

**THE FINANCING PROBLEM IN THE ELECTRIC  
POWER SUB- SECTOR.**

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D61/P/8640/00

A management research project submitted in partial fulfillment of the requirements for the degree of Master of Business Administration at the University of Nairobi.

**FACULTY OF COMMERCE**

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**NOVEMBER 2003**

# DECLARATION

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THIS PROJECT IS MY ORIGINAL WORK AND HAS NOT BEEN SUBMITTED FOR A DEGREE IN ANY OTHER UNVIVERSITY.

SIGNED.....*Elizabeth W. Njenga*.....DATE.....*10th November, 2003*.....

ELIZABETH W NJENGA  
STUDENT

*To my dear parents.*

THIS PROJECT HAS BEEN SUBMITTED FOR EXAMINATION WITH MY APPROVAL AS UNIVERSITY SUPERVISOR.

SIGNED.....*M. M. N. Anyangu*.....DATE.....*11/11/03*.....

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## ACKNOWLEDGEMENT

I wish to express my heartfelt gratitude to my parents and my siblings for their constant encouragement and support through out this study and the entire MBA program.

Special thanks to my supervisor Mr. Anyangu who through his guidance, encouragement, support and patience made this study a success.

Sincere appreciation goes to KenGen's Finance division and Mr. Oguni of KenGen's corporate planning and strategy division for their support through out the MBA course and during this study.

## DEDICATION

**To my dear parents.**

I thank all the respondents to the questionnaire for their invaluable time and commitment in providing data and information, making this study a success.

Special thanks to my dear friend Noah for his moral support and encouragement throughout this study and the entire MBA course.

May God bless you all and abundantly reward you.

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## LIST OF ACRONYMS

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1.ECAs	Export Credit Agencies
2.ERB	Electricity Regulatory Board
3.EIB	European Investment Bank
4. GOK	Government of Kenya
5.IDA	International Development Association
6.IFC	International Finance Corporation
7.IPPs	Independent Power Producers
8.JBIC	Japanese Bank for International co-operation
9. KenGen	Kenya Electricity Generating Company
10. KPLC	Kenya Power and Lighting Company
11.KPC	Kenya Power Company
12.KVDA	Kerio Valley Development Authority
13.OECD	Organizations for Economic Co-operation and Development
14.SAPP	South African Power Pool



## ABSTRACT

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This study focuses on the financing problem in the electric power sub-sector. The sub-sector has not been able to supply sufficient electrical power energy to meet the current demand and it is estimated that only 8% of the Kenyan population have access to electric power.

The supply of electricity in Kenya is presently the mandate of six companies

The lack of sufficient and reliable electricity supply is attributed to inadequate infrastructure for generation, transmission and distribution, which has been brought about by the serious financial constraints facing the sub-sector. The sub-sector requires enormous capital in order to complete the on-going capacity expansion projects, commission new projects and revamp the existing generation, transmission and distribution facilities.

The objective of the study was to identify the major obstacles faced by the electric power sub-sector in raising funds. A survey of the five out of the six key players in the sub-sector comprising of four generating companies and the sole electricity transmission and distribution company in Kenya was carried out. Primary data on the various funding constraints from each of the respondent was collected using the questionnaire attached in appendix I.

The findings of the study were that the major obstacles faced by the electric power sub-sector in funding its capital budget are inadequate capital in the domestic capital market and the sub-sectors inability to attract foreign private capital. Underdeveloped domestic financial and capital markets, high cost of finance and lack of a well established legal and regulatory framework is responsible for lack of adequate capital in the domestic capital market. The sub-sectors inability to attract foreign private capital was largely attributed to political risks, economic risks and commercial risks.

# CHAPTER ONE

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## 1 INTRODUCTION

### 1.1 Background

#### 1.1.1 Key Players

The supply of electricity in Kenya is presently the mandate of six companies under the general direction of the Ministry of Energy. These are:

- The Kenya Power and Lighting Company (KPLC) which is responsible for all electricity distribution and transmission system in Kenya. Shareholding by the Kenya government and government institutions in KPLC currently amounts to 59%, with the rest of the shareholding being private.
- The Kenya Electricity Generating Company (Kengen) which is the government owned generating utility is responsible for electricity generation and contributes 82% of the effective generating capacity to the national grid.
- The privately owned International Independent Power Producers (IPPs) comprising of The Ibera Africa, Westmont, Tsavo and the Or-power, collectively owns 18% of the effective generating capacity.

The interconnected system has an installed capacity of 1,162 MW comprising 677.2MW hydro, 398MW thermal, 57MW geothermal, 30MW import from Uganda Electricity Transmission Company (UETCL) and 0.35MW wind. The country isolated stations generating capacity is 9.6 MW. Hydro generation sources make up 62.2% of the effective capacity while geothermal and thermal contribute 5.4% and 32.3% respectively.

### **1.1.2 Overview of the operating performance of the electric power sub-sector**

According to the Kenyan Economic Survey (2002), the demand for electricity in the country exceeds the supply and this poses a big challenge. World Bank (2003), the Kenya power sub- sector currently faces a number of problems, which constrain its ability to effectively support the Kenyan economy. The key problems are:

- A severely reduced capacity to meet debt service commitments and to provide counter-part funding for investments needed to meet growth in demand.
- A limited capacity to expand access to rural electrification as the bulk of the rural electrification fund levy proceeds are fully absorbed by operations and maintenance costs of the existing network.
- An inability to withstand external shock such as the severe drought of the years 1999 and 2000 or sharp spike in fuel prices because of management and resources constraints.
- Limited flexibility and capacity to properly maintain existing production and distribution facilities

The frequent power interruptions in urban areas are often caused by poorly maintained and overloaded distribution facilities. In addition, failure to adequately maintain and expand the distribution systems is contributing to increasing system losses (currently about 20.5% compared to about 15.6% in 1994), and hence high cost of power. Kenya's high cost of power inhibits the competitiveness of its industries within the region as well as internationally.

Serious constraints have been experienced in the past due to breakdown of certain major generating plants forcing the power sub-sector to ration supply of electricity as the demand exceed the available capacity. This kind of situation has come about because of delays in implementing the generation expansion due to unavailability of funds. According to presentation by the GoK on the energy sector investment project, the sub-sector will not be able to meet electricity demand over the next 3 to 4 years and the constraints will therefore, continue to be experienced until new generating plants are brought on stream. The capability of the existing system will continue to gradually decline as a result of retirements of the aged thermal and diesel plants which are uneconomical to maintain.

For most international banks, consideration of project financing for Kenya would require the comfort of risk sharing from the World Bank, other multilateral institutions or export credit agencies. Risk perceptions have been down graded steadily because of Kenya's seemingly intransigent political leadership, prompting Bretton Woods Institution to withdraw structural adjustment loans and power projects guarantees after the country failed to meet lending conditions. This aggravates the problem in securing funds for financing the electric power sub-sector, Kevin (2000).

In order to increase efficiency and to increase the supply of electricity to match the escalating demand, the electric power sub-sector, in the least cost power development plan, 2003, highlights the following committed generation project and transmission additions.

### **1.1.2 Power Sub-Sector Investment Requirements**

The power sub-sector investment plan has been prepared, based on recommendation of the least cost plan. The program shows the investment required for the sector for the period 2004-2020 in order to cope with the increasing energy demand. The committed generation projects and transmission additions are as follows:

#### **Stop-gap Contracts and Conversion of Kipevu Gas Turbines to Combined Cycle**

In October 2001, KPLC opened up negotiations with the stop-gap IPPs plants, Iberafrica Power (EA) Ltd. and Westmont Power (k) Ltd., with a view to extending their contracts for a further 15 years. With involvement of the Ministers of Energy and Finance and assistance of PB Power international consultants, it was agreed that the contract with Iberafrica be extended by 15 years. It was further agreed that Kipevu gas turbine and Kipevu steam units be converted to a 130MW combined cycle plant.

#### **Olkaria II 64MW Geothermal Power Project**

Construction of the Olkaria II 64MW project has experienced delays due to financial constraints in the power sub-sector.

#### **Olkaria III 48 MW Geothermal Independent Power Producer Project**

Work on Olkaria III 48 MW Geothermal Independent Power Producer Project commenced in 1999 and the early generation of 12mw commissioned in year 2000. The full 48MW plant was expected to be completed by July 2003. However, delays have been encountered due to financial constraints.

### **Sondu-Miriu 60 MW Hydro Power Project**

Construction work of the Sondu Miriu Power Project was suspended due to lack of funding for phase II of the project covering the second phase of civil works, electromechanical equipment, substations and transmission line.

### **Olkaria-Nairobi 220 kV line and associated sub-stations**

Construction work for 110km Olkaria-Nairobi 220Kv double circuit line, which will enable power transmission from Olkaria II and Olkaria III to Nairobi, is in progress and need funds to ensure its timely completion.

### **Kiambere-Nairobi 220Kv line**

The Kiambere-Nairobi 140km, 220kV line single circuit line whose construction is still in progress. This line will improve power transfer from the Hydro stations to Nairobi and enhance security of supply.

### **Increased Power Imports from Uganda**

Kenya Power and Lighting Company (KPLC) has negotiated an agreement with the Uganda Electricity Transmission Company Limited (UETCL) for a firm 50MW power import from Uganda. The additional power will be available after completion of the 200MW Bujagali project on the River Nile, estimated to be commissioned by July 2007.

### **Kenya Transmission Projects Feasibility Study**

In 1991, interim update of the national power development plan recommended that certain areas of the system require additional lines for system reliability and power transfer. Power Engineers Inc. of Idaho, USA, in association with Howard Humphreys (EA) were in June 2002 awarded a contract to carry out feasibility studies for three transmission lines and the upgrading of Lanet and Naivasha substations. The lines in this study are Kamburu-Meru 150km 132Kv, Olkaria-Lessos 170km, 220Kv and Lessos-Kisumu 85mk, 132Kv.

## Interconnection to the Southern Africa Power Pool (SAPP)

A feasibility study commissioned by the governments of Tanzania and Kenya for a transmission line between Arusha and Nairobi was completed in June 2002. The study recommended construction of a 200MW, 330Kv line between Arusha and Nairobi which would first be operated at 220kV to transfer 100MW. After 2012 Embakasi substation terminal equipment would be upgraded to 330kV and power transfer increased to 200MW. To facilitate interconnection with SAPP, Kenya, Tanzania and Zambia commissioned a feasibility study of a 670km, 330kV transmission line between Pensulo in Zambia and Mbeya in Tanzania and reinforcement of transmission network within Tanzania.

These generation projects and transmission additions are estimated to cost Kshs 216,060,000,000. The sub-sector has had the following financing gap in its attempt to implement its projected additions.

		2001	2002	2003	2004	2005	2006
Sanda I	Cost	21,581	14,291	2,114	3,059	2,000	411
	FINANC	15,982	14,017	1,423	547	-	-
	Deficit	5,599	274	721	2,512	2,000	411
Sanda II	Cost	4,374	4,227	4,262	4,367	4,453	4,542
	FINANC	4,374	4,227	4,262	4,367	4,453	4,542
	Deficit	-	-	-	-	-	-
West Head	Cost	1,702	-	-	-	673	1,029
	FINANC	-	-	-	-	-	-
	Deficit	1,702	-	-	-	673	1,029
Madaya	Cost	878	-	-	-	578	878
	FINANC	-	-	-	-	-	-
	Deficit	878	-	-	-	578	878
Terna	Cost	82	-	41	371	420	-
	FINANC	41	-	41	371	420	-
	Deficit	41	-	-	-	-	-
Energy Support	Cost	826	160	162	165	168	171
	FINANC	165	160	162	165	168	171
	Deficit	661	-	-	-	-	-
Kipav	Cost	2,818	-	-	-	824	801
	FINANC	577	-	-	-	577	-
	Deficit	2,241	-	-	-	247	801

### 1.1.4 Electric power investment financing gap.

The table below summarizes the already commissioned projects which were expected to be completed by the end of the year 2006, but due to the prevailing funding constraints, delayed completion is being encountered. The total financing deficit is projected at kshs 26,396,000,000 by the end of the year 2006.

**Table I.....Actual and Projected financing gap for a five year period, in Kshs Million**

Project component	Financing	Total	Actual deficit		Projected deficit		
			2001/02	2002/03	2003/04	2004/05	2005/06
Olkaria II	Cost	11,414	6,670	2,847	1,987		
	IDA	5,404	3,885	1,242	278		
	EIB	2,643	661	1,746	237		
	KENGEN	2,402	610	919	873		
	<b>Deficit</b>	<b>965</b>	<b>414</b>	<b>299</b>	<b>252</b>		
OlkariaIV	Cost	11,165				11,165	
	KENGEN	-				-	
	<b>Deficit</b>	<b>11,165</b>				<b>11,165</b>	
Sondu I	Cost	21,984	14,291	2,144	3,059	2,098	411
	JBIC	15,982	14,012	1,423	547	-	-
	KENGEN	2,201	279	721	607	496	99
	<b>Deficit</b>	<b>3,819</b>			<b>1,905</b>	<b>1,602</b>	<b>312</b>
Sondu II	Cost	4,378	4,227	4,282	4,367	4,453	4,542
	KENGEN						
	<b>Deficit</b>	<b>4,378</b>	<b>4,227</b>	<b>4,282</b>	<b>4,367</b>	<b>4,453</b>	<b>4,542</b>
Well Head	Cost	1,702				673	1,029
	KENGEN	-				-	-
	<b>Deficit</b>	<b>1,702</b>				<b>673</b>	<b>1,029</b>
Masinga	Cost	678				678	678
	KENGEN	-				-	-
	<b>Deficit</b>	<b>678</b>				<b>678</b>	<b>678</b>
Lamu	Cost	832		41	371	420	
	KENGEN	41					
	<b>Deficit</b>	<b>791</b>		<b>41</b>	<b>371</b>	<b>420</b>	
Efficiency improvent	Cost	826	160	162	165	168	171
	KENGEN						
	<b>Deficit</b>	<b>826</b>	<b>160</b>	<b>162</b>	<b>165</b>	<b>168</b>	<b>171</b>
Kipevu cycle	Cost	2,649			824	882	943
	KENGEN	577			577		
	<b>Deficit</b>	<b>2,072</b>			<b>247</b>	<b>882</b>	<b>943</b>



### 1.1.5 Reforms

The electric power sub-sector has been largely government owned through its energy parastatals. Additionally, the electric power sub-sector by its very nature is highly capital intensive and its financial requirements are enormous. Consistent with its policy to restructure the economy in order to enhance economic efficiency and harness private investment resources, the Government of Kenya commenced the reforms in the power sub-sector in 1996. The need for reform arose from the dissatisfaction over the poor performance of the sub-sector, and the inability to mobilize sufficient investment capital for conventional power sector development and expansion. The main reform initiative stressed the introduction of Independent Power Producers (IPPs), vertical unbundling of national electricity utilities (the separation of generation assets from transmission and distribution assets), and commercialization of national power company (KPLC). The objective of the reforms was to increase economic efficiency, create arm's length commercial type relationships between the sector entities, establish legal and regulatory framework to enhance efficient use of resources dedicated to the supply of electricity to the economy and to encourage private sector investment to the industry as well as allowing the industry to raise capital from new sources.

The government engaged the services of consultants for the separation of the generation function from transmission and distribution function, on respective management organization structures for the generation, transmission and distribution companies and bulk supply and retail tariffs. Electricity de France (EDF) and the Price Water House Coopers were among the consultants engaged and carried out a study on appropriate organization structures for the generation, transmission and distribution companies. The study made

recommendations on the separation of assets and organization structures for each of the two new companies.

In line with the recommendations of the preceding studies, the Government merged TRDC with KPC in 1997 to form the new KPC. Thereafter, all the public generation facilities under KPLC, TARDA and KVDA including those under construction were transferred to the new KPC. The new KPC board and senior management was appointed in 1997 while staff separation was initiated later in the year. To comply with its corporate identity, the new KPC was re-launched in October 1998 as Kenya Electricity Generating Company Limited (KenGen).

The Kenya Power and Lighting Company Limited, (KPLC) is responsible for the transmission and distribution of electricity. Electricity Regulatory Board (ERB) is already in place to license the operators in the industry and co-ordinate the now liberalized electricity sub-sector.

Taken together, privatization, deregulation, and independent power production add up to more competition for funding. Privatized utilities and the IPPs no longer need to rely on government budgeting, funding assistance or subsidies. Instead, they need to seek financing from domestic or foreign direct investment, private commercial loans, and equity investors. To attract private sector capital, electricity projects will increasingly be in competition with projects in other infrastructure and with other national and international investment opportunities. Depending on the risks involved, returns on capital invested in the industry will thus have to be high, if not higher than other opportunities if they are to attract private finance. Unless the risk reward ratio is competitive, the projects are liable to suffer low prioritization, delay or failure to materialize.

## 1.2 Statement of the Problem

The demand for electricity in the country exceeds the supply and this poses a big challenge, GOK (2002). It is estimated that only 8 % of the Kenyan population have access to electric power, which is represented by 1,162 megawatts available to the national grid. According to the KenGen business plan July 2002 to June 2007, the current electricity demand is expected to grow by 2%(23.0566 MW) annually in the next three years rising to 5%(57.6415 MW) in the long term. In addition, frequent power interruptions and shortages, and the high cost of electricity are major impediments to the social and economic development initiatives in the country.

The lack of sufficient and reliable electricity supply is attributed to inadequate infrastructure for generation, transmission and distribution. In addition, the existing distribution facilities are not well maintained. However, lack of funds is increasingly making it difficult to address these concerns.

The electric power sub-sector by its very nature is highly capital intensive and its financial requirements are enormous. Although many new projects are being formulated, most do not take off because of the difficulties in securing sufficient financing, and although investments in electrical projects are often cost effective, and offer attractive rates of return, many potential investment opportunities are overlooked or given very little consideration due to lack of capital and inability to get financing for projects, Razavi (2000). The economic costs of putting up one megawatt of power in Kenya is estimated at **kshs 216,840,000** (Hydro), **Kshs 166,920,000** (Geothermal), and **Kshs 70,200,000** (thermal medium speed diesel) 85% load factor.

In order to satisfy the rising demand and to bridge the gap between the demand and the supply of electricity to the national grid, the sub-sector plans to meet the

rising demand partly by completing the on going capacity expansion projects, commissioning new projects and revamping the existing generation, transmission and distribution facilities. This requires capital estimated at **Kshs 216,060,000,000** (Least Cost Plan), which exceeds the financing capacity of the traditional sources of funds in this sector. The financing deficit is projected to total **kshs 26,396,000, 000** by the end of 2006 financial year. For the industry to meet the plan objectives, the emerging funding problem has to be addressed. It is against the foregoing background that this study sets out to inquire into the financing problems facing the industry.

### **1.3 Objectives of the Study**

The objective of the study is to identify the major obstacles faced by the electric power sub-sector in raising funds.

### **1.4 Importance of the Study**

- To enable the policy makers identify the constraints inhibiting private financing in the electric power sub-sector and explore actions for mitigating these barriers.
- To enable the electric power sub-sector policy makers identify alternative sources of funds other than the traditional sources.
- To provide a body of knowledge to the academic community

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## CHAPTER TWO

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### 2 LITREATURE REVIEW

#### 2.1 Overview of the financing problem.

The development of Kenya's electrical power sub-sector is a prerequisite for growth in other industries. A regular, consistent power supply will do much to attract foreign investment and entice international companies to establish operations in Kenya. Unfortunately, a combination of drought and aging equipment has contributed to an irregular and sparse electricity supply in the country. This has been largely attributed to the financing constraint, which has inhibited the sub-sector's capacity to explore other sources of power apart from hydro. In addition, the power companies have not been able to retire the aged plants and equipments due to lack of capital for replacement.

The electric power sub-sector has for along time relied on the traditional sources of funds which include the government, the bilateral sources and the multilateral sources. According to Raymond (1997), the world bank provides approximately 75% of the capital for the electric power projects from multilateral sources. However, these traditional sources are gradually shifting financial support to social programs such as poverty eradication, education and health reason being that the power sub-sector is commercialized and should attract commercial funding from other sources. This declining financial support from the multilateral source poses a threat to investment program of the power sub-sector companies.

The highly capital intensive electric power sub-sector in many countries has had to rely on the government funding. Although electricity supply remains

essentially a public service, the view that the government must exclusively own, operate and finance it is no longer regarded as sacred, Adeoye (1999). Driven by fiscal and financial constraints as well as the unwillingness of the government to continue supporting the power sub-sector investment, both in the developed and developing nations, has led the state owned companies, which have traditionally financed their project through government budget or official sponsored borrowing to turn to commercial sources of finance in an attempt to bridge the financing gap.

Financing the electric power-sub sector involves matching the needs of the government, power sector entities, investors and shareholders each of which want something different from others. The issue is how to match these varying perspectives to finance the entire industry which must perform and co-ordinate a series of functions including generation, transmission, distribution and supporting activities from initial planning through daily operations. Reconciling divergent concerns is not easy and these differences make electric power financing difficult, World Bank (1999), for example, Japanese Bank has suspended disbursement of funds to the Sondu Miriu hydropower Project because of the campaign against the project by the environmentalist and according to the least cost power development plan, 2003, a long delay is expected in the Sondu Miriu 60mw project, which was to be completed in October 2004, but it is now expected to be complete around mid 2006, if funding problems being experienced are resolved soon.

Most of the difficulties of electric power financing have special force in relation to the least developed countries. Two billion people in the developing world are yet to be reached by commercial energy and there is little prospect of this occurring unless fundamental measures are implemented and the financial constraint addressed. Although Africa is impressively endowed with energy resources, the development of commercial electric power is constrained by the generally poor

state of economic development, inadequate infrastructure, external indebtedness, inadequate local financing capacity, political and civil unrest. Africa with 13% of the world population currently consumes only 3% of its commercial energy, World energy (1999).

The main deterrent to private sector participation in financing the electric power sub-sector in Africa is project risk, which is normally classified under commercial and political risk. Commercial risk include cost overruns, completion delays, increased financial costs and shortfalls in project revenues caused by uncertain sales and prices, unsatisfactory plant performance, and excessive maintenance costs. Political risks include explorations of assets, civil unrest, and changes in regulatory regimes and foreign exchange convertibility. According to World Bank (1999), another dimension to political risk that is more difficult to handle is the lack of a well established legal, institutional, and regulatory systems and policies which makes it possible for government to take unpredictable actions that substantially affect costs and revenue streams. This risk is the biggest deterrent to private investment in the sector in developing countries.

Africa's potential to attract mainstream financing has traditionally been inhibited by poor economic performance, weak governance and high levels of political risks perceived by prospective commercial investors. For larger and more commercially viable electric power projects, Africa has been only marginally successful in attracting financing and investment over the last decade, because of risks both real and perceived such as ceilings on currency convertibility and a dearth of local financing capacity, Kevin (2000).

## 2.2 An evaluation of how the electric power sub-sector in other countries is financed.

Most methods of power sub-sector financing in the countries of Northeast Asia are innovative. Countries in the region draw upon resources of emerging markets, private finance and private investment, Razavi (2002).

### *China*

Until 1980, the power sub-sector in China was completely owned by the national government. In early 1980s the government recognized that the huge investment requirements of the sub-sector could no longer be funded from government sources. Since then a series of institutional and policy reforms were introduced to make the sub-sector increasingly self-sufficient in financing its investments. These reforms had three objectives:

- To let the enterprise take responsibility for their financial performance and their ability to fund their investments.
- Require the consumers to pay prices, which cover the cost of power supply and provide funds for required investments.
- Facilitate investment and financing from private (internal and foreign) sources

The reforms began by giving the power enterprises responsibility for funding their investments and treating government support as loans rather than grants. The institutional reforms also included establishing 30 provincial power companies in 30 provinces of China as well as the formal opening of the power sector to private companies. These reforms have been successful and have advanced self-sufficiency of power companies in mobilizing and utilizing investment funds. China power International Company (CPIC) finances the power sector by floating public power plant assets in international stock markets,



issuing corporate bonds and establishing power development funds. The permitted forms of investments in China includes, BOT (Build-Operate-Transfer), a form of limited recourse project financing where the government or semi-government entity grants a concession to a wholly foreign invested company to undertake the financing, construction and operation of a power plant. This concession is for a fixed period of time at the end of which the foreign venture transfers back the operating rights to the state entity. Other methods of financing includes the use of export credits, preferential loans, and/or multilateral loans/ guarantees, bond or share issuance abroad as well as foreign capital, debt, equity investment. The institutional and policy reforms in the power sub-sector have resulted in fundamental change in responsibility for funding investment requirement. The share of central government financing, which was more than 90% until the early 1980s, has now declined to less than 6%. However, the most important development is that the tariff mechanism is set to provide the long-term source of funds for investments in the sector.

### ***Japan***

Razavi (2002), in Japan, the power sub-sector is dominated by 10 private companies each having a monopoly in its own jurisdiction of the IPPs in the sub-sector. An amendment to the Electricity Law was enacted in January 1996 to permit participation of the IPPs to increase competition in an otherwise monopolistic industry. The IPPs bidders are all Japanese firms whose annual investment is estimated at \$24.5 Billion. The power sub-sector investments are almost fully funded by Japanese financial resources. Power companies contribute substantial internal cash to funding of investments and borrow to meet financing deficits. About 92% of these funds are borrowed from Japanese sources, and the rest is borrowed from external markets, most in the form of bonds issued in the United States and European capital markets. The most important features are the Japanese dependence on domestic capital resources and the eventual coverage of all capital costs through consumer prices. These features constitute

the foundation of sustainable financing. The Japanese case is by and large an ideal model of investment finance where private sector participation is fully embedded in the system, funding of capital expenditures is based on domestic financial resources, and consumer prices are sufficiently high to recover all the capital, as well as operating costs.

### ***Pakistan's Energy***

According to Power Technology (1998), Pakistan's energy power strategy is to encourage thermal independent power producers (IPPs), to undertake selected hydropower projects nationally. In this way, they attract managerial and operational skills as well as financing from the private sector, whilst developing the most economically viable hydro projects in an environmentally acceptable manner.

### ***South Africa***

South Africa, the continent's biggest economy, with its biggest utilities led by the ambitious power giant Eskom shows what can be done by mobilizing capital markets. A clutch of Euro-rand facilities has been sold outside Africa by South African sub-national entity, Eskom. Eskom tapped for 30 year Euro- Rand-Zero-coupon issues worth 8 billion rands between May 1997 and Mid-1999 all of which Standard & Poors assigned a BBB+ long-term rating. Offshore financing facilities are available from many commercial sources and South Africa possess a thriving domestic capital market which makes it possible for the entity to raise funds from the domestic capital market. Export credit agencies from most countries are on cover, making multilateral finance unnecessary, for most part.

### ***Tanzania***

Less than 10% of Tanzania's population have access to electricity. The government has planned a program to increase its electricity generation capacity by about 1,800 MW from several sources. The total project costs is estimated to

be U.S.\$ 375 Million, with funding provided by Ocelot Energy (US\$ 50Million), Trans-Canada Pipelines (US\$ 50Million), The World Bank (US \$200 Million), the European Investment Bank (US\$ 37 Million) and the Common Wealth, Mbendi (2003).

### ***Uganda***

There is an acute shortage of electricity in Uganda for which private investment is being sought. Less than 6% of the estimated 22Million population are connected to the national power grid, Mbendi (2003). The IFC and the World Bank have been critical of the government's commitment to power sector reform, but pilot initiatives for rural supply may require significant private sector participation. A number of energy projects are due to come up to bridge the gap between the country's existing supply of 186MW and the estimated demand of 400MW. There is progress on the two largest hydropower projects at Bujagali Falls and Karuma Falls for which funding is being sourced from the World Bank, the IFC, and IDA.

### ***Lessons Learnt***

Lessons learnt from the financing structure and financing practices of the power sub-sector in Japan is the dependence on domestic capital resources and the eventual coverage of all capital costs through consumer prices. These features constitute the foundation of sustainable financing. Pakistanis electric power capitalizes on the strategy to encourage thermal IPPs and in the process take advantage of managerial skills, operational skills as well as financing from the private sector. From China's experience, private source of financing used includes projects finance, export credits, preferential loans and bonds. Of significant importance from the China's experience is the ability to charge consumer prices which cover the cost of supply which enables the sub-sector to fund its capital budget from its retained earnings. In Africa however, apart from South Africa which explores the potentials for private investment using the Euro bond, and its

thriving domestic capital market, the rest of the countries depend on the traditional financiers who include the multilateral lenders, bilateral lending agencies and the government funding and just like Kenya these countries are experiencing difficulties funding their investment.

The multilateral financial institutions also fulfil a vital catalytic role. In Kenya unlike Japan where capital costs are covered in their consumer prices, Kenya's energy prices do not reflect the real and full costs of electric power, as the major electricity supply establishments are quasi government entities and thus receive direct or indirect subsidization. Electricity prices have an immediate bearing on the viability of energy investment. United Nations (1999), in countries where power prices are subsidized, under investment in the sector occurs. Subsidies that depress prices of electricity can provide a significant disincentive for energy investments. Kenya unlike the developed nations is not able to fully exploit its capital market, since the market is at its early stages of development and it is not yet full functioning. This limits its ability to mobilize and efficiently allocate both domestic and international capital or savings. Existence of unfavorable economic, political and regulatory conditions coupled with inadequate institutional infrastructure inhibits capital formation. The fundamental issue is how to expand total private investment in the country with electric power sub-sector receiving an appropriate and a feasible share.

#### *Bilateral Agencies*

Bilateral capital funding often involves government-to-government support for infrastructure projects. While the loans and grants may be from one government to another, in practice they are then lent on to specific power developments. All Organizations for Economic Co-operation and Development (OECD) countries have set up agencies that provide financial and technical assistance to developing countries. These agencies provide grants and concessional loans to support general import requirement or specific programs and projects. The largest contributors to bilateral development assistance are Japan, the United States, France and Germany. Among other OECD countries, Canada, the United

## **2.3 Possible sources of financing for the power sub-sector**

### ***Multilateral Banks***

These banks are international organizations formed by governments to fund development. The multilateral financial institutions also fulfil a vital catalytic role, far exceeding the value of their direct financing or co-financing support, Business Council for Sustainable Energy (1999). Once a multilateral bank supports a power sector development, it becomes far easier to obtain private funding even for the uncovered portion of the financing. This includes the World Bank Group, which includes the International Bank for Reconstruction and Development (IBRD), commonly referred to as the "World Bank", the International Development Association (IDA), the International Finance Corporation (IFC), and the multilateral Investment Guarantee Agency. The World Bank requires a government guarantee for repayment of its loan. Thus, its loans are normally made to governments and government facilities. The World Bank assist private sector financing of projects through financing of public sector shares in joint ventures through its guarantee instruments. In certain cases, arrangements are made for the World Bank loans to support private investments through government affiliated intermediaries.

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Kingdom, Italy, Finland, Norway, Netherlands, Sweden, Switzerland, Belgium, Denmark, Australia, and Austria make significant contributions. A few non-OECD countries includes Kuwait, Saudi Arabia, Abu Dhabi and Korea, and have export credit and support facilities such as India and Brazil. Other bilateral funding may be direct loans to private companies from official export credit agencies. Export credits should usually be viewed as supplements to larger financing packages, filling gaps in financing or assuming risks best covered by government agencies. These agencies provide a special form of direct bilateral loan made with a small initiation fee for a specific power industry development. The loan usually bears no interest, is amortized over a long period, and may allow a grace period before repayment, which may be in a lump sum.

#### *Foreign Direct Investment*

**Official Grants** investment may be used for specific projects, such as power

Both multilateral and bilateral agencies provide grants in addition to other loan programs. Since grants are typically for a smaller amount than loans, they are not a large source of power sector finance. Grants are legally binding commitments, which obligate a specific value of funds and require no repayment. In the power sub-sector, they are usually used as seed capital to perform feasibility studies or strengthen capacity to execute power developments.

#### **Sovereign Finance**

Sovereign finance is capital supplied by the host government of the country where the power development is located. This is normally the case for projects owned and operated by parastatals, whether they are in generation, transmission, or distribution. The host government may raise capital by borrowing or obtaining it from taxes. In many cases, because the government subsidizes electric rates, power company revenues are not adequate to cover annual charges associated with capital investment. In other cases, it may borrow or receive grants from multilateral or bilateral organizations. A special role of sovereign finance occurs when a government guarantees commercial loans. This

put the risk of succession on the government yet assures adequate industry finance.

### ***Self Finance***

Self-finance is reinvestment of internal funds earned through operations. For example, a private utility seeking to finance and build a power plant would pay for part of it through retained earnings. Self-finance is usually an important part of the complete financing package for an electric power project. The World Bank generally seeks self-finance in the range of 25 to 35 percent of the capital cost for the projects that it supports.

### ***Foreign Direct Investment.***

Foreign direct investment may be used for specific projects, such as power plants, or for entire power systems. It can take the form of equity capital, reinvestment of earnings, or other long-or-short term capital commitments, wholly-owned foreign ventures, equity joint ventures and build-operate-own (BOO), Allen Blackman (1998). Foreign direct investment usually involves some degree of control in operations and management interest in the power development by the investor. Independent power producers (IPPs) offer new opportunities for foreign direct investment in the electric power projects. Foreign direct investment is not only attractive as a source of fund, it also has the potential to enhance energy efficiency by expediting the transfer of advanced generating technologies and management techniques by introducing competition into a sector that has always been in the control of the of state.

### ***Debt Financing***

In debt financing, money can be borrowed from external sources, either through the capital markets (bonds, debentures) or as direct loans at a fixed cost of capital. Another important instrument for international borrowing is the Euro bond, which is underwritten by an international syndicate of banks and other

security firms and sold exclusively in countries other than the country in whose currency the issue is denominated. Since the early 1990s, energy companies of developing countries have tapped these markets by private placements and, in a few cases by public issuance of bonds. Offshore bond issuers need to demonstrate the investment grade credit status that provides confidence in repayment for mainly institutional lenders, which are quite choosy about the risks they run. From this angle, few African energy projects are able to qualify, although an increase in the volumes of project bonds would fill a financing gap that exists as a result of commercial banks reluctance to lend in significant amounts beyond seven or eight years.

Full non-recourse debt financing is generally an expeditious and flexible method of raising capital for financing strong utilities. It is available to international borrowers with excellent credit histories, good economic prospects, and where the host country has adequate currency reserves. Full recourse financing is most often used by a strong entity that builds, owns, and operates the power plant or system. In these cases, no discrete revenue source can be applied to repayment of financing the project. The lender supplies funds as a general obligation of the borrower, which may be the utility and or host government. The lender looks solely to the overall operating revenues and assets of the borrower for repayment. Lenders are granted liens on major pieces of equipment or other assets, which they may attach if payments are not made.

### ***Project Finance***

This is a form of medium term borrowing that has been developed for a particular purpose. The underlying idea behind this type of finance is that the security against which the funds are advanced is the project rather than the standing or potential of the borrower, or an asset of the business. J.M. Samuel's, F.M. Wilkers and R.E. Brayshaws, (1995). Project financing is defined as where the source of the repayment is the expected revenue from the project and does



not rely on the credit of the sponsors or the underlying value of the project assets. Project financing lenders are generally willing to take term risk. They are willing to accept that payments may be delayed or may not be on a strictly contractual schedule. However, what project financing lenders are unwilling to accept is the principal risk, the risk that because of the project structure or the industry characteristics, there is a real potential that they may not be repaid at all.

Project finance has been used to finance energy explorations and utility power plants. The project sponsors contribute equity, Eugene and Gapenski (1996). The assets and cash-flow of the project itself secure debt, not the sponsors other available resources. Since the repayment of the loan is primarily dependent on the success of the project, lenders pay close attention to project risks. In terms of raising project finance, the African market is now relatively well positioned. Project finance is being used to build power plants in many countries, it involves setting up an independent entity to serve as the builder, owner, and or operator of the power facility, John Besant- Jones (1996). The intent is to create revenue generating project entity that operates profitably under market economy conditions and has no interference from the host country. A portion of the revenue stream from the project is then dedicated to repaying the debt. Project finance is often a preferred method for the power sector, by spreading risks to parties who are willing and able to assume them, and by requiring thorough development and documentation of the transaction, project finance can be less risky to financial institutions, utilities, and governments.

In any project financing, the political risks are a wider concern because there are not only areas where political actions or events could endanger loan repayment and recovery, but there are also many political risk areas where the government, municipalities and their various agencies are either directly or indirectly involved in the project, or atleast have an interest in the project. Projects finance vendors

charge high interest of at least 10% to cushion themselves against commercial and political risks. The International Finance Corporation (IFC), a unit of the world bank dealing with private sector funding, is one of the major sources of project finance.

### ***Lease Financing***

Leasing of equipment is an attractive alternative for many high technology items that are subject to rapid and unpredictable technological obsolescence. Eugene. F. Brigham and Louis C. Gapenski (1976). For some equipment, the financing is intermediate term in nature, however, the big financing of aircraft and power plants are long term, James C. Van Horne (1997). Leasing is an important financing structure that is comparable to borrowing money, it allows the user of a leased asset to avoid using capital up-front to acquire the asset. A typical structure for leasing equipment is the finance lease also referred to as the capital lease or installment purchase agreement. Under finance lease, repayments for upto 100% of the equipment and or project costs are spread out over the lease term. However, leasing remains largely untapped as a source of financing for the electric power projects.

### ***Equity Investment***

Equity can be raised on international capital markets by public offering of the shares of the company or through private placement of the shares of the company or through private placement of shares with institutional investors. Public offering of equity shares requires approval from relevant authorities.

Equity investment is an important part of most private sector involvement. These investments are made by local investors, foreign direct investors, and portfolio investors and managers, including equity funds. Passive investment in the power sector of developing countries is increasingly taking place through equity funds and public offering of stock. For example, one Chinese utility raises capital from

the United States capital markets by issuing securities on the New York Stock Exchange. International portfolio equity investments are made when investors from one country have access to equity markets in another country offering stock liquidity. Large institutional investors such as closed-end country funds, insurance companies and pension funds in developed countries have been the largest sources of international portfolio equity investment. Recently, mutual funds in developing countries have emerged which specialize in developing and transitional country equity markets. The rapid growth in available investment funds in the United States in particular has created a large flow of portfolio capital to developing and transitional countries. Many of these investment funds exist for the sole purpose of investing in developing countries and some even specialize in electric power projects. Power projects receiving funds from portfolio equity investors tend to be privatized electric power systems or parts of longer power systems. Individual power plants receive less portfolio equity, due to investor preference for firms with proven records of accomplishment. (1997)

### ***Export Credits***

The electric power-sub sector can also use export credit financing. Export credits is a financing arrangement which allows a foreign buyer of exported goods and or services to defer payment over a period of time, but the expression is often used also for insurance or guarantee. Export credits are generally divided into short-term (under two years), medium term (two to five years) and long-term (over five years). Export credits can be backed by government support which can take the form of direct credits, refinancing, interest rate support, aid financing, export credit insurance and guarantees. Insurance and financing by export credit agencies, both state and privately owned, play a key role in supporting trade and investments into developing nations which may not have materialized without backing. Export Credit Agencies (ECAs) are called upon by exporters and project developers and contractors when there is a high level of political risk involved. Kevin (2000), in developing countries, the support of export credit agencies is

often crucial to the encouragement of international trade. Their effect is felt not only in the area of short-term financing, providing insurance coverage for export and import credits, but also in the field of medium-and long term financing in which repayments on commercial bank loans are spread over several years. In this case, ECAs generally support bank financing for capital goods through buyer or suppliers credit guarantee facilities.

Methods and sources for financing electric energy projects have changed significantly during the last 10 years. The changes which are expected to continue in the foreseeable future are due to two fundamental factors. First, the structural changes in the energy sector have resulted in greater role by private companies in the ownership and management of the sectors, and thereby affected the manner in which they would fund the required investments. Second, financial markets have significantly changed to provide a variety of instruments and a broader access to investment funds within a global context. Razavi (1997), The new methods of finance draw upon a much wider source of funds for both equity and debt finance. On the equity side, the major additional volumes come from private sector through;

- Allowing independent power producers (IPPs) to invest in electricity generating facilities.
- Providing opportunity for industrial co-generators to provide more power than their own needs.
- Floating the shares of public utilities on the domestic or international stock markets.

The new methods of funding electric energy projects involve two distinct variations from the past. First, many of state companies now go to private capital markets (both domestic and abroad) to borrow funds. Often they do not offer government guarantee, they borrow on the account of the company or even the

proposed project. Second, private companies, which have entered the sub-sector, provide equity funds and borrow from private lenders. The sources of funds still include the same general categories, which includes domestic capital markets, foreign capital markets, multilateral and bilateral financiers. In the domestic capital markets, the emergence of bond markets and the direct participation of insurance and pension funds in financing investments have reduced the role of commercial banks. In the international capital markets, commercial banks continue their active involvement in investment financing while the bond markets has become also an important source of funds.

### 3.2 Population

The target population of the study comprised of all the six players in the sub-sector, which included five generating companies and the sole electricity transmission and distribution company. However, one of the IPPs, a generating company did not respond.

### 3.3 Sampling

Due to the small size of the population, sampling was not necessary. The questionnaires were circulated to all the six players in the sub-sectors. However, one of the players, an IPPs did not respond.

### 3.4 Data Collection

Primary data was collected from each company using the questionnaire attached in appendix I. Data was collected through interviews using both open-ended and close-ended questions. The open-ended questions were intended to elicit

## **CHAPTER THREE**

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### **3. RESEARCH METHODOLOGY**

#### **3.1 Research Design**

The research was exploratory in nature and investigated the extent of the financing problem in the electric power sub-sector. The research was conducted through a survey of the five out of the six players.

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qualitative responses about respondent's views of the industry's financing problem. Telephonic enquiry and face to face meetings were used to get more information and clarifications. The respondents were the Chief Finance Officers of each of the companies.

### **3.4 Data Analysis**

The data collected was edited for accuracy, uniformity, consistency and completeness and then arranged to enable coding and tabulation before final analysis. Descriptive statistics were used to analyze data by way of percentages, proportions, tables and graphs.

#### **4.1 Sources of funds**

The sources of funds for the two state owned entities, KenGen and KPLC are:

- Multilateral sources
- Bilateral sources
- Kenya Government
- Self Finance

On the other hand, the independent power producers including Ibara Africa, Or-Power and Tsave power companies heavily rely on:

- Equity investments
- Loans
- Self finance

KenGen and KPLC enjoy the financial support from the multilateral and bilateral developing agencies on the guarantee of the Kenya government. The two entities also receive funding from the government in form of equity and grants.

## CHAPTER FOUR

### 4. DATA ANALYSIS AND FINDINGS

Responses to the questionnaire are recorded in appendices II. From the findings of the study, it was established that the sub-sector's two main entities, KenGen which contributes 82% of the effective generating capacity to the national grid and KPLC, the sole electricity transmission and distribution company are experiencing serious financial constraints in funding their capital budget. The two entities are also facing difficulties in attracting funds. The following is a discussion of the findings on the various financing issues facing the electric power sub-sector.

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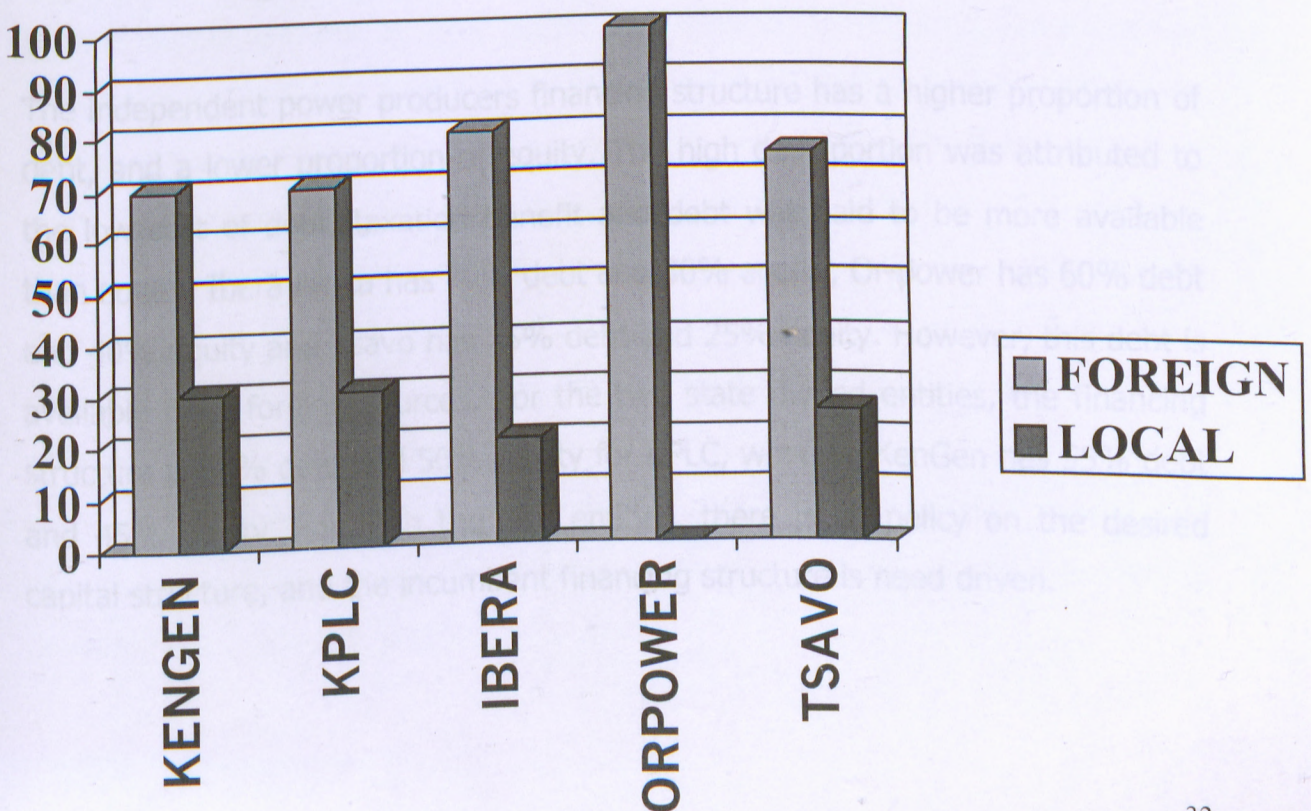


They also self-finance their capital budget from their retained earnings. On the other hand, the IPPs finance their capital budget from equity investments, loans from international capital markets and self-finance from their retained earnings.

#### 4.2 Foreign vs local portion of funds

For the two state owned entities, the foreign portion constitute 70% which they raise from multilateral and bilateral sources in form of loans guaranteed by the government, 30% of the funds is sourced locally, in form of self finance and grants from the government. As a lending condition by the multilateral financial institutions, the entity has to finance 30% of any given project. For the IPPs, the proportion of the local funds and the foreign portion differs. Ibera Africa has 20% local and 80% foreign; Tsavo Power has 25% local and 75% foreign whereas Or- power has 100% foreign.

**Graph I.....Foreign vs local portion of funds in percentage**

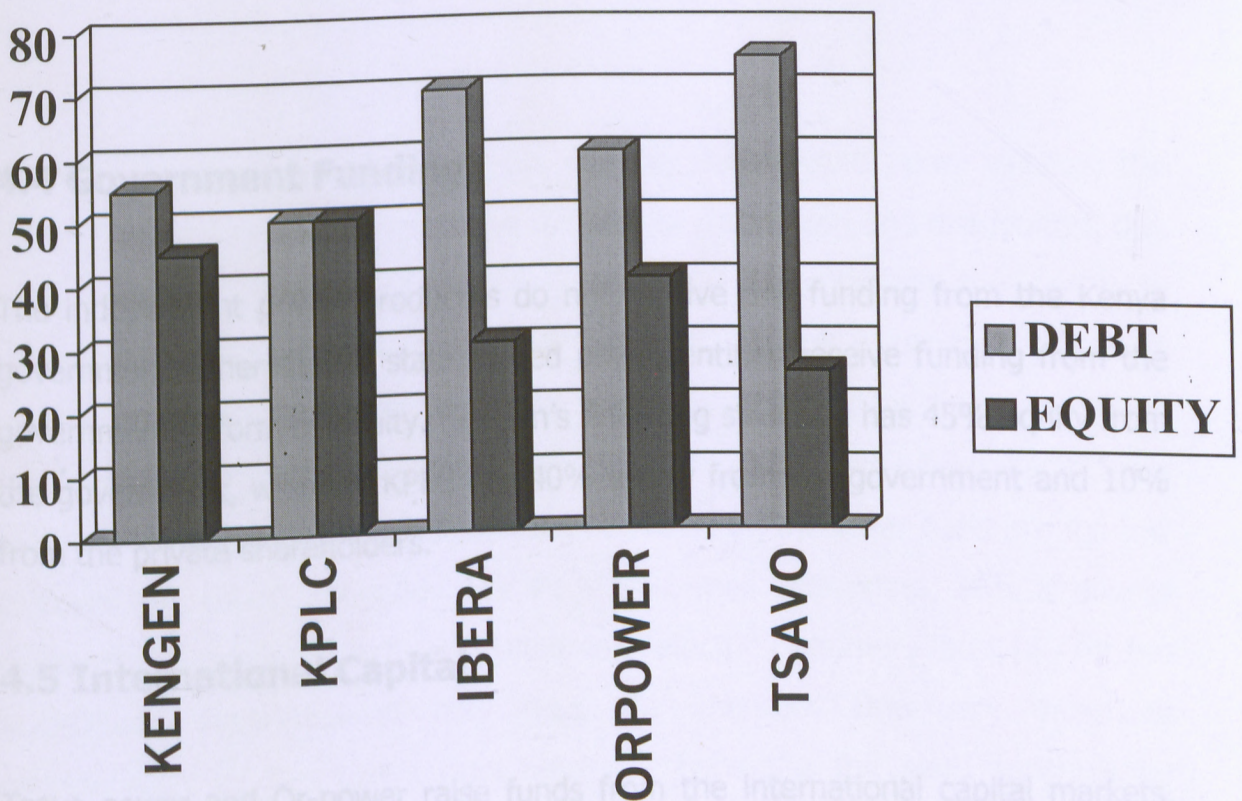


From the two sets of players in the sub-sector, the lower local portion is attributed to the unavailability of funds in the local capital markets, high costs of finance, lack of a well established legal and regulatory framework and the high political and commercial risks. The government if interested in attracting investment in the sub-sector will have to remove domestic institutional barriers such as power theft, fraudulent billing, unconducive business and cultural practices aggravated by corruption, lack of management expertise, excessive government interference in the management of the power utilities as well as the increasing political and commercial risks.

Local capital accumulation may prove difficult especially in Kenya where the country does not satisfy investors criteria for a stable economy, market transparency, a well founded legal framework that includes safeguard of property rights, properly regulated financial markets, and an appropriate balance of risk and reward. The inability of the tariff levied to accommodate the entire cost was cited as one of the reasons for the lower local portion by KenGen.

### **4.3 Financing structure**

The independent power producers financing structure has a higher proportion of debt, and a lower proportion of equity. The high debt portion was attributed to the low cost of debt, taxation benefit and debt was said to be more available than equity. Ibera Africa has 70% debt and 30% equity; Or-power has 60% debt and 40% equity and Tsavo has 75% debt and 25% equity. However, this debt is available from foreign sources. For the two state owned entities, the financing structure is 50% debt and 50% equity for KPLC, whereas KenGen has 55% debt and 45% equity. For both the two entities, there is no policy on the desired capital structure, and the incumbent financing structure is need driven.



**Graph II .....Debt to Equity mix in percentage**

Equity investors generally want a high rate of return, typically greatly exceeding multilateral and bilateral aid costs, and are willing to bear some risk of loss of capital. Debt investors want to preserve principal and earn interest commensurate with risk at rates higher than traditionally required. Private power companies typically use a mixture of debt and equity, including their own equity capital, domestic equity and debt, equity funds from foreign direct investment or portfolio investments, and long international debt. In Kenya, as the need for capital outstrips available official development assistance, the state owned entities have sought to expand their financing sources, the main shift are from government to private financing, investment equity and full recourse debt. Kenya generally faces a unique set of economic and political risks, and several barriers such as the inability of the government to provide the political, social and economic security necessary for investor confidence, and this result in barriers to development in the sub-sector.

#### **4.4 Government Funding**

The independent power producers do not receive any funding from the Kenya government, whereas the state owned power entities receive funding from the government in form of equity. KenGen's financing structure has 45% equity from the government, whereas KPLC has 40% equity from the government and 10% from the private shareholders.

#### **4.5 International Capital**

Tsavo power and Or-power raise funds from the international capital markets, one in form of long-term loans and the other lists shares. The two state owned entities have never tried to raise capital from the international capital markets reason being that the companies are not yet rated and even if they were, the companies may not qualify due to political, economic and commercial risks attributed to the two state owned power entities and to the country as a whole. The country does not yet have an appropriate yield curve for bonds suitable for investment in the sub-sector.

#### **4.6 Tariffs**

For the independent power producers, the current tariffs are sufficient to cover the full cost of production. As a business, the private utility's fundamental requirement to obtaining financing is a viable revenue stream to cover costs, thereby earning investors an attractive rate of return. Investors look to the credibility of the customers' base to produce revenue and to the ability of management to control costs. The tariffs are negotiated at the time the contract is initiated and includes the capacity charge as well as the variable production cost. For the IPPs, the tariff has to be sufficient to cover the full cost of

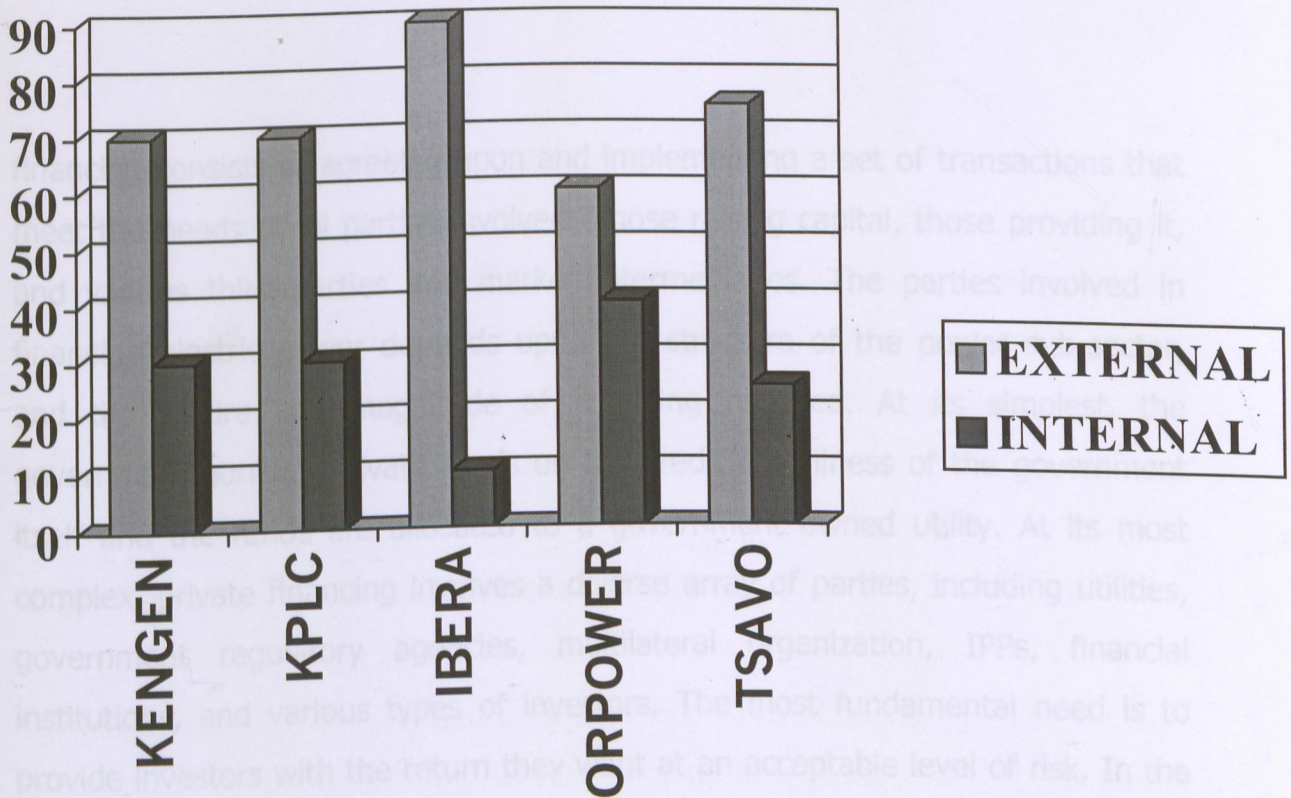
production before the plant is set-up. For the state owned power entities, the tariffs are not sufficient to cover the full cost of production and distribution, due to government interference, which have opted to subsidize the tariffs to consumers. The tariffs are therefore lower than the cost of production incases where electricity is purchased from the independent power producers. Although the tariffs are higher than the costs of production in the case where electricity is purchased from KenGen, KenGen's tariffs to KPLC on the other hand are too low to cover the cost of production. For the state owned enterprises, 20% of energy transmitted is recorded as losses. Ultimately, electric customers must pay for the investment, regardless of how they are financed. One very important consideration by the Kenya government is balancing the need to subsidize electric power for the poor with the need for adequate rates to create viable electric power sub-sector.

#### **4.7 External Vs Internal Financing**

KenGen finances its capital budget by borrowing 70% from external sources mainly from the multilateral and the bilateral, whereas 30% of the capital budget is financed locally mainly from retained earnings and from the government. KPLC, finances 70% of its budget from external sources which is from the multilateral and bilateral lending institutions, whereas 30% is funded locally by the government. Ibera Africa finances 90% of its capital budget from external sources in from of loans and equity from its parent company whereas 10% is raised locally on form of retained earnings.

#### **4.9 Private Financing**

Or-powers internal funds constitutes 40% of the capital budget whereas 60% is borrowed from external sources. Tsavo power raises 25% of its capital budget from internal sources whereas 75% of the funds are raised from external sources. The lower internal portion is attributed to lack of capital from local sources and little retained earnings, which are re-invested.



**Graph III.....External to internal Funds in percentage.**

#### **4.8 Trend by the Multilateral and bilateral lenders**

The current trend by the multilateral lending institutions of shifting financial assistance from the electric power sub-sector to social programs such as education and health has led to delays in procuring funds as well as delays in completing the projects within the scheduled time. There are also too many conditionalities attached by the multilateral prior to getting access to funds which have negatively impacted on the development of the sub-sector, especially on the state owned electric power sub-sector entities.

#### **4.9 Private Financing**

The electric power sub-sector utilities experience problems in attracting private finance. The GOK if interested in securing private capital, will have to remove domestic institutional barriers to agreements between parties. Obtaining private

financing consists of agreeing upon and implementing a set of transactions that meet the needs of all parties involved. Those raising capital, those providing it, and various third parties and market intermediaries. The parties involved in financing electric power depends upon the structure of the power sub-sector, and the nature and magnitude of financing required. At its simplest, the government borrows private funds on the credit worthiness of the government itself and the funds are allocated to a government owned utility. At its most complex, private financing involves a diverse array of parties, including utilities, government regulatory agencies, multilateral organization, IPPs, financial institutions, and various types of investors. The most fundamental need is to provide investors with the return they want at an acceptable level of risk. In the simple method, a financially credible government either repays the loans directly or provides sovereign guarantees for a parastatal utility. However, because of Kenya's previously intransigent political leadership, the government is not rated as credit worthy and the political risk, both real and perceived is considered too high, the government must therefore proactively mitigate political risks.

The political climate must minimize investment risks, such as changes in government, which might repudiate existing contracts. This is currently a very worrying issue for the IPPs in Kenya since the new government is not tolerant with their exorbitant charges to the sole transmission and distribution company. There has also been a lot of commercial risk perceived by the financiers due to instability and uncertainty of the sole transmission and distribution company. Political risk, inappropriate legal and regulatory frameworks, lack of adequate security for the invested finance as well as uncondusive power policies such as subsidization of tariffs and excessive government interference in setting of tariffs play a great role in inhibiting the formation of private capital. These problems have frustrated efforts towards bridging the finance gap, which therefore delay completion of the investment required, rescheduling of capital expenditure which interferes with the entities expansion plans, and the entire systems operating

efficiency is affected. In particular, private investors require that conditions in the country allow the power sub-sector to operate under normal and transparent business risks, plan for and clearly define all capital needs, operate under accepted legal framework which defines procedures for arbitration and appeal of disputes between the utility and the government, meet credit requirements, and secure significant domestic capital market support.

#### **4.10 Are the funds obtained sufficient?**

The independent power producers consider the funds obtained sufficient for their capital budget. This is because, before the generating plant is set-up, the parent company has to satisfy all the investment requirements such as ensuring that sufficient tariffs to cover the full costs of productions have been agreed upon. This is ensured by charging capacity charges to guard against any fluctuations in demand. It is after the IPPs are assured of a certain revenue stream that the firms sign the contracts and subsequently submit their financing requirements to their financiers. However, the state owned entities who are the key players in the electric power sub-sector do not consider the funds obtained enough for their capital budget. This has been largely attributed to the low tariffs, which inhibits the entities from covering their full cost of production and distribution, and also acts as a deterrent to private funding because of the real and perceived commercial risks. In addition, lack of adequate capital in the domestic capital market as well as the real and perceived political risk by the foreign financiers has also led to inadequate capital in the power sub-sector entities.

#### **4.11 Bridging the financing gap**

The power sub-sector entities plan to bridge the financing gap by borrowing loans, floating corporate bonds, joint venture arrangements (for the IPPs, joint



venture arrangements with the government), review of the tariffs to meet long-run marginal costs as well as removing of the subsidy on tariffs. The sub-sector is hopeful that the Ministry of Energy and the Electricity Regulatory Board (ERB) will review the policies and the regulatory framework to ensure efficient and speedy decision-making. The regulation of the utilities must therefore be well defined and transparent so that the utilities are free from excessive interference or intervention to a point where procurement of funds is negatively impacted. The utilities are also hopeful that with the new government, policies conducive for private capital formation will be implemented, economic and political risk will decrease and an appropriate legal and regulatory framework will be set up to safeguard the interests of the investors.

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## CHAPTER FIVE

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### 5. CONCLUSION AND RECOMMENDATIONS

#### 5.1 Conclusion

The analysis of the primary data showed that the electric power sub-sector entities especially the two state owned entities who are the key players in the sub-sector are facing difficulties in attracting funds for their capital budget. The two state owned entities are, KenGen which contributes 82% of the effective generating capacity to the national grid and the KPLC which is the sole electricity transmission and distribution company in the country. The major obstacles are largely due to political risks, economic risks, lack of a well established legal and regulatory framework, unconducive policies to foreign investment in the sub-sector such as subsidization of electricity tariffs, power theft, fraudulent billing and commercial risks mainly attributed to the adverse financial performance of the sole electricity transmission and distribution company as well as lack of sufficient capital in the domestic capital market.

KenGen and KPLC raise their funds from the multilateral and the bilateral financial institutions, self-finance and from the Government whereas the IPPs rely on equity investments, loans and self-finance. The state owned entities enjoy financial support from the multilateral and the bilateral development agencies on the guarantee of the Kenya government. However, the current trend by the multilateral lending institutions of shifting financial assistance to social programs such as education and health is intensifying the financing problem facing the sub-sector. The two state owned entities receive funding from the government in form of equity and grants. The IPPs on the other hand being

privately owned depend on the shareholder's equity, self-finance and loans from the international capital market.

The two state owned entities have never raised funds from the international capital markets reason being that the companies are not yet rated. The companies may also not qualify to international standards due to political risks, economic and commercial risks perceived in the Country. Policy decisions by the government and the power sub-sector entities are critical to obtaining private financing for the electric power sub-sector. The government must decide whether it really wants private investment in electric power sub-sector. If so, it must commit to fostering the conditions necessary to facilitate it. While this often entails difficult political decisions, if such conditions are created, the investment will follow to the extent that economic conditions permit. This involves considerations for the government that go beyond the power sub-sector. The government must therefore facilitate institutional and economic conditions favorable for private investment and ensure that bilateral and multilateral funding sources are available where needed to supplement private finance.

*attracting private investment in the two state owned entities.*

A wide variety of financing mechanisms are available to access capital, and this makes it more likely that given the right conditions to attract capital, a funding package can be developed to meet the power sub-sector needs. The selected financing mix can be complex, depending on the type of entity raising funds. Projects with less risk can use a broad blend of financing methods, rather than focusing on a single method and capital source. In Kenya, as the needs for capital outstrips available official development assistance, the entities raising capital have to expand their financing sources. Specific conditions may inhibit fulfilling all the power sub-sector needs. The government currently does not provide the political, social and economic security necessary for investor confidence, and this result in barriers to development and because of this, investors will not always provide adequate capital. The GOK must not only

commit to support private investments but such investments must be politically feasible and credible to investors.

Risk levels directly affect the cost of capital, and, in turn, risk depends on many factors. For all the sub-sector entities, the foreign proportion of funds is higher than the local portion. This is due to inadequate capital in the domestic capital market and the high cost of finance. Even when adequate international funds are available, not enough capital is available in domestic markets to ensure complete development. Domestic capital must be available to collateralize international private finance and provide reasonable terms on the international portion of an investment. Significant levels of domestic capital must continue to be invested in the sub-sector.

Subsidized tariffs by the government have adversely affected the financial performance of KPLC and KenGen. Tariffs levied by the two entities are not sufficient to cover the full cost of production and distribution, and the impact is that the two companies cannot generate sufficient retained earnings to finance their capital budget. The subsidized tariffs have also been a major deterrent to attracting private investment in the two state owned entities.

On the way forward, the sub-sector entities intend to bridge the financing gap by borrowing loans, floating corporate bonds and having joint venture arrangements. KenGen and KPLC are hopeful that the government will review the tariffs and remove the subsidy so that the tariffs charged will absorb the full cost of production and distribution.

## 5.2 Recommendations

Risk levels directly affect the cost of capital, and, in turn, risk depends on many factors such as economic growth, political stability, and government commitment to free markets rather than subsidized sub-sector. These factors are barriers to investment in the electric power sub-sector. To overcome these barriers, the government must do the following:

- Facilitate a financially independent electric power sub-sector. Entities must be take lead in developing the sub-sector. The government must support these power development entities by creating appropriate financial and regulatory policies and communicating them at the market place. Such policies may include eliminating price and interest rate controls. The government must commit policies that support improvements in the legal, banking, credit rating, financial regulatory and accounting systems. The government must be encouraged to set policies that eliminate power theft and reduce system losses, and to train utilities to set economically viable prices.
- Educate electric utilities on how to create commercially viable utility business. Educational programs for entities raising capital should also cover how to tap into international capital markets. The Bretton Woods Institutions should communicate timely and accurate data about Kenya's economic, social, and political conditions along with information about the country's electric power sub-sector development needs. This would increase international investor focus on the sub-sector.
- Support multilateral lending to Kenya for privatization of electric power. In addition, to directly providing seed funding for specific projects, properly directed multilateral aid both enhances economic and political stability and

supports privatization efforts. This enhanced economic and political stability, which results from such multilateral assistance, encourages private capital formation. With dwindling official development assistance and increasing needs that must be met by private capital markets, better co-ordination of funding efforts will benefit all.

- Enhance programs to support sound economic principles in the electric power sub-sector. Bilateral aid provides seed funding which supplements and encourages but does not compete with private capital. In addition, conditions tied to bilateral aid can promote policy reform and institutional development. Appropriate bilateral technical assistance may encourage the government to support a commercially viable, financially independent electric power sub-sector. Therefore, bilateral aid should continue to be offered wherever it is suitable.
- Develop programs to bring together key players with differing perspectives on financing. These programs may include conferences, trade missions related to financing and meetings. Varying energy policies and private capital available suggest the need for more communication, exchange of ideas, and rationalization of policy. Information interchange can help mitigate the differences and simulate creativity and thus increase the total number of power projects that will be financed. Such communication activities might be coordinated with bilateral and multilateral organizations that also have a stake in reconciling the varying perspectives.
- Policies fostering domestic financial and capital market development should be formulated. Active and healthy financial and capital markets need to be developed for further advancement of the Kenyan economy. Towards this end, market oriented policies which promote domestic savings and expand domestic investor base should be pursued. The policy makers should consider

establishing a legal and regulatory framework which fosters disclosure and competition based on market conditions, and clearly defines the rules of various institutions, taking actions which promote both the demand for, and supply of, assets for investments, especially institutional investment, educating the public about saving options and necessary points for consideration, and enabling expertise and developing human resources. Regulatory and supervisory policies should be pursued to ensure fairness, efficiency and investor protection in the markets.

- Policy changes must end subsidies on tariffs so that markets can determine prices since investors require long-term electricity price stability. The resulting difference in electricity prices between subsidized rates and market clearing returns can create political difficulties for investors. Unfortunately, at the moment, the tariffs levied by KPLC and KenGen are not sufficient to shoulder the high costs and rates of return expected by private investors, thus creating a barrier to many investment opportunities in electric power in the country.
- Mobilizing resources for infrastructure development need to be addressed. There is a compelling need to mobilize private resources. In exploring areas where the private sector could play further role, such factors need to be considered; technological advancement, advancements in knowledge and experience, sensitivity to the potential macroeconomic consequences of public financing, and the efficiency and dynamism of the private sector. Private resources often have the advantage of increased efficiency. It is desirable to mobilize private resources in fields where the market mechanisms can better achieve efficient provision and operation of infrastructure. The development of financing techniques which channel private savings to investment in infrastructure is critically important; particularly noteworthy is the need to broaden and deepen domestic capital markets, in order to improve the mobilization of domestic savings and better

5. accommodate huge infrastructure investment requirements; prudent macroeconomic management and in many cases, regulatory and institutional changes are necessary to attract private investments in infrastructure development.

- The government has a responsibility for improving the domestic business environment through, inter-alia, improving infrastructure planning and coordination, establishing simplified and more transparent procedures for private sector participation, privatizing or restructuring state owned firms, promoting domestic financial markets, and providing the appropriate regulatory and legal frameworks. An improved business environment will facilitate promotion of private sector investments including foreign direct investments.
- The government has a crucial role in creating and maintaining the institutions and the framework necessary to encourage the mobilization of private domestic capital and attract international investors. Again, the key words are stability, transparency, non-discriminatory, well-founded law and regulation, independence from political intervention. Decisions on projects, in particular, approvals, permits and certification need to be taken in a timely and consistent way, using procedures and standards consistent with international practice.
- Development of the Kenyan domestic capital is necessary in order to enhance domestic capital formation. The following policy issues must be addressed: Developing long term bond markets, improving corporate governance, reinforcing regulatory and supervisory arrangements, expanding investor base, improving the equity market infrastructure and re-evaluating market volatility controlling mechanisms.



### 5.3 Limitations of the study

The respondents considered the financial data that was used in this study too sensitive especially the IPPs who were very reluctant to release actual capital budgeting data. The reason being that such decisions are made by their parent companies that are not in Kenya. The companies were also reluctant to release the actual retained earnings re-invested and the profit margin on each unit of electricity sold so as to enable the researcher access the adequacy or otherwise of the electricity tariffs.

### 5.4 Suggestions for further research

Further research is recommended where the researcher should explore why KenGen and KPLC are not able to charge a tariff which fully covers all the costs of providing electricity and leave adequate returns for the investors.

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Source of funds

Proportion of the total funds required.

Multilateral Sources

Bilateral Sources

Kenya Government

Self Finance

Bonds

Equity Investment

Project Finance

Lease Capital

Export Credits

Others(specify)

1.

2.

3.

4.

5.



3 a) What proportion of your fund is local and what proportion is foreign.

Local

Foreign

b) What would you attribute the higher proportion to? And the lower proportion?

.....

.....

.....

c) What is the composition of the local portion, and the foreign portion?

Local

1.

2.

3.

4.

5.

Foreign

1.

2.

3.

4.

5.

4 a) What is the mix of your internal financing vizaviz external financing?

Internal

External

b) What in your opinion would explain the above mix. What would explain the lower proportion, and the higher proportion?

.....

.....

.....

3 a) What proportion of your fund is local and what proportion is foreign.

Local

Foreign

b) What would you attribute the higher proportion to? And the lower proportion?

.....  
.....  
.....

c) What is the composition of the local portion, and the foreign portion?

Local

- 1.
- 2.
- 3.
- 4.
- 5.

Foreign

- 1.
- 2.
- 3.
- 4.
- 5.

4 a) What is the mix of your internal financing vizaviz external financing?

Internal

External

b) What in your opinion would explain the above mix. What would explain the lower proportion, and the higher proportion?

.....  
.....  
.....



c) What is the composition of the external financing?

1.

2.

3.

4.

5.

5) (a) What is your mix between debt and equity?

Debt

Equity

b) What would you attribute the above choices to?

.....

.....

.....

6)(a) Do you receive any funding from the government?

Yes

No

b) If yes, in what form is that government funding?. And what are the proportions?

Debt

Equity

7 (a) Have you ever tried to raise funds from the international capital markets?

Yes

No

(b) If yes, in what form( specify).

1.

2.

3.

4.

5.

(c) If not, why not?

.....  
.....  
.....

8 A) Do you consider the current tariffs sufficient to cover your full cost of production and distribution?

Yes

No

(b) If not, what in your opinion is the effect of this on:

i) Your ability to fund your investment?

.....  
.....

ii) And the ability to attract foreign investment?

.....  
.....

iii) State the reasons why the consumer prices cannot cover the full cost of production and distribution.....

.....

9 Please comment on the changes in financing electric power projects that have occurred regarding the role of multilateral financial institutions.

.....  
.....

10) What effect has this had on your ability to fund the capital budget?.....

11) Do you face any problems in trying to attract private financing?

Yes

No

12) If yes, what are these problems?

13) What is the effect of these problems on your ability to finance your capital budget?

14) Do you consider the funds obtained sufficient for your capital budget?

Yes

No

(b) If the funds are not enough and based on your past experiences, what would you attribute the deficit to?

15. How do you plan to bridge the financing gap. The gap between your capital requirements and the available capital?

16. What are your expectations for the future as far as financing the industry is concerned?

## APPENDIX II

# SUMMARY OF THE RESPONSES TO THE QUESTIONNAIRE

	<b>Kengen</b>	<b>kplc</b>	<b>Ibera-Africa</b>	<b>Or-power</b>	<b>Tsavo-Power</b>
Sources of funds	1.Multilateral 2.Bilateral 3.Government 4.Self finance	1.Multilateral 2.Bilateral 3.Government 4.Self finance	1.Loansl 2.Self finance 3.Equity	1.Multilateral 2.Self finance 3.Equity	1.Equity 2.Loans
Local Portion	30%	30%	20%		25%
Foreign Portion	70%	70%	80%	100%	75%
Internal Portion	30%	30%	10%	40%	25%
External Portio	70%	70%	90%	60%	75%
Debt portion	55%	50%	70%	60%	75%
Equity portion	45%	50%	30%	40%	25%
Government funding	Yes-Equity -Grants	Yes-Equity -Grants	NO	NO	NO
International capital markets	No	No	Yes-Loans -Equity	Yes-Equity -Loans	No
Are the tariffs sufficient	No	No	Yes	Yes	Yes
Problems in attracting private capital	Yes	Yes	Yes	Yes	No
What are the problems	1.Low tariffs 2.Political risks 3.Commercial risks 4.Unconductive policies 5.Inappropriate legal and regulatory framework	1.Low tariffs 2.Political risks 3.Commercial risks 4.Unconductive policies 5.Inappropriate legal and regulatory framework	1.Low tariffs 2.Political risks 3.Commercial risks 4.Unconductive policies 5.Inappropriate legal and regulatory framework	1.Low tariffs 2.Political risks 3.Commercial risks 4.Unconductive policies 5.Inappropriate legal and regulatory framework	1.Low tariffs 2.Political risks 3.Commercial risks 4.Unconductive policies 5.Inappropriate legal and regulatory framework

Are the funds sufficient	No	No	Yes	Yes	Yes
What is the deficit attributed to?	1.Low tariffs 2.Lack of domestic capital 3.Political risk 4.Commercial risks	1.Low tariffs 2.Lack of domestic capital 3.Political risk 4.Commercial risks			
How do you plan to bridge the financing gap	1.Joint ventures 2.Increase in tariffs 3.Corporate bonds	1.Joint ventures 2.Increase in tariffs 3.Corporate bonds			
Expectation for the future	1.Joint ventures. 2.Removal of subsidies on tariffs 3.Development of the domestic capital market	1.Joint ventures. 2.Removal of subsidies on tariffs 3.Development of the domestic capital market	1.Joint venture with the government. 2.Reduction in political risks 3.Minimal government interference	1.Joint venture with the government. 2.Reduction in political risks 3.Minimal government interference	1.Joint venture with the government. 2.Reduction in political risks 3.Minimal government interference