANTS
IPPS
INDEPENDENT SYSTEM OPERATOR (ISO)
TRANAMISSION FUNCTION
BULK CUSTOMERS (CAN ENTER INTO CONTRACT FOR DIRECT SUPPLY)
ELECTRICITY DISTRIBUTION COMPANY
EMBEDDED AN GENERATION (e.g. RENEWABLES SMALL TNERMA PLANT etc)
RESIDENTIAL, COMMERCIAL AND 'NON-BULK'INDUSTRIAL CUSTOMERS

3.0 SUCCESSES

The reforms had brought a lot of improvement in the power sector. It was realized that hydro-electric power was not exclusively sustainable because of its dependence on rainfall.

3.1 From 1997 upwards, Ghana's primary sources of power which used to be only hydro generation shifted from total dependence on hydropower generation to include imported light crude oil, making an impact on the security of primary fuel supply for generation, the average generation cost and the balance of trade of the country. The graph below shows the percentage contribution of hydro and thermal from 1990 to 2003. The graph below shows the percentage contribution of hydro and light crude oil (LCO) to electricity generation in Ghana from 1990 to 2003



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The VRA was also able to enter into joint ventures with investors to set up other generating stations. As at 2005, the total installed capacities of the country's generation plants both hydro and thermal are as follows:

1. Akosombo, Hydro, with 6x173MW units with instated capacity of 1,038 MW;
2. Kpong, Hydro with 4x40 MW units with installed capacity of 160 MW
3. TAPCO TI Thermal with installed capacity of 330 MW: 2 GT(2x110) +1 HRSG (1x110)units
4. TICO T2 Thermal with installed capacity of 220 MW 2GT (2x110 units);
5. Tema, Thermal (diesel)30 MW: 10x3 MW units
6. Effasu Power Barge, Thermal (diesel or gas) with 2 units with installed capacity of 125 MW and available capacity of zero (2005)

7 The total VRA installed generation capacity therefore increased to 1,778 MW31 as shown below.

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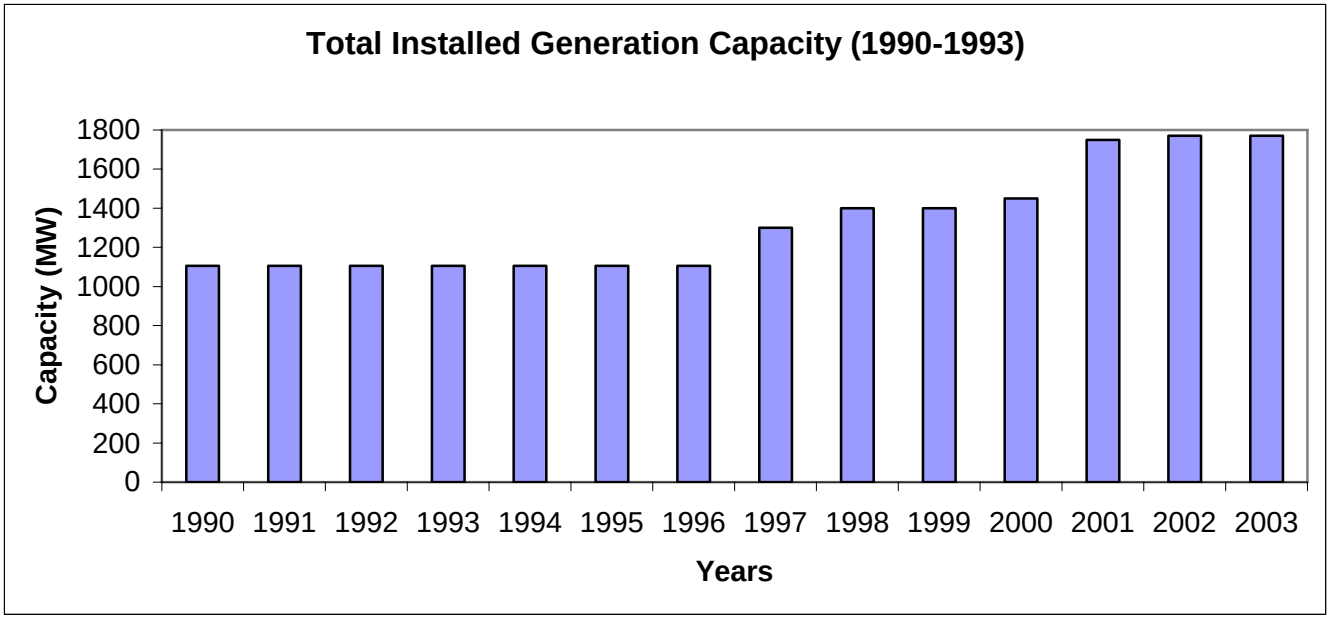

The total electricity generation also increased from 5,230.60 GWh in 1990 to 6,461 GWh in 2003.

3.2 Although the thermal plants currently runs on crude oil, the vision is to power it using cheaper gas from Ghana's own off shore fields in the Tano Basin off the coast of Takoradi.

Ghana is also co-operating with Nigeria to maximize the use of that country's natural gas. As a result, a US$400 million West African Gas Pipeline Project (WAGPP) has been started to transport gas from Nigeria through Benin and Togo to the west of Ghana. The WAGPP will help to reduce the cost of power generation by reducing cost of fuel. Other benefits that will accrue to Ghana include significant tax revenues from the pipeline operators; the opportunities for Ghana to generate additional power to serve the needs of our inland neighbours in particular under the West African Power Pool and the establishment and development of formal commercial, legal and trade

practices, procedures and associated legislation to support cross-boarder transactions .Ghana will also take advantage of the larger sub regional market to export power

3.3 In another development, regulatory bodies established by law had also contributed to the success of the reforms in the following ways:

1. PURC has been able to set realistic tariffs which hitherto has been set by Ministry of Energy and their autonomy had enhanced acceptance by the public
2. Energy Commission has also regulated the licensing and prescription of uniform rules of practice.
3. Energy Commission has also set up the strategic national energy plan to address energy issue for the future
4. The monopolistic advantages of ECG have also been curbed.

The Energy Commission also focus attention on promoting the utilization of renewable forms of solar and wind energy by removing difficulties created by lack of information and by

5. supporting informed decision-making, science and technology based policies that would ultimately attract investor interest in renewable energy. The present share of solar based generation of electricity is only 0.3%. A contract was signed with United Nations Environment Programme (UNEP) Nairobi, for a grant of US$80,000.00 for the Energy Commission to

execute Solar and Wind Energy Resource Assessment (SWERA) project in Ghana.

6. The achievement so far are as follows:

I existing solar radiation map has been digitized and put in Geo-spatial Information System data base

Ii Wind resource data compiled and analyzed

Iii All other information needed to support policy formulation have been put in Geospatial Information System data base.

6.0CHALLENGES

6.1 Privatization

All the reforms proposed in 1996 could come through due to the public's opposition to privatization for fear that the private operators may run the network down or the possibility of tariff hikes. Security implications also did not allow the nations strategic operations to be put in the hand of foreigners.

6.0 Structural

EC was to be structured into 5 Strategic Business Entities with five Managing Directors, 5 corporate Accountants etc. This could not be because of lack of infrastructure, capital and human capacity requirements.

6.1 Unavailability of IPPS did not enable competition in the generation business

6.2 The parliamentary process also poses challenges because several factors militate against our work which delay the process:

- Sacrifices
- Consensus Building
- Delays
- Involving Stakeholders
- Knowledge Gap
- Secretariat Difficulties
- Lobbying at Committee and Floor of Parliament

6.3 Environmental Issues

The introduction of thermal generation based on light crude oil and diesel has resulted in the discharge of carbon dioxide, sulphur and nitrogen oxides from power plants into the environment with adverse effects. CO2 emissions has global warming effects and high concentration of both SO2 and NOx cause acid rain which also affects vegetation while NOx is associated with acute health conditions.

Construction of transmission and distribution networks has also affected socio-economic resources such as forests, wildlife habitat, farmlands, plantations and cultural properties. Last week e.g. some fishermen appealed to the Government to stop the laying of pipelines for the WAGPP because it is destroying their water bodies.

5.0 WHAT HAS PARLIAMENT DONE?

i) In the 1996, Parliament was able to pass two laws and two Legislative instruments i.e. Act 538, which establishes (PURC) and 541, which establishes (EC) of 1997 with the corresponding Legislative Instruments

ii) Under the current reforms, Parliament has been able to pass VRA Amendment Law, 2005 which seeks to take away the transmission system from VRA to enable them concentrate generation.

iii) As the representatives of the people, parliamentarians hold fora to explain the need for private investors in the energy sector and this minimizes public hostility towards the reform.

iv) Parliament also ratified two documents for the WAGPP – the Treaty and the International Project Agreement as well as the passage of the legislative instrument.

6.0 LESSONS LEARNT

1. Parliamentary involvement is very crucial to any reforms.
2. There is the need for national debate to enable the public to accept privatization- now being shrouded in secrecy

3. Enough public education needs to be done to sensitize the public before any major reforms
4. Security and Ownership issues
5. Delays in procedures should be avoided.

CONCLUSIONS

1. Parliamentary procedures can enhance any power sector reforms because it enhances debates and gives approval to whatever reforms a country wants to undertake

2. There is the need to involve all stakeholders-utility companies, parliament and consumers to build consensus for any reforms e.g. the Mines and Energy committee had to bring all the parties involved to a capacity building workshop where the Minister explained his policies and passing the VRA amendment was much easier this year than last session.

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