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PROJECT: Power Transmission System Improvement Project

COUNTRY: Kenya

PROJECT APPRAISAL REPORT

Date: October 2010

Appraisal Team	Team Leader	Mr. E. B. NZABANITA	Chief Power Engineer	ONEC.2	3081
		Mr. N. KULEMEKA	Principal Socio-Economist	ONEC.3	2336
		Mr. F. KANONDA	Senior Financial Analyst	ONEC.2	2723
		Mr. S. A. ASFAW	Energy Specialist	ETFO	6717
		Mr. E. ZELEKE,	Environmental Consultant	ONEC.3	3993
		Mr. O. C. OKOYE,	Financial Analyst	ONEC.2	3816
	Sector Manager	Mr. E. B. NZABANITA, OIC		ONEC.2	3081
	Sector Director	Ms. H. CHEIKROUHOU		ONEC	2140
Regional Director	Ms. D. GAYE		OREA	2040	
Peer Reviewers	Mr. E. NEGASH, Chief Power Engineer			ONEC.2	3931
	Mr. D. LEKOETJE, Senior Public Utilities Economist			ONEC.2	2651
	Mr. P. J. OPIO-OMODING, CPO			KEFO	6233
	Mr. A. KARANGA, Principal Economist			OITC.1	2607
	Mr. U. E. Duru, Environmentalist			ONEC.3	3817

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Currency Equivalents

As of 31 August 2010

1UA	=	1.50891 USD
1UA	=	1.18999 EURO
1UA	=	121.147 KSh

Fiscal Year

July 1st – June 30th

Weights and Measures

1 metre (m)	=	3.28 feet (ft)
1 kilometre (km)	=	0.62 mile
1 hectare (ha)	=	2.471 acres
1 Kilovolt (kV)	=	1000 volts
1 Megawatt (MW)	=	1000 kW
1 Gigawatt (GW)	=	1000 MW
1 Gigawatt hour (GWh)	=	10 ⁶ watt hour

Abbreviations

ADB or Bank	African Development Bank Group	KfW	Kreditanstalt für Wiederaufbau
ADF or Fund	African Development Fund	KJAS	Kenya Joint Assistance Strategy
AEG	Aid Effectiveness Group	KNBS	Kenya National Bureau of Statistics
AES	Aid Effectiveness Secretariat	KPLC	Kenyan Power & Lighting Company
AFD	Agence Francaise de Développement	KRU	KETRACO Resettlement Unit
CSP	Country Strategy Paper	KSh	Kenyan Shillings
DBSA	Development Bank of South Africa	KWS	Kenya Wild Life Service
EAPP	Eastern Africa Power Pool	LCPDP	Least Cost Power Development Plan
DCG	Donor Co-ordination Group	LC	Local Cost
DPF	Development Partnership Forum	MDG	Millennium Development Goals
EIB	European Investment Bank	MoE	Ministry of Energy
EIRR	Economic Internal Rate of Return	MSD	Medium Speed Diesel
EMCA	Environmental Management and Co-ordination Act	MV	Medium Voltage
ENPV	Economic Net Present Value	MTP	Medium Term Plan
ERC	Energy Regulatory Commission	NELSAP	Nile Equatorial Lakes Subsidiary Action Programme
ESIA	Environmental and Social Impact Assessment	NEMA	National Environment Management Authority
ESMP	Environmental and Social Management Plan	NGO	Non Governmental Organisation
FC	Foreign Cost	NPV	Net Present Value
FE	Foreign Exchange	O & M	Operation and Maintenance
FIRR	Financial Internal Rate of Return	p.a.	Per Annum
FNPV	Financial Net Present Value	PAP	Project Affected Person
GDC	Geothermal Development Company	PCR	Project Completion Report
GDP	Gross Domestic Product	PIT	Project Implementation Team
GoK	Government of Kenya	PPOA	Public Procurement Oversight Authority

HDI	Human Development Index	QPR	Quarterly Progress Report
ICB	International Competitive Bidding	RAP	Resettlement Action Plan
ICT	Information and Communication Technology	REA	Rural Electrification Agency
IEA	Information, Education and Communication	REP	Rural Electrification Program
IFRS	International Financial Reporting Standards	SIDA	Swedish International Development Agency
IPP	Independent Power Producer	SWAP	Sector Wide Approach
JICA	Japan International Cooperation Agency	TBD	To be determined
KARI	Kenya Agricultural Research Institute	TSDP	Transmission System Development Plan
KCAA	Kenya Civil Aviation Authority	UA	Unit of Account
KEFO	Kenya Field Office	USc	United States Cents
KENAO	Kenya National Audit Office	USD	United States Dollars
KENGEN	Kenya Electricity Generating Company Ltd.	UNFCC	United Nations Framework Convention on Climate Change
KETRACO	Kenya Electricity Transmission Company Ltd.	UNIDO	United Nations Industrial Development Organization
KFS	Kenya Forest Service	USAID	United States Agency for International Development
		VAT	Value Added Tax
		WB	World Bank

Loan Information

Client's information

BORROWER: Republic of Kenya

EXECUTING AGENCY: Ministry of Energy, Kenya.

Financing Plan

Sources of financing	Amount (UA)	Instrument
ADF	46.70	Loan
GOK	14.07	Equity
Total cost	60.77	

ADF's key financing information

Loan and grant currency	Unit of Account (UA)
Type of interest	Not applicable
Interest rate margin	Not applicable
Service charge	0.75% per annum on the amount disbursed and outstanding
Commitment charge	0.50% per annum on the undisbursed portion of the loan starting 120 days after the signing of the Loan Agreement
Other fees	Not applicable
Duration	50 years
Grace period	10 years starting from the signature date of the Agreement. Repayment : over a period of forty years on the basis of 1% annually from the eleventh year through the twentieth year of the said period and 3% per annum thereafter.
FIRR, NPV (base case)	19.9%, FNPV USD 47.33 million ¹
EIRR (base case)	19.5%, ENPV USD 77.27 million

Timeframe - Main Milestones (expected)

Concept Note approval	July 2010
Project approval	December 2010
Effectiveness	March 2011
Last Disbursement	June 2015
Completion	April 2014
Last repayment	June 2061

¹ From a Kenya Electricity Transmission Company Ltd. (KETRACO) perspective, the investment costs have not been considered in computing the FIRR and FNPV as the investment cost is financed through a Government contribution which will not be repaid by the company. The result therefore shows a relationship between the revenues and operating costs only and is not comparable to the ENPV and EIRR for which the investment costs are taken into account.

PROJECT SUMMARY

1. PROJECT OVERVIEW

The project consists of construction of a total of 431 km of 132 kV lines, the extension of six substation bays and construction of eight new 132/33 kV substations. The total project cost is estimated at UA 60.77 million and will be implemented over a 38 month period commencing in 2011. The project will result in increased and reliable power supply in the western and eastern part of Kenya and thereby contribute towards increasing the number of new connections by 200,000 annually and the increase in rural electricity penetration from the current 20% to 40% by 2020.

2. NEED ASSESSMENT

The electrification ratio in Kenya is low with only 20% of the population having access to electricity and a per capita consumption of 130 kWh against 550 kWh on average for Sub-Saharan Africa. Outside the main centres, access to electricity is much lower, 7-8%, with low reliability in some areas. There is also an additional challenge of reinforcing the power supply to already electrified areas/towns/regions aiming at least-cost technical solutions that offer a combination of increased capacity, improved reliability and better voltage control. The Government of Kenya (GoK) has translated its vision for the sector into the Energy Access Scale-Up Program under which the country will make investments in transmission infrastructure to the tune of USD 1,096 million by 2014. This project consisting of six (6) line segments is part of eighteen (18) transmission lines that were submitted to development partners for funding.

3. BANK'S ADDED VALUE

The 2008-2012 Country Strategy Paper (CSP) proposed sector support of infrastructure development, including energy, under the strategic pillar of promoting private sector development. The Bank's participation is vital for the following reasons: (i) it will assist Government finance the Energy Access Scale-Up Program which requires substantial resources that the Government does not have; (ii) it marks a significant contribution to ensuring increased electricity access rates and reliable power supply which will result in increased economic activity and better delivery of social services and hence is a significant contribution to poverty reduction and the attainment of MDGs; and (iii) the Bank has gained significant experience financing projects in the region and the project design has benefited from the application of lessons learnt.

4. KNOWLEDGE MANAGEMENT

Kenya Electricity Transmission Company Ltd (KETRACO) was created by the GoK in 2008 and will be the implementing agency. It signed a Mutual Co-operation and Provision of Technical Services Agreement with KPLC in April 2010 for the provision of trained and qualified personnel for its operations when it is unable to meet staff requirements. KPLC has sufficient experience in the implementation of transmission line and substation contracts and has adequate skills in procurement and financial management which will benefit the KETRACO staff through on the job training. Furthermore, the contract to be entered into with the contractors and consultant responsible for the construction and supervision of project will include specific provisions to ensure the training of KETRACO/KPLC engineers. This technology transfer component is particularly important for this project to improve KETRACO/KPLC's capacity on the implementation of similar projects.

Result-based Logical Framework

HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS									
<p><u>Goal:</u></p> <p>1.1 To enhance socio economic development of Kenya by increasing availability and reliability of electricity.</p>	<p><u>Impact:</u></p> <p>1.1 Improved availability of reliable and sustainable electricity for economic and social development</p> <p>1.2 High GDP growth rate maintained.</p>	<p><u>Beneficiaries:</u></p> <p>1.1 Rural and urban populations. 1.2 Economic actors (industry, tourism, agriculture, commercial sectors, etc.). 1.3 Social sectors (education, health, etc.).</p>	<p><u>Impact Indicators:</u></p> <p>1.1 Sustainable number of new customer connections. 1.2 Increase in rural electricity penetration rate. 1.3 Increase in economic growth rates. 1.4 Improved well-being of the population in Kenya.</p> <p><i>(Source & Method)</i> KPLC, KETRACO and MoE annual reports, Government Statistics and Bulletins; Electricity Tariff studies; and Human Development Report.</p>	<p><u>By 2020:</u></p> <p>1.1 An annual average of 200,000 additional customers. 1.2 Increase in rural electricity connectivity rate from 23% in 2009 to 40%. 1.3 Maintain GDP growth rate at above 10% over the period. 1.4 Increase in the Human Development Index (HDI) from 0.56 (2009) to 0.72.</p>	<p><u>Assumption statement:</u></p> <p>1.1 Government of Kenya's commitment to full implementation of the energy sector reforms and programmes. 1.2 Adequate financing of the sector by the Government, donors, development institutions and the private sector. 1.3 Political and economic stability of the country.</p>									
<p><u>Project purpose:</u></p>	<p><u>Medium term Outcomes:</u></p>	<p><u>Beneficiaries:</u></p>	<p><u>Outcome indicators:</u></p>	<p><u>Progress anticipated in the medium term:</u> <u>By December 2017:</u></p>	<p><u>Assumption statement:</u></p>									
<p>To increase supply capacity through a reduction of system losses and providing alternative electricity paths to increase reliability and improve power quality in the regions.</p>	<p>2.1 Increased availability of reliable and affordable electricity to rural consumers.</p>	<p>2.1 Industrial, commercial, agricultural and domestic consumers nationwide. 2.2 KPLC.</p>	<p>2.1 Increased power supply in the four KPLC regions. 2.2 Reduction in technical losses</p> <p><i>(Source & Method)</i> KPLC and MoE.</p>	<p>2.1 Increase in power supply</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Line</th> <th style="text-align: center;">2010</th> <th style="text-align: center;">2017</th> </tr> </thead> <tbody> <tr> <td>Ishiara-Kieni</td> <td style="text-align: center;">22MW</td> <td style="text-align: center;">41MW</td> </tr> <tr> <td>Olkaria-Narok/Sotik-Bomet</td> <td style="text-align: center;">13MW</td> <td style="text-align: center;">24MW</td> </tr> </tbody> </table>	Line	2010	2017	Ishiara-Kieni	22MW	41MW	Olkaria-Narok/Sotik-Bomet	13MW	24MW	<p>Other on-going power generation projects are successfully completed as planned.</p> <p>Electricity distribution infrastructure is developed and maintained to serve new consumers.</p>
Line	2010	2017												
Ishiara-Kieni	22MW	41MW												
Olkaria-Narok/Sotik-Bomet	13MW	24MW												

				<table border="1"> <tr> <td>Mwingi-Kitu-Wote-Sultan Hamud</td> <td>13MW</td> <td>20MW</td> </tr> <tr> <td>Nanyuki-Nyahururu</td> <td>16MW</td> <td>25MW</td> </tr> <tr> <td>Kabarnet-Lessos</td> <td>8MW</td> <td>15MW</td> </tr> </table> <p>2.2 Reduction in losses from 16.3% in 2009 to 15.7% by 2014 and 15.4% by 2017.</p>	Mwingi-Kitu-Wote-Sultan Hamud	13MW	20MW	Nanyuki-Nyahururu	16MW	25MW	Kabarnet-Lessos	8MW	15MW	
Mwingi-Kitu-Wote-Sultan Hamud	13MW	20MW												
Nanyuki-Nyahururu	16MW	25MW												
Kabarnet-Lessos	8MW	15MW												
<u>Inputs and activities:</u>	<u>Outputs:</u>	<u>Beneficiaries:</u>	<u>Output indicator:</u>	<u>Progress anticipated in the short term:</u> By December 2014:	<u>Assumption statement:</u>									
<p><u>Inputs and activities:</u></p> <p>A. Construction of transmission lines.</p> <p>B. Construction of substations.</p> <p>C. Consultant services for supervision, management and auditing.</p> <p>D. Resettlement and Compensation.</p> <p>E. Information, Education and Communication (IEC)</p> <p><u>Inputs/Resources (UA million)</u></p> <p>ADF : 46.70</p> <p>GOK : 14.07</p> <p>Total : 60.77</p>	<p><u>Outputs:</u></p> <p>3.1 132 kV transmission lines constructed.</p> <p>3.2 Substations constructed.</p> <p>3.3 Extension of bays</p> <p>3.4 Project audit reports</p> <p>3.5 All project affected persons compensated and/or relocated.</p> <p>3.6 Raised awareness of local communities in the project vicinity.</p>	<p><u>Beneficiaries:</u></p> <p>3.1 Local population employed during implementation.</p> <p>3.2 MoE/ KETRACO and KPLC.</p> <p>3.3 Contractors.</p> <p>3.4 Suppliers.</p> <p>3.5 Consulting firms.</p>	<p><u>Output indicator:</u></p> <p>3.1 Length of 132 kV Transmission line constructed.</p> <p>3.2 Number of substations constructed.</p> <p>3.3 Number of bays extended.</p> <p>3.4 Number of project audit reports produced</p> <p>3.5 Number of people compensated.</p> <p>3.6 Number of local population employed during construction</p> <p>3.7 Compliance with recommendations for ESMP and auditing requirements.</p> <p><i>(Source & Method)</i></p> <p>Project Consultants, KPLC, KETRACO, auditors, MoE and NEMA.</p>	<p><u>Progress anticipated in the short term:</u></p> <p>By 31 December 2014:</p> <p>3.1 Four hundred and thirty one (431 km) of 132 kV transmission line constructed.</p> <p>3.2. Eight (8) substations constructed</p> <p>3.3 Six (6) outgoing bays extended</p> <p>3.4 Four audit reports produced</p> <p>3.5 Compensation of PAPs per RAP.</p> <p>3.6 At least 80% of unskilled and semi-skilled jobs to go to local population within which 20% will be women.</p> <p>3.7 Project reports produced quarterly and project audit reports produced annually.</p>	<p><u>Assumption statement:</u></p> <p><i>Risk factors and conditions vital to success</i></p> <p><i>Mitigation strategy/strategies</i></p> <p>3.1 Availability of counterpart funding from GoK.</p> <p>3.2 Adequate resources made available for and timely completion of compensation and resettlement program.</p>									

**REPORT AND RECOMMENDATION OF THE MANAGEMENT OF THE ADB
GROUP TO THE BOARD OF DIRECTORS ON A PROPOSED LOAN TO KENYA
FOR THE KENYA POWER TRANSMISSION SYSTEM IMPROVEMENT
PROJECT**

Management submits the following Report and Recommendation on a proposed ADF loan for UA 46.70 million to co-finance the Kenya Power Transmission System Improvement Project.

I – STRATEGIC THRUST & RATIONALE

1.1 Project linkages with country strategy and objectives

1.1.1 The Bank’s Country Strategy Paper (CSP) for Kenya (2008-2012) seeks to support two strategic pillars; namely: (i) Infrastructure development for enhanced growth (ii) Creation of employment opportunities for poverty reduction. Under pillar I, the country will seek to address the problems of erratic electricity supply, inadequate road network and insufficient water and sewerage services. The CSP is in line with the country’s long term development strategy, Vision 2030², and its five-year Medium Term Plan (2008-2012). The development of physical infrastructure, in the Medium Term Plan (MTP) is seen as the basis for socio-economic transformation covering rural roads, water and sanitation, energy, and telecommunications. Under the MTP the focus for electricity sector is for the Government to complete a National Electricity Supply Master Plan, which will also incorporate the work of the Rural Electrification Authority. The GoK has translated its vision for the sector into the Energy Access Scale-Up Program, which is included in the CSP, with a target of 40% access by 2020; with an intermediate target to electrify one million new customers and extend electricity service to all priority loads in rural areas in the next five years.

1.1.2 This project consisting of six (6) line segments is part of eighteen (18) transmission lines that were submitted to development partners for funding under the Energy Access Scale-Up program. The project will result in the construction of 431 km of 132kV lines, the extension of six substations and the construction of eight new substations that will contribute to the capacity of Kenya to increase the number of new connections by 200,000 annually as well as the rural electricity connectivity rate from the current 23% to 40% by 2020. The project will therefore contribute to the realisation of the Energy Access Scale-Up Program, the MTP and Vision 2030 objectives of physical infrastructure development. The construction of the transmission lines and substations will result in infrastructure development in the electricity sector and thus is consistent with pillar I of the Bank’s engagement according to the CSP of infrastructure development. The project by contributing to the delivery of adequate and reliable power supply will catalyse the growth and competitiveness of the rural economy, the development of social institutions such as schools and hospitals and thus directly contributes towards the second pillar of the Banks engagement of creation of employment opportunities for poverty reduction.

² The strategic objectives of Kenya’s Vision 2030 are (i) Maintain an average growth rate of 10 percent per annum over the next 25 years; (ii) Create a just and cohesive society enjoying equitable social development in a clean and secure environment; and (iii) Realize an issues-based, people-centered, results-oriented and accountable democratic system.

1.2 *Rationale for the Bank's involvement*

1.2.1 Erratic power supply is reported as one of the most important impediments to growth by economic actors in Kenya³. The broad objective of the energy policy in Kenya is to ensure adequate, reliable and cost-effective supply of energy to meet development needs, while protecting and conserving the environment. The GoK is committed to the development of the country's power infrastructure and has introduced a number of measures and key reforms which include the following: (i) restructuring the then vertically integrated Kenya Power and Lighting Company in the 1990's from a Government monopoly by creating two companies namely Kenya Electricity Generating Company Ltd. (KenGen) responsible for generation and the Kenya Power and Lighting Company Ltd. (KPLC), responsible for transmission and distribution; (ii) approval of the Retail Electricity Tariff Review Policy (2005)⁴; (iii) establishment in 2007 of the Rural Electrification Agency (REA) to focus on rural electrification; (iv) creation in 2007 of the Energy Regulatory Commission⁵; (v) establishment in 2008 of a State owned Geothermal Development Company (GDC) in charge of geothermal resource assessments and sale of steam to future IPPs and KenGen for electricity generation; (vi) creation in 2008 of Kenya Electricity Transmission Company Ltd (KETRACO) as an investment vehicle for new transmission assets; (vii) 2009 issuance of The Draft Energy (Electricity Licensing) Regulations, which set out requirements to be fulfilled by any person desiring a license or permit authorizing the carrying out of an undertaking in generation, transmission, distribution or supply of electrical energy in Kenya; and (viii) the Feed in Tariffs Policy on geothermal, solar, wind, biomass and small hydro of April 2010.

1.2.2 The electrification ratio in Kenya is low with only 20% of the population having access to electricity and a per capita consumption of 130 kWh against 550 kWh on average for Sub-Saharan Africa⁶. As of 2009, Kenya had 1,312 MW installed capacity, consisting of generation mix of Hydro (56%), Thermal (32%) and Geothermal (12%). Under the Least Cost Power Development Plan (LCPDP) Study Period 2010-2030, the electricity demand is forecasted to grow by an average rate of 14% increasing from a capacity and energy level of 1,205MW and 7,391GWh in 2009 to 15,065MW and 92,380 GWh by 2030 respectively. There are committed power generation projects under construction providing an extra 1,450 MW by 2013; and for the period to 2030 would have added 13,370 MW comprising of 4,480 MW geothermal, 3,900 MW new coal units, 4,200 MW nuclear, 320 MW new medium speed diesel units and 270 MW of new gas turbines. The major challenge has been increasing the access rates outside the main centres to increase the share of rural population with access to electricity as well as reinforcing the power supply to already electrified areas/towns/regions aiming at least-cost technical solutions that offer a combination of increased capacity, improved reliability through a reduction in the current high energy losses⁷ caused by the overloading of the system and better voltage control, i.e. an adequate supply quality as the consumer's dependency of electricity increases.

³ Unreliable electricity supply lowers the annual sale revenues of Kenyan firms by about 7.0 percent and reduces Kenya's annual GDP growth by about 1.5 percent - Africa Infrastructure Country Diagnostic (2008)

⁴ Retail Electricity Tariff Review Policy incorporates the key tariff policies of the Energy Act (drafted in 2004) and the National Energy Policy of 2004: cost recovery of tariff, social considerations and energy efficiency. Tariffs are to be cost-reflective, allow the utilities a reasonable return and are subject to review every three years.

⁵ The Energy Regulatory Commission (ERC) regulates wholesale and retail tariffs and issues licenses.

⁶ Ethiopia – 33 kWh/capita, Tanzania – 31 kWh/capita, Uganda – 58 kWh/capita, Rwanda – 22 kWh/capita and Burundi – 21 kWh/capita.

⁷ 16.3% in 2009 (reduced from 18.8% in 2003/2004). In comparison transmission losses are: Ghana 26%; Nigeria 34%; Ethiopia 19%; Tanzania 24% and Uganda 30%. The cost of transmission technical losses currently averages KShs. 2 Billion per year (USD 26 million).

1.2.3 The Government intends to develop a larger power grid that will enable connection to many green power sources to major load centres. This project will result in increased and reliable power supply to the affected regions and also provide a platform for regional integration of the power systems and regional power trade facilitated by the construction of the Kenya-Ethiopia interconnection and the ongoing interconnection project of the Nile Equatorial Lakes Countries. The project is also consistent with the priorities of ADF-11 which are focused on poverty reduction through growth driven by investment in three basic operational priorities: infrastructure, governance and regional integration. By supporting the implementation of this project, the Bank will contribute to the provision of basic infrastructure needed for supporting economic growth and poverty reduction in rural areas. The Bank support to the electricity sector in Kenya is in line with its current Medium Term Strategy (2008–2012) which is articulated around greater focus on infrastructure investments, especially for transport, power and Information and Communication Technology (ICT).

1.2.4 Kenya is struggling to meet its energy requirements due to lack of sufficient foreign exchange caused in part by absence of donor inflows in the 90s. Kenya did not make adequate investment in the energy sector particularly in the expansion of generation and transmission facilities. Recently, there has been an increase in investment activities in the country which has led to high demand for energy. GoK has decided that all new transmission infrastructure facilities will be financed and owned by the State in order to catalyse the development of the country's generation and distribution infrastructure. In support of the Electricity Access Scale-Up Project, the GOK prepared a prospectus, the Kenya Electricity Access Investment Program Prospectus: 2009-2014⁸ which estimates that USD 4,902 million of investments will be required in new generation, transmission and distribution assets to meet the objectives of the program. Of this amount, KETRACO will need to make capital investments to the tune of USD 1,096 million. In this regard an official request from the GoK was received on April 1, 2010 to assist in financing of several transmission lines aimed at enhancing the transmission infrastructure thereby reducing the power system losses.

1.3 Donors coordination

1.3.1 Between 2009 and 2010, the donor coordination framework has been reorganised with the Government taking on a position of greater leadership. The new framework includes a Development Partnership Forum (DPF), co-chaired by the Prime Minister and the World Bank, as the highest organ (mainly reviewing progress on ongoing reforms); a Donor Co-ordination Group (DCG) (mainly bringing together High Commissioners, Ambassadors and Heads of Agencies to discuss a common position on reforms and international dynamics); and an Aid Effectiveness Group (AEG) (whose main function is to review policy and respond to Paris Aid Effectiveness indicators). The latter has replaced the HAC since 2010. The Government and Donors have also established an Aid Effectiveness Secretariat (AES) located within the Ministry of Finance to facilitate the work of the other organs. The leading multilateral donors are the World Bank, European Commission and the Bank. Major bilateral donors include China, Kreditanstalt für Wiederaufbau (KfW) of Germany and Agence Francaise de Développement (AFD) of France (see Appendix III). The World Bank focus is mainly in infrastructure, social services, public sector reforms and private sector development. The European Commission has emphasized decentralization, governance and rural development besides investments in infrastructure and public finance management.

⁸ The Prospectus was presented to development partners on October 22, 2009 at a donor conference.

1.3.2 In light of Kenya's need for enormous investments in the energy sector, concessional financing from the Bank and other development partners is essential to complement resources from the Government, KenGen, KPLC and private sources. To mobilize and coordinate these resources, the Ministry of Energy has established a sector-working group (SWG) for the energy cluster of development partners. This group, currently chaired by AFD includes the Bank, the European Investment Bank (EIB), KfW, World Bank, the Japan International Cooperation Agency (JICA), the Swedish International Development Agency (SIDA), the Embassy of Spain, the United States Agency for International Development (USAID), United Nations Industrial Development Organization (UNIDO) and other development partners. This culminated in the preparation of the Electricity Access Investment Prospectus (2009-2014) by the Government. The Bank is involved in donor coordination in the country through KEFO, which participates as a member in almost all sector coordination and thematic working group meetings and is currently the lead in the Transport sector. The Energy Sector Donor Group holds regular monthly meetings with Government officials.

II – PROJECT DESCRIPTION

2.1 Project components

2.1.1 The project consists of construction, on a turnkey basis, of a total of 431 km of 132 kV lines, extension of six substation bays and construction of eight new 132/33 kV substations. The Project will also involve a sensitization campaign aimed at raising awareness of local communities through Information, Education and Communication (IEC) activities including issues of STI-HIV/AIDS, family planning, the environment and safety of persons and property in view of the electrical installations and a re-forestation program. The project will result in increased availability of reliable and affordable electricity to rural consumers, which will contribute to connecting 200,000 additional customers per annum, leading to an increase in rural electricity connectivity rate from 23% in 2009 to 40% by 2020. The major impacts of the transmission line will be reduced poverty and improved living standards within and beyond the districts served resulting from the employment opportunities created (direct and indirect) and increased investments especially in value addition processing of primary products and through provision of opportunities to invest in heavy industries.

Table 2.1: Project components

No.	Component Name	Est. cost (UA million)	Component description
A.	Transmission Lines	26.35	<ul style="list-style-type: none"> ▪ 65 km Lessos-Kabarnet, ▪ 79 km Nanyuki-Nyahururu ▪ 68 km Olkaria-Narok ▪ 33 km Sotik-Bomet ▪ 33 km Ishiara-Kieni ▪ 153 km Mwingi-Kitui-Wote-Sultan Hamud
B	Substations	22.44	<ul style="list-style-type: none"> ▪ Extension of 132 kV outgoing bays at Ishiara, Lessos, Nanyuki, Olkaria, Sotik and Mwingi. ▪ Construction of new 132/33 kV substations at Kieni, Kabarnet, Nyahururu, Narok, Bomet, Kitui, Wote and Sultan Hamud.
C.	Project Supervision, Management	3.18	<ul style="list-style-type: none"> ▪ Consultancy services for preparation of specification and bid documents, review of the contractor's design, and supervision of project construction activities ▪ Environmental management including the implementation of the resettlement and compensation action plan

D.	Project Audit	0.06	<ul style="list-style-type: none"> ▪ Auditing services
E.	Compensation and Environment	8.75	<ul style="list-style-type: none"> ▪ Compensation of affected persons ▪ Information, Education and Communication (IEC) activities ▪ Implementation of reforestation project

2.1.2 Based on the GoK request, the Ishiara-Kieni line was initially intended to extend up to Embu, an additional 20km of 132 kV transmissions line from Kieni. However the environmental and social reports were not submitted on time to enable posting and compliance with Bank policy for Category 1 projects prior to the Board date. This section has therefore been dropped from the project and will be considered after all the safeguards have been met. Accordingly, adjustments have been made to the project costs and benefits.

2.2 *Technical solution retained and other alternatives explored*

2.2.1 The feasibility study for extension of 132 kV systems were conducted by two different consultants as part of the Energy Access Scale up program, Norconsult for sections Ishiara-Kieni, Mwingi-Kitu-Wote- Sultan Hamud and by SMEC for sections Olkaria-Narok, Bomet-Sotik, Lessos-Kabarnet and Nanyuki-Nyahururu

2.2.2 The proposed project is part of the Transmission System Development Plan (TSDP) which was prepared in line with the Least Cost Generation Development Plan to outline the transmission development strategy to ensure adequate, reliable and secure overall Power System during the 20 year planning period (2010-2030). Several options were considered based on least cost analysis, to ensure the proposed project is the optimal way of meeting additional demand, reducing losses and improving reliability. Cost comparisons were made with the lowest cost alternative able to provide sufficient capacity and the same level of reliability as the proposed scheme.

Table 2.2: Project alternatives considered and reasons for rejection

Project alternatives considered and reasons for rejection		
Alternative name	Brief description	Reasons for rejection
a) Expand the existing 33 KV system.	The feasibility study considered extension of existing 33 kV systems to supply the demand.	This option does not provide technically acceptable voltage at the receiving end. In addition the losses at 33 kV networks are considerably high and lead to multiple lines being strung at potentially higher cost compared to the construction of the 132 KV lines.
b) New generation	Construction of power plants to service the local demand and avoid building long transmission lines.	The option was discarded because it involves high initial capital costs which will result in high energy costs to the users as compared to grid energy ⁹ .
c) The consultants made an offer to KPLC to review the option of a lower cost transmission line using concrete poles.		The conclusion is that the use of concrete poles under the program may be considered a “risk” as this is relatively untried technology in Kenya with weak infrastructure support for cost effective implementation.

⁹ In a recent study carried out by the Columbia Earth Institute to determine the cost of scaling up access, it was found out that electrification using grid extensions remains the most viable option. According to the study, the estimated cost of one grid extension is US\$843, while an isolated mini grid powered by a diesel generator would cost US\$7,906 per connection. If a diesel generator is used to provide productive power and is supplemented with solar power for households the cost per connection is US\$5,122. Another significant finding of the study was that in providing electricity to the next one million customers, 94% of them can be more readily accessed through the existing grid.

2.3 Project type

The proposed project is a standalone operation and will be financed through a loan facility.

2.4 Project cost and financing arrangements

2.4.1 The cost of the project, excluding taxes and duties but including physical and price contingencies (8% for foreign costs and 5% for local costs) is estimated at UA 60.77 million, comprising of foreign exchange costs of UA 44.83 million and local costs of UA 15.94 million. The loan amount of UA 46.70 million will finance 77% of the total project cost with the balance of UA 14.07 million being financed by the GoK. The loan will be subject to standard ADF terms with a maturity of 50 years including 10 years of grace. The loan amount is within the country's sustainable lending limits for 2010.

2.4.2 The project cost estimates by component, sources of financing, category of expenditure and expenditure schedule by financing source are shown in tables 2.3, 2.4, 2.5 and 2.6 below.

Table 2.3: Project cost estimates by component

No.	Component	FC	LC	Total	FC	LC	Total
		In Million USD			In Million UA		
A	Transmission Lines	28.18	7.05	35.23	18.67	4.67	23.33
B	Substations	26.77	2.97	29.75	17.73	1.97	19.70
C	Project Supervision and Management	3.98	0.21	4.19	2.64	0.14	2.78
D	Project Audit	0.00	0.08	0.08	0.00	0.05	0.05
E	Compensation & Environmental	0.00	12.54	12.54	0.00	8.30	8.30
	Base Cost	58.94	22.85	81.79	39.03	15.13	54.17
	Physical Contingency (FC 8%; LC 5%)	4.38	0.61	4.99	2.90	0.41	3.30
	Price Contingency (FC 8%; LC 5%)	4.38	0.61	4.99	2.90	0.41	3.30
	Total Project Cost	67.69	24.07	91.77	44.83	15.94	60.77

Table 2.4: Sources of financing

Financier	FC	LC	Total	FC	LC	Total
	In Million USD			In Million UA		
ADF	67.69	2.82	70.52	44.83	1.87	46.70
GoK	0.00	21.25	21.25	0.00	14.07	14.07
Total	67.69	24.07	91.77	44.83	15.94	60.77

Table 2.5: Project cost by category of expenditure

Categories	FC	LC	Total	FC	LC	Total
	In Million USD			In Million UA		
Works	54.96	10.02	64.98	36.40	6.64	43.03
Services	3.98	0.29	4.27	2.64	0.19	2.78
Miscellaneous	0.00	12.54	12.54	0.00	8.30	8.30
Total Base Cost	58.94	22.85	81.79	39.03	15.13	54.11
Physical Contingency	4.38	0.61	4.99	2.90	0.41	3.30
Price Contingency	4.38	0.61	4.99	2.90	0.41	3.30
Total Project Cost	67.69	24.07	91.77	44.83	15.94	60.77

Table 2.6: Expenditure schedule by financing source component

Source	Year, Million USD					Year, Million UA				
	2011	2012	2013	2014	Total	2011	2012	2013	2014	Total
ADF	7.05	24.68	31.73	7.05	70.52	4.67	16.35	21.02	4.67	46.70
GoK	12.75	4.25	3.19	1.06	21.25	8.44	2.81	2.11	0.70	14.07
Total	19.80	28.93	34.92	8.11	91.77	13.11	19.16	23.13	5.37	60.77

2.5 Project's target area and population

The project is located in the western, rift valley and eastern regions of the country. The project areas are covered by the 6 lines lumped into three main segments, namely the Nanyuki – Meru – Ishiara – Kieni– Mwingi – Kitui – Wote – Sultan Hamud which traverses 7 counties representing a population of approximately 5.6 million; the Lessos – Kabarnet – Nyahururu – Nanyuki line which traverses 5 counties with a total population of 3.2 million; and the Olkaria – Narok – Bomet – Sotik – Kisii – Sondu line which passes through 7 counties with a total population of 6.7 million people. In all the project area is represented by 19 counties with a population of 15.5 million (of which 8.04 million are women). The transmission lines cover about 431 km in total. The direct beneficiaries of the project output will be economic actors and the population connected to the national power grid into which the project will feed as well as people living along the line route who will be employed or provide services during construction. Increased availability of reliable and affordable electricity to rural consumers will foster an increase in economic activity (industrial, services, agricultural, commercial) and social wellbeing (households and social institutions) nationally.

2.6 Participatory process for project identification, design & implementation

2.6.1 The main participatory processes undertaken for project identification emanated from developing the Vision 2030, and the first five-year Medium Term Plan (MTP: 2008-2012), which identified the development of infrastructure as a priority. As stipulated in the LCPDP, reduction in transmission losses over long distances was one of the priority areas requiring intervention. The stakeholders drawn from Ministry of Energy, Energy Regulatory Commission (ERC), KENGEN, KPLC, GDC, REA and Ministry of Planning reviewed and compared the benefits from lower transmission costs, availability of power, targeted connectivity, and access and connectivity. Other donors active in the sector such as the World Bank have also been consulted and are participating in the Plan and the programme of rural electrification.

2.6.2 The Design and implementation modalities benefited from public consultations conducted as part of the ESIA and RAP studies which involved interviews with communities, stakeholders and PAPs. The project benefited from insights of various stakeholders during project preparation and design. Much of the consultations were conducted during the Environmental and Social Impact Assessment studies. Among the consulted were local administration (including local leaders); management of Kenya Civil Aviation Authority (KCAA), Kenya Forestry Services (KFS) and the Kenya Wildlife Services (KWS), Hell's Gate National Park, NGOs and other interested parties. Several public consultation meetings (barazas) were held with communities living along the routes. Key outcomes in terms of project design include: selection of line routes, incorporation of safety and health campaigns

as well as a number of other measures included in the ESMP. This is discussed in detail in Annex B.8.

2.7 Bank Group experience, lessons reflected in project design

2.7.1 Historically the Bank has not had any major projects funded in the energy sector in Kenya. However in 2008 the Bank approved UA 17.7 million to Kenya under the NELSAP project and in 2009 the Bank approved UA 50 million funding for the Mombasa-Nairobi transmission line. The Bank is also co-financing the Ethiopia – Kenya Power Interconnection study with AFD, KfW and Development Bank of Southern Africa (DBSA); and through its private sector window, (OPSM), is considering the Lake Turkana Wind Power Plant for possible financing. The Bank has a total portfolio of twenty four projects worth UA 807 million with a 20% disbursement rate. The participation in these projects has enabled the Bank to better understand the sector situation in Kenya.

2.7.2 Experience in past operations has shown that implementation readiness and quality at entry have been less than optimal. In this respect, GoK and the Bank have agreed on a plan to improve the situation which includes the adoption of a project “readiness filter”. This will ensure that project implementation plans are prepared ahead of time, counterpart funds are earmarked, project staff are identified by the time of appraisal, compliance with environmental, social and fiduciary safeguards is ascertained, bidding documents for the first year are ready, ensuring that project indicators for tracking results have been incorporated in the design and if necessary advanced contracting is in place prior to presenting the project to the Board.

2.7.3 The Fund has been active in the agricultural sector where some generic lessons learnt have been useful in designing the current project. One of the most important lessons learnt is that ineffective institutional arrangements very often lead to over-extended implementation periods resulting in cost overruns. The strength of institutional arrangements is deemed to be key in implementing large-scale infrastructure projects. KETRACO is a relatively new entity and is still in the process of capacity building. KETRACO has therefore entered into a Mutual Co-operation and Provision of Technical Services Agreement with KPLC¹⁰ for the provision of human and material capacity during project implementation and operation. See paragraph 4.2.1.

2.7.4 Past experience has shown that when construction works are located in dispersed geographical areas, it is more cost effective and time saving to arrange them such that the contractors do not have to move across the country to access the different sites. As a result procurement packaging will be designed to consist of both transmission lines and substations. Experience has also shown that non-availability of counterpart funds at the early stage of project implementation, especially for compensation, could delay project implementation. This has been mitigated in the project by ensuring that funds are put into an escrow account from which they will be drawn to compensate the affected persons.

2.7.5 The final lesson is on the financial viability of the utility. Electrification projects can undermine the financial viability of a utility unless tariffs are at least at (financial) cost recovery level and collection discipline is enforced. Kenya’s tariff regime is based on full cost recovery (see paragraph 4.4.4) and aggressive loss reduction program¹¹.

¹⁰ KPLC is the largest utility in East Africa and has developed over 3,400 km of high-voltage transmission lines.

¹¹ Technical losses have been reduced from 18.8% in 2004 to 16.3% in 2009 and are projected to fall to 15.7% by 2014.

2.8 *Key performance indicators*

The key indicators will be the length of the transmission lines constructed, number of substations constructed, number of bays extended, number of project audit reports, number of people compensated, compliance with recommendations for ESMP and auditing requirements, the power delivered through the new transmission line, number of local population employed and the timely completion of the project within budget. The source of data to confirm these indicators will be statistical reports produced by KETRACO and KPLC and the MoE. The progress during implementation will be monitored by the timely commencement of the works, regular disbursements, and consultations with the PIT, timely submission of quarterly progress and environmental monitoring reports as well as annual audit reports.

III – PROJECT FEASIBILITY

3.1 *Economic and financial performance*

3.1.1 The financial and economic analysis is based on the study undertaken by SMEC International (Pty) Ltd. on the Olkaria-Narok/ Sotik-Bomet line segments and by Norconsult on the Ishiara-Kieni/ Kindaruma-Mwingi/ Wote-Sultan Hamud/ Kabarnet-Lessos and Nanyuki-Nyahururu line segments. The study has been reviewed by the Bank and was found to be robust.

3.1.2 The economic analysis considers the benefits to Kenya of spending the financial resources in supporting this proposed project rather than in other sectors of the economy. It thus considers a project from the country point of view. The GoK recently created a transmission company, KETRACO, to own the new transmission assets in Kenya including the investments supported by this facility. KETRACO is likely to remain an asset holding company for the foreseeable future and new transmission assets will be funded by GoK. While KETRACO's operation is currently being financed from the Government budget, it is anticipated that future O & M costs on its assets will be recovered from the proceeds of the wheeling fees/transmission tariff that KETRACO will charge the users of its transmission assets. The tariff will be meant to recover O & M costs only with the capital costs funded by Government. Loans raised from DFIs for the financing of new transmission infrastructure will thus be repaid from the GoK's central budget. From the KETRACO perspective, the computation of the financial internal rate of return (FIRR) and financial net present value (FNPV) has therefore not considered the investment costs as they are financed by the GoK and are not repaid from the company's cashflows as the transmission tariff will only cover O & M costs.

3.1.3 Results from financial analysis indicate that the project is financially viable. The project has a FNPV of USD 47.33 million for the base case, and a FIRR of 19.9%. The project is therefore able to fully cover its operating and maintenance costs and remain with some resources that can be used to build capacity and capital investments. The implementation of the project is economically viable resulting in an estimated economic net present value (ENPV) of USD 77.27 million and an economic internal rate of return (EIRR) of 19.5%.

Table 3.1: Base Case economic and financial returns

FIRR; FNPV (WACC of 3%)	19.9%, FNPV USD 47.33 million
EIRR; ENPV (EOCK of 12%)	19.5%, ENPV USD 77.27 million

3.1.4 Sensitivity tests were also performed linking the identified risks to the project's financial and economic viability. Variations considered included changes to the base case scenario with regards to investment cost overrun, increase in O & M costs, reduction in energy transported and the fall in the value of energy losses. Results show that both the financial and economic performance are quite robust. A detailed discussion of the sensitivity tests is presented in Annex B.7.

3.2 Environmental and Social Impacts

Environment

3.2.1 The project was rated by the Bank as a Category 1 project. This is in accordance with the definitions of project categories presented in Paragraph 3.7 of Environmental and Social Assessment Procedure (ESAP 2001), Section 3-B and to the complementary explanation presented in Annex 7. The power transmission line is 132 kV and covers a distance of 431 km, which surpasses the 110 kV threshold stated for Category 1 in ESAP. A number of Environmental and Social Impact Assessment (ESIA) studies and Resettlement Action Plan (RAP) for each line segment of the project were conducted and submitted to NEMA for approval. The summary of the ESIA reports of the project is published and was posted on the Bank's website on July 22, 2010 and ensures that the studies comply with AfDB policies and guidelines on environmental and social issues.

3.2.2 The transmission line will mostly cross sparsely populated areas and lead to the further fragmentation of several isolated forest segments, including some remnant indigenous forests of Mukogodo and Runuru. The main negative environmental impacts of the project are: limited depletion of vegetation in the total land requirement of the corridors, temporary disturbances during the construction phase and increase in the mortality of migratory birds due to electrocution along their migration paths. According to the Kenya Wild Life Service letter dated 3rd February 2010 issued to NEMA and the draft ESIA documents for Olkaria-Narok, the 4.1 km section of the proposed 132kV power transmission line in Hells National Park is not likely to adversely impact endangered animals or plant communities. The Imenti Forest is an ecologic transition zone and hence an important bird area. At a maximum of 22m above ground level, there is chance that the transmission lines will generally be below the emergent canopy level of forests and thus below the general migratory flight height of birds. However, the section of the transmission line within the Mt. Kenya area will require marking for purposes of deflecting birds approaching the power line. The accidental electrocution is also mainly mitigated through reservation and routine maintenance of the right of way. Monitoring will also be undertaken on avifauna electrocuted along the proposed transmission line. The detailed identification and assessment of impacts of the project with, the Environmental and Social Mitigation Plans (ESMP) for mitigation are presented in a series of ESIA reports of the project.

3.2.3 The costs of the environmental and social mitigation measures (ESMP) for the entire project is USD 7.46 million and is included in the works contracts, while the resettlement and compensation plan is estimated at USD 5.08 million. While resettlement and compensation costs are part of the project, this cost will be borne by the Kenyan Government and the payment will be one of the conditions precedent to the first disbursement and that the compensation for PAP will be calculated based on full replacement cost as well as market cost. The Project Implementation Team will ensure that persons affected by the project receive adequate compensation prior to works start-up.

Climate Change

3.2.4 Climate change is projected to vary substantially across the region. Changes in regional temperature and precipitation patterns may have significant implications for existing and future power system infrastructure in Kenya. Weather and climate may affect all major aspects of the electric power sector, including electricity generation, transmission and distribution systems, and end-user demand for power. According to statistics released by the Kenya National Bureau of Statistics (KNBS) in June 2010, thermal generation accounted for 38 per cent of total production in 2010 compared to a 27 per cent share in 2009. The implementation of the project will foster development in the major hydroelectric production areas. This will allow for substitution of the current thermal production, which releases greenhouse gases into the atmosphere, with less polluting hydroelectric production. The project will also improve the energy security of the country as it will be better able to manage the negative impacts of climate change, notably with regard to potential variations in rainfall patterns.

3.2.5 The demand for fossil fuels for industries and the transport sector is growing at a rate of 2% per annum (SoE 2003). The use of kerosene for domestic purposes is also growing. Emissions from fossil fuels especially carbon dioxide¹², and sulphur oxides contribute to global climate change. The construction and commissioning of these transmission lines carrying renewable energy from hydro and geothermal generation plants will work towards reduction of carbon emissions. Deep reductions in emissions from diesel generators could be achieved by widespread switching to renewable energy with such sources as hydro and geothermal among others. The harnessing of these resources can potentially make significant contributions to fossil fuel/ diesel generators displacement. The diesel generators have been source of complaints in many towns to be connected due to its pollutions tendencies and subsequent causes of corrosion of the iron roofing materials and respiratory complications. The anticipated connection of target area with clean power will result in reduced pressure on forest produce hence sequester CO₂ through the enhancement of natural and biological risks. Tree planting efforts as proposed in the mitigation measures in the ESIA of the proposed project will enhance these links and improve the country's forest cover. Hence this would also have positive impacts on the natural water cycle and also soil conservation and contribute to food security.

3.2.6 The development and promotion of these green energy resources stands to provide sustainable energy options for mitigating problems related to deforestation, environmental pollution, greenhouse gas emission, global warming and over dependence on fossil fuels which are core drivers of climate change. Generally, the renewable energy sources are environmentally benign and scaling up their exploitation yields positive effects towards the mitigation of climate change. At a country policy level, a National Climate Change Coordinating Committee (NCCCC) has been put in place to coordinate climate change issues and ensure that the country fulfils its obligation under the United Nations Framework Convention on Climate Change (UNFCCC).

Gender

3.2.7 The project is not expected to have significant negative gender impacts rather it is expected to enhance activities that would benefit both women and men due to provision of adequate and reliable electricity. The project has been designed in such a way that it

¹² Carbon dioxide is the most important anthropogenic greenhouse gas. The global atmospheric concentration of carbon dioxide has increased from a pre-industrial value of about 280 ppm to 379 ppm (parts per million) or is the ratio of the number of greenhouse gas molecules to the total number of molecules of dry air (Enzler 1996).

minimises any negative impacts on gender both during implementation and operation. Two critical aspects, however, may potentially affect women negatively. These are resettlement and spread of HIV/AIDS. Resettlement often causes disruption of economic activities and social cohesion. Women, particularly rural, often rely on social safety nets which are community based and execution of resettlement and compensation programs may be discriminatory. The law in Kenya protects user rights by both men and women and access to land is open to both genders. The practice at KPLC and that of KETRACO is to ensure that compensation is paid in the presence of both wife and husband. Due to the fact that some of the affected houses are headed by women; the project has put in place mechanisms to ensure that the resettlement and compensation packages are designed for equality by ensuring that access to, and mode of payment for compensation packages, land access and dispute resolution system are not biased against these households and other vulnerable groups. Construction workers especially those in camps tend to be at a higher risk of contracting and spreading HIV/AIDS within communities around the projects and those with families to their spouses. The implementation of the HIV/AIDS awareness and prevention programs will put special emphasis on educating teen age girls and married men.

3.2.8 Nevertheless, the project has key benefits for both women and men one of which is the creation of job opportunities for local populations during implementation. Every effort has been put in place to ensure that there is no discrimination in sourcing workers and that a quota of at least 20% will be applied to women. The gender policy being drawn up at KETRACO will be applied to contractors and subcontractors. In addition, there will be gender sensitization among communities and employers. During operation, the project will bring better access to electricity a situation which will create improved comfort at home and promote income generating activities to the benefit of both women and men. In addition to large scale industrial growth, reliable electricity supply will enable the growth of small scale industries which employ or serve women such as grain mills and other food processing enterprises and activities like sugar syrup making from sugar cane.

Social

3.2.9 The project seeks to build and enhance the transmission infrastructure resulting in increased access, reliability and supply of electricity to rural areas of Kenya. Implementation of the project with its numerous transmission lines and associated substations will create direct and indirect job opportunities for the communities living in the project areas and others from outside the project area with special skills. Approximately 2,522 jobs will be created (1,874 unskilled and 648 skilled) requiring an estimated wage bill of KSh. 297 million (USD 3.7 million) per year for the duration of the project. Assuming 70% of this money is spent locally, this will boost the local businesses. In addition, there will be indirect income opportunities through the provision of goods and services by sub-contractors and through provision of food and related services for the up-keep of construction workers. During operation bringing in of reliable and affordable power will stimulate economic activities which will result in increased revenue and incomes.

3.2.10 Construction workers tend to earn above average incomes in areas where the campsites are located. If not checked, this may result in reckless behaviour such as having multiple sexual partners that may exacerbate the spread of HIV/AIDS to the communities. Most at risk are teenage girls. Although the rural HIV/AIDS prevalence rate is relatively low at 4%, the risk is nevertheless there. The project design has taken this into consideration and made a provision of USD100,000 to be utilised for HIV/AIDS and STI awareness and prevention campaigns. The program shall be subcontracted to specialised agencies (NGOs, CBOs) for implementation in collaboration with National Aids Control Council. Other

diseases such as malaria are also rampant especially in wet areas. The project will ensure that no holes are left unfilled or uncovered to eliminate creating mosquito breeding areas. Construction workers will be provided with bed-nets and campsite accommodation will have wire-gauze.

Involuntary Settlement

3.2.11 The total number of households potentially affected by the project is 876 with approximately 2,903 structures. The types of assets to be affected include dwelling houses and other structures, land; crops, trees and some public social infrastructure such as health centres and schools. Most impacts on crops would be temporary mostly during implementation, while for trees, depending on type of trees this may result in permanent loss especially for trees that grow beyond 12 feet. The impact on land will be significant during implementation but thereafter will be returned to normal use. However land pieces required for erecting of the towers will be permanently lost. Such land is minimal considering the size of the project.

3.2.12 To ensure that project affected persons and entities are adequately compensated and assisted with relocation, full resettlement action plans (RAPs) for all the lines have been prepared at a cost estimate of KSh. 940 million (USD 12.54 million). As part of complementary measures the project will provide resources and support for a re-forestation program at a cost of USD 200,000. Communities will receive seedlings of indigenous trees to be planted in the project areas in collaboration with Kenya Forests Service. Implementation of the RAPs will be the responsibility of KETRACO who will receive logistical support from KPLC. A Memorandum of Understanding (MoU) has been drawn up between KPLC and KETRACO on how to manage the transitional period. The Local Authorities in the respective project districts and regions will also be involved in the implementation of the RAPs and ensure timely execution of the whole process.

IV. IMPLEMENTATION

4.1 Implementation arrangements

4.1.1 **Executing Agency:** The Republic of Kenya will be the Borrower and the Ministry of Energy (MoE) will be the Executing Agency and beneficiary of the proposed loan. The Kenya Electricity Transmission Company (KETRACO) will serve as the Implementing Agency. KETRACO was created by the MoE in December 2008 and was established to finance and own on behalf of Government all new transmission assets in Kenya.

4.1.2 Since its establishment in 2008, KETRACO has been working hard to resource itself and build the institutional capacity required to carry out its mandate. However, it should be noted that the institutional and asset building of KETRACO will take some time before it can take on the full responsibility of managing and operating its assets. In the meantime, KETRACO has entered into a Mutual Co-operation and Provision of Services Agreement with KPLC (see Technical Annex). The agreement provides for the provision of services in the following areas; (i) Technical, Operation & Support Services; (ii) Suitably trained and qualified staff; (iii) Procurement Services; and (iv) Training. The agreement was entered into on the 30th of April 2010 and will be subject for review after a six year period. KPLC, which will continue to own all existing transmission and distribution assets, has a proven experience in the implementation of transmission projects. KPLC is the largest utility in East Africa and has developed over 3,400 km of high-voltage transmission lines. Some of KPLC's staff

members benefited from training on project management and procurement provided through donor support.

4.1.3 This project will be a turn-key operation implemented by KETRACO through a dedicated Project Implementation Team (PIT) that will be set up comprising both KETRACO and KPLC staff in accordance with the provisions of the Mutual Co-operation and Provision of Technical Services Agreement between the two entities. Furthermore, the PIT will be assisted by a consultant with experience in undertaking similar projects in the region. Selection of the consultant is expected to be completed by May 2011. The PIT will report to the KETRACO Board Committee which will oversee project implementation and provide the necessary oversight including the review of the annual work plans and budgets. The consultant will be responsible for the preparation of specification and the draft bid documents for transmission line and substations.

4.1.4 The PIT will comprise an overall Project Coordination Office. KETRACO will submit the CVs for the Project Coordinator, three site managers, one civil engineer, one accountant, one procurement expert, one socio-economist and one environmentalist to be assigned to the project for the Bank's approval. The establishment of the Project Implementation Team at KETRACO, with qualifications and experience acceptable to the Bank is one of the conditions for first disbursement of the ADF loan. The profiles of the project coordinator, site managers and one accountant are given in technical annex B.3. Implementation of the ESMP will be the responsibility of the main contractor under the supervision of the consulting engineer. The contractor shall employ an officer responsible for implementation of social/environmental requirements. This person will maintain regular contact with KETRACO's Principal Environmental Officer and the local District Environmental Officers. Implementation of RAPs however, will be by KETRACO with support from KPLC. KETRACO Resettlement Unit (KRU) for the project has been constituted and is charged with the responsibility of implementing the RAPs.

4.1.5 **Procurement Arrangements:** All procurements of goods and works and acquisition of consulting services financed by the Bank will be in accordance with Bank *Rules and Procedures for Procurement of Goods and Works* or, as appropriate, *Rules and Procedures for the Use of Consultants*, using the relevant Standard Bank Bidding Documents. KETRACO assisted by the consultant will be responsible for all procurement activities. Details of the procurement arrangements are presented in Annex B5.

4.1.6 **Disbursement:** The disbursement of the ADF loan will be on the basis of the direct payment method which entails payment directly to the contractors based on satisfactory performance in accordance with the terms of the contract. The invoices duly approved by KETRACO together with the interim payment certificates etc. shall be part of the supporting documentation in the submission of request for disbursement that will be sent to the Fund. However, other methods of disbursement could be used if required, and after approval by the Fund. Disbursements under the loan will be made in accordance with the Bank's rules and procedures as laid out in the Disbursement Handbook.

4.1.7 **Audit:** The finance expert within the PIT with the assistance of the consultant and the finance department of KPLC (in line with the Mutual Co-operation Agreement in place with KETRACO), will be responsible for preparing separate financial statements and reports for the project. The project will also be part of the work program of the internal audit department of KPLC until such a time that KETRACO has adequate capacity. KETRACO has received a

no objection from the Kenya National Audit Office (KENAO) to competitively recruit external auditors. The shortlist will be approved by KENAO after evaluation. Independent external auditors will therefore carry out the audit and report on the financial statements in accordance with the Bank's requirements. KETRACO's external audit report covering the first two years of operation is expected by December 2010 and will be submitted to the Bank. The charges related to the project audit are part of project costs and will be funded by the Borrower. A Financial Management Assessment for KETRACO has been attached as Annex B4

4.2 Monitoring

4.2.1 The project will be implemented over a period of 38 months and is due for completion in February 2014. The critical dates for the implementation of the project are given in Annex B.9 in table B.9.1. The Project will be launched in the second quarter of 2011 and will be field supervised from headquarters at least once a year from 2011 through to 2014. The Kenya Field Office (KEFO) will also carry out field supervisions once a year or on a need basis. The coordination of the missions will be done by the Ministries of Finance and Energy in collaboration with KETRACO and KEFO. The field missions will be undertaken in accordance with the tentative schedule presented in Annex B.9 table B.9.2.

4.2.2 The PIT, in liaison with the consultant, will prepare and submit to the Bank quarterly progress reports. In addition an audit report will be prepared and submitted to the Bank within six months of the end of every financial year. During implementation, monitoring of the ESMP will be done by KETRACO and key stakeholders and affected communities including KWS, KFS, NGOs, Provincial Committees (PCs), local authorities and village development committees. Quarterly Environmental Reports will be prepared by the Consultant and copies of the reports will be submitted to KETRACO and on request to NEMA. An independent evaluation will be conducted by assigned firms to report on the effectiveness of the implementation of the RAP, covering physical resettlement, disbursement of compensation and effectiveness of public consultation, amongst others. The Ministry of Energy will ensure that all aspects of RAP have been adequately and expeditiously executed according to the implementation plan. Environmental monitoring will be carried out to ensure that all construction activities comply and adhere to environmental provisions and standard specifications, so that all mitigation measures are implemented. An environmental audit will be conducted according to NEMA regulations at least one year after project completion. The contractor and KETRACO have responsibility to ensure that the proposed mitigation measures are properly implemented during the construction phase.

4.2.3 The supervision consultants shall be required to prepare and submit to the Executing Agency and the Bank, final commissioning reports at the completion of their assignments. Within six months of the commissioning of the project, the Bank, together with the Executing Agency will prepare and submit a Project Completion Report (PCR).

4.3 Governance

4.3.1 KETRACO was incorporated in December 2008 under the Company's Act Chapter 486 as a State Corporation wholly owned by the GoK. The company has its own Board of Directors comprising a non-Executive Chairman, Chief Executive, Permanent Secretaries of Energy and Finance and five other members from the private sector. KETRACO is audited by KENAO which only reports to Parliament.

4.3.2 GoK is the majority shareholder in the Nairobi Stock Exchange listed KPLC due to its holding of a special category of preference shares. As a result, KPLC is governed by the State Corporations Act. KPLC's Board and management emphasize their commitment to good corporate governance. The Board has a published manual; the Board Charter and Code of Conduct. As part of its manual, the Board has adopted the Guidelines on Corporate Governance developed by the Capital Markets Authority. As a listed company, KPLC prepares audited financial statements, usually within three months of the end of the financial year, in accordance with International Financial Reporting Standards (IFRS) and in compliance with the Kenyan Companies Act. The company's accounts are audited by Ernst & Young, one of the largest international auditing firms. Thus both KPLC and KETRACO have structures that should ensure good corporate governance.

4.4 Sustainability

4.4.1 Even though, the transmission system will be owned by KETRACO, for the implementation of the project, it will be assisted by KPLC as it builds internal capacity. KPLC as the current owner of most of the transmission lines and grid operator, maintains the high voltage transmission system in Kenya. The staff has gained significant experience in the implementation, operation and maintenance of high voltage transmission lines and substations. Therefore, technical sustainability of the project is assured. In addition, a specific project office dedicated for the project will be established.

4.4.2 GoK's strong commitment to the development of the country's power infrastructure is supported by the decision to fund transmission projects directly out of the Government's central budget through the newly formed investment vehicle KETRACO. This will allow for a separation of the sources of financing used for the development of the country's generation capacity (funded by KenGen and IPPs), distribution infrastructure (funded KPLC and REA) and transmission (funded by GoK). This separation of funding sources will allow for a more responsive, efficient and timely development of the country's power infrastructure. As such, the creation of KETRACO is a catalyst for the development of generation and distribution infrastructure in order to help achieve the connection targets set by GoK. These new institutional arrangements therefore strongly support GoK's commitment to this and other transmission projects.

4.4.3 Private Sector Participation: Key sector reforms introduced by the Government including the unbundling of KPLC in the 1990's, establishment of the Energy Regulatory Commission, development of Feed in Tariffs Policy and the creation of the Geothermal Development Company have been instrumental in the increased participation of the private sector. There are currently five Independent Power Producers (IPPs), 4 thermal and 1 geothermal with effective grid capacity of 347 MW (26%) whilst KenGen supplied the balance of 995 MW¹³ (74%). IPPs are expected to play a more important role in the future as additional capacity of 2,130-2,430 MW is planned for development by 2015. The presence of IPPs in the generation sub-sector encourages competition among market participants and as such, contributes to the availability of more reliable and cheaper power to the Kenyan economy.

4.4.4 Tariffs: The electricity price for KenGen is determined through Long-term Power Purchase Agreements that were entered into with KPLC and approved by the ERC in June 2009. The KenGen remuneration is made up of the capital recovery charge, fixed operation and maintenance charge and the variable operation and maintenance charge. Retail base tariffs

¹³ Hydro 728MW, Thermal 120MW, Geothermal 142MW and Wind 5.1MW

for KPLC were increased in July 2008 after remaining unchanged since 2000. Tariffs are adjusted automatically for monthly changes in generation related fuel costs and exchange rate depreciation and every six months for inflation. The domestic tariff category is divided into four consumption blocks with increasing energy charges. The first block of up to 50 kWh per month is the Lifeline Tariff, which is cross-subsidised by other tariff categories in order to ensure affordability to the poorer users. As of the end of 2009, the average tariff was about USc 11/kWh. The key motivation underlying the creation of KETRACO was to allow the development of the country's transmission infrastructure without passing on the investment costs to consumers through increased tariffs. As such, tariffs are expected to remain at affordable levels to encourage new connections in the future.

4.4.5 Lastly, the results of the financial and economic analyses support the sustainable nature of the project both in terms of financial returns as well as in terms of economic benefits relative to the opportunity cost of the funds necessary to implement the project.

4.5 Risk management

Table 4.5: Risk Analysis

	Risk	Risk Mitigation Measures
1.	KETRACO is a newly entity established entity and has inadequate institutional capacity to implement, operate and maintain the transmission lines	KETRACO has entered into a Mutual Co-operation and Provision of Technical Services Agreement with KPLC under which the later will provide trained and qualified personnel for the PIT to meet the skills requirement. Furthermore, the operation and maintenance of these assets will be undertaken by KPLC, which has developed the country's entire transmission infrastructure to date. KPLC has vested interest in ensuring that the new transmission line is properly maintained as it is the ultimate user of the infrastructure to provide electricity services to its customers. As recommended in the 2009 Country Portfolio Performance Review for Kenya, the Bank has undertaken training for PIUs and Executing Agencies in Kenya which include KETRACO in financial management, audit, procurement and monitoring and evaluation. ¹⁴
2.	Lack of generation capacity or slower than projected demand growth could result in under-utilization of the proposed transmission lines.	Involvement of IPPs and interconnecting the Kenya's system to those of its neighbours will mitigate this risk. Any excess power as a result of low growth in demand will be exported to the rest of the utilities in the power pool. The regional interconnections are progressively evolving with the expected planned transmissions lines linking regional countries likely to be implemented under the Eastern Africa Power Pool (EAPP) the Nile Basin Initiative and the Nile Equatorial Lakes Subsidiary Action Programme. These lines include Kenya-Isinya-Tanzania (Arusha) 400kV line, Kenya (Lessos)-Uganda (Jinja) 220kV line, Kenya-Ethiopia 500kV DC line and a 132kV cross-border electrification line to Moyale town from Ethiopia.
3.	Escalation in project costs may result in funding shortfalls.	Adequate contingencies (8% for foreign costs and 5% for local costs) have been included in the cost estimates and the contracts will be on a turnkey basis. The level of contingences was considered adequate due

¹⁴ The World Bank, under the Kenya Electricity Expansion Project (May 2010) provided funds for training to the sector entities in Kenya including KETRACO and KPLC in management of environmental and social impacts; sector operations; use of computerized planning models; project management, including procurement and financial management; and other areas, as required during project implementation. Additionally the subcomponent is meant to "support a comprehensive training program for KETRACO's management and staff in order to enhance their skills in efficient operation and management of transmission networks, expansion planning and design, and negotiation with contractors and financiers".

		to the fact that the transmission and substation cost estimate are realistic and are based on 2010 prices and the lengths of the transmission lines will not significantly change.
4.	The non-availability of counterpart funds at the early stage of implementation, especially for compensation, could delay project implementation.	The Ministry of Energy considers this to be a priority project for the country. As such, both MoE and the Ministry of Finance have assured Bank management of the strong support to this project and of their commitment to making the necessary funds available. The PIT will also have a qualified socio-economist to oversee the implementation of all environmental safeguards during the project implementation.
5.	The Kenya economy is vulnerable to external shocks such as high oil prices which might affect negatively the stability of its macro economic framework.	This risk is mitigated by the Government's commitment to promote the private sector and diversify sources of energy with the development of wind and geothermal power stations and development of interconnections with sub-regional power networks.

4.6 Knowledge building

4.6.1 The contract to be entered into by the contractors and consultant responsible for the construction of the transmission lines and substations will include specific provisions to ensure the training of KPLC/KETRACO engineers. This is a standard feature of contracts previously entered into by KPLC. This technology transfer component especially in project management is particularly important for KETRACO. Similar technologies are likely to be used for other projects in the near future, such as for the interconnections with Ethiopia and Tanzania. Moreover, there will be a knowledge transfer towards KETRACO through the Mutual Co-operation and Provision of Services Agreement.

V – LEGAL INSTRUMENTS AND AUTHORITY

5.1 Legal instrument

The legal instrument for the project used is a loan which will be given to the Republic of Kenya. 5.2. Conditions associated with Bank's intervention

5.2 Conditions associated with Bank's intervention

5.2.1 Conditions Precedent to Entry into Force

The entry into force of the Loan Agreement shall be subject to the signature of the Loan Agreement between the ADF and the Republic of Kenya and the fulfilment by the Borrower of the provisions of Section 12.01 of the General Conditions Applicable to Loans and Guarantee Agreements of the ADF.

5.2.2 Conditions Precedent to First Disbursement of the Loan

In addition to the entry into force of the loan, the first disbursement of the loan shall be subject to the following conditions:

- (i) Furnish evidence of the establishment of the Project Implementation Team (PIT), comprising a Project coordinator, three site managers, one civil engineer, one accountant, one procurement expert, one socio-economist and one environmentalist. The qualifications and experience of such persons shall be acceptable to the Fund;

- (ii) Provide evidence satisfactory to the Fund of either (a) the actual payment, to the people affected by the Project, of the amounts for the resettlement and compensation as set out in the Resettlement Action Plan (RAP) with respect to the components to be financed by the Fund before handing sites over to contractors, or (b) the establishment – directly by the Borrower or through the Executing Agency – and the maintaining, with a financial institution acting as an escrow agent and acceptable to the Fund, of an indemnification escrow account in which the same amounts (or their outstanding part) will be deposited for the purpose of the payments indicated in the RAP until the last of such payments is effected.

5.2.3 Other Conditions

Progress reports on the implementation of the Environmental and Social Management Plan (ESMP) and Resettlement Action Plans (RAPs) shall be included in the Quarterly Progress Reports to be submitted to the Fund.

5.2.4 Undertaking

An undertaking by GoK to ensure the implementation Environmental and Social Management Plan (ESMP) and Resettlement Action Plans as agreed with the Fund.

5.3 Compliance with Bank Policies

This project complies with all applicable Bank policies.

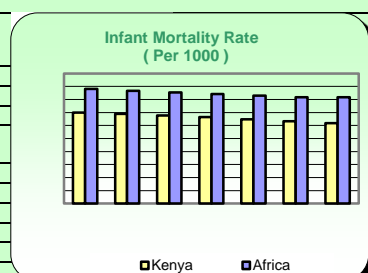
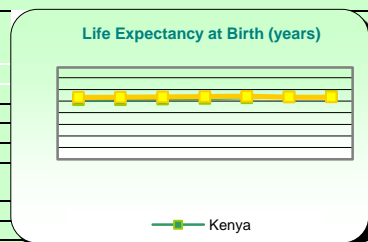
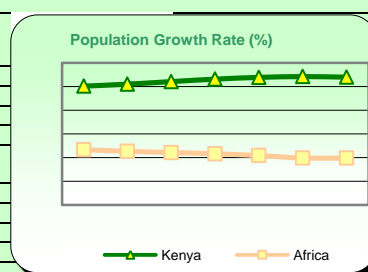
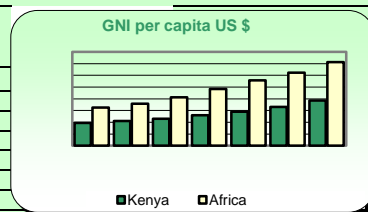
VI – RECOMMENDATION

Management recommends that the Board of Directors approve the proposed loan of UA 46.70 million to the Republic of Kenya for the purposes and subject to the conditions stipulated in this report and the Loan Agreement.

Kenya

COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Kenya	Africa	Developing Countries	Developed Countries
Basic Indicators					
Area ('000 Km ²)		593	30 323	80 976	54 658
Total Population (millions)	2009	39.8	1,008	5,629	1,069
Urban Population (% of Total)	2009	21.9	39.6	44.8	77.7
Population Density (per Km ²)	2009	68.6	3.3	66.6	23.1
GNI per Capita (US \$)	2008	770	1 428	2 780	39 688
Labor Force Participation - Total (%)	2009	46.2	41.2	45.6	54.6
Labor Force Participation - Female (%)	2009	46.4	41.2	39.8	43.3
Gender -Related Development Index Value	2005	0.521	0.525	0.694	0.911
Human Develop. Index (Rank among 182 countries)	2007	147	0.514	n.a	n.a.
Popul. Living Below \$ 1 a Day (% of Population)	2005	19.7	50.8	25.0	...
Demographic Indicators					
Population Growth Rate - Total (%)	2009	2.6	2.3	1.3	0.7
Population Growth Rate - Urban (%)	2009	4.0	3.4	2.4	1.0
Population < 15 years (%)	2009	42.8	56.0	29.2	17.7
Population >= 65 years (%)	2009	2.6	4.5	6.0	15.3
Dependency Ratio (%)	2009	83.3	78.0	52.8	49.0
Sex Ratio (per 100 female)	2009	99.9	100.7	93.5	94.8
Female Population 15-49 years (% of total population)	2009	24.1	48.5	53.3	47.2
Life Expectancy at Birth - Total (years)	2009	54.9	55.7	66.9	79.8
Life Expectancy at Birth - Female (years)	2009	55.3	56.8	68.9	82.7
Crude Birth Rate (per 1,000)	2009	38.4	35.4	21.5	12.0
Crude Death Rate (per 1,000)	2009	11.3	12.2	8.2	8.3
Infant Mortality Rate (per 1,000)	2009	61.8	80.0	49.9	5.8
Child Mortality Rate (per 1,000)	2009	99.7	83.9	51.4	6.3
Total Fertility Rate (per woman)	2009	4.9	4.5	2.7	1.8
Maternal Mortality Rate (per 100,000)	2005	560.0	683.0	440.0	10.0
Women Using Contraception (%)	2006	61.0	75.0
Health & Nutrition Indicators					
Physicians (per 100,000 people)	2007	27.6	42.9	78.0	287.0
Nurses (per 100,000 people)*	2007	121.9	120.4	98.0	782.0
Births attended by Trained Health Personnel (%)	2003	41.6	50.5	63.4	99.3
Access to Safe Water (% of Population)	2008	59.0	64.0	84.0	99.6
Access to Health Services (% of Population)	2006	...	61.7	80.0	100.0
Access to Sanitation (% of Population)	2008	31.0	38.5	54.6	99.8
Percent. of Adults (aged 15-49) Living with HIV/AIDS	2005	6.1	4.5	1.3	0.3
Incidence of Tuberculosis (per 100,000)	2007	353.0	313.7	161.9	14.1
Child Immunization Against Tuberculosis (%)	2007	92.0	83.0	89.0	99.0
Child Immunization Against Measles (%)	2007	80.0	74.0	81.7	92.6
Underweight Children (% of children under 5 years)	2005	...	25.6	27.0	0.1
Daily Calorie Supply per Capita	2005	2 079	2 324	2 675	3 285
Public Expenditure on Health (as % of GDP)	2006	2.2	5.5	4.0	6.9
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	2008	111.5	100.2	106.8	101.5
Primary School - Female	2008	110.3	91.7	104.6	101.2
Secondary School - Total	2008	58.3	35.1	62.3	100.3
Secondary School - Female	2008	55.8	30.5	60.7	100.0
Primary School Female Teaching Staff (% of Total)	2008	45.5	47.5
Adult Illiteracy Rate - Total (%)	2006	...	59.4	19.0	...
Adult Illiteracy Rate - Male (%)	2006	...	69.8	13.4	...
Adult Illiteracy Rate - Female (%)	2006	...	57.4	24.4	...
Percentage of GDP Spent on Education	2006	7.0	4.5	...	5.4
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	2007	9.1	6.0	9.9	11.6
Annual Rate of Deforestation (%)	2006	...	0.7	0.4	-0.2
Annual Rate of Reforestation (%)	2006	...	10.9
Per Capita CO2 Emissions (metric tons)	2008	0.3	1.1	1.9	12.3



Sources : ADB Statistics Department Databases; World Bank: World Development Indicators; UNAIDS: UNSD; WHO, UNICEF, WRI, UNDP; Country Reports.

Note : n.a. : Not Applicable ; ... : Data Not Available.

last update :

September 2010

ADB PORTFOLIO IN KENYA

PROJECT NAME	Main Sector	Financing Source	Approval Date	Approved Loan UA million		Disb. Ratio
				Loan	Grant	
A. Public - National						
1. Roads 2000 Rural Road Program	Transport/ Roads	ADF Loan	12.07.2001	20		63.68%
2. Nairobi - Thika Highway Improvement	"	ADF Loan	21.11.2007	117.85	3.15	22.00%
3. Rift Valley Water Supply and Sanitation Project	Water & Sanitation	ADF Loan	07.07.2004	13.04	5.02	77.00%
4. Water Services Boards Support Project	"	ADF Loan	21.11.2007	35.19	10.07	1.70%
5. Green Zones Development Support Project	Agriculture	ADF Loan	12.10.2005	25.04		52.40%
6. Ewaso Ng'iro North Natural Resources Conservation Project	"	ADF Loan	22.04.2005	13.59	2.89	32.12%
7. ASAL-Based Livestock and Rural Livelihoods Support Project	"	ADF Loan	17.12.2003	18.41	3.17	75.95%
8. Kimira- Oluch Smallholder Farm Improvement Project	"	ADF Loan	31.05.2006	22.98	1.15	12.26%
9. Small-Scale Horticulture Development Project	"	ADF Loan	05.09.2007	17		4.79%
10. Education III Project	Social	ADF Loan	17.12.2003	24.26	6.75	16.85%
11. Rural Health III Project	"	ADF Loan	07.07.2004	17.18	6.00	17.87%
12. Kenya Institutional Support to Good Governance	Institutional reforms	ADF Grant	26.07.2006		5.52	99.26%
13. Community Empowerment & Institutional Support Project	"	ADF Loan	17.12.2007	17.00		2.00%
14. Technical Industrial Vocational and Entrepreneurship Training (TIVET)	Social	ADF Loan	16.12.2008	25.00		7.08%
15. Integrated Land and Water Management	Water & Sanitation	AWF	06.02.2009		1.94	0.00%
16. Restoration of Farm Infrastructure	Agriculture	ADF Loan	29.04.2009	15.00		1.95%
17. Mombasa - Nairobi Power transmission line	Power	ADF Loan	06.05.2009	50.00		0.00%
18. Small Towns Water and Sanitation	Water & Sanitation	ADF Loan	3.11.2009	70.00		0.00%
Sub-total				547.20		
B. Public - Multinational						
19. Mombasa - Nairobi - Addis Ababa Road Corridor Project	Transport/ Roads	ADF Loan	13.12.2004	33.6	1.20	54.10%
20. Arusha - Namanga - Athi River Road Development Project	"	ADF Loan	13.12.2006	49.24		45.46%
21. Creation of Sustainable Tsetse Eradication Program	Agriculture	ADF Loan	08.12.2004	6.55	0.24	100.00%
22. Nile Equatorial Lakes Electric Grid - NELSAP	Energy	ADF Loan	16.06.2010	39.77		0.00%
23. Mombasa-Nairobi-Addis Ababa Road Corridor Project II	Transport/Roads	ADF Loan	1.7.2009	125.00	5.00	0.00%
24. African Virtual University Support Project	Social	ADF Grant	13.12.2004			95.00%
Sub total				260.60		
Total				807.80		20.41%

KEY RELATED PROJECTS FINANCED BY THE BANK AND OTHER DEVELOPMENT PARTNERS IN KENYA

Name of Project	Location	Subsector	Financiers	Amount USD (million)	
Rural Electrification in Six Provinces	All Kenya except North Eastern and Nairobi	Distribution	AFD	38.96	Ongoing
Energy Sector Recovery Project - Component D	Nairobi / Coast	Distribution	AFD	32.47	Ongoing
Mumias Sugar co-generation	Kisumu	Generation	AFD/PROPARCO	35	Completed
Rabai Thermal Plant	Mombasa	Generation	AFD/PROPARCO	29.87	Completed
Transmission Line Nairobi - Mombasa	National	Transmission	AFD	77.92	Ongoing
Olkaria II-3rd Unit	Naivasha	Generation	AFD	25.97	Completed
Transmission Line Kenya-Ethiopia	Regional	Transmission	AFD	77.92	Under preparation
Olkaria III	Naivasha	Generation	Proparco	15	Under implementation
Technical Assistance	National	All	AFD	1.3	Ongoing
Support to the development of renewable energy and geothermal energy	National	Generation	AFD	45.45	Under implementation
Olkaria I and IV Project	Naivasha	Generation	AFD	194.81	Under implementation
Wind Power Plant		Generation	AFD	-	preparation
Mombasa - Nairobi Transmission Line Project	National	Transmission	AfDB	31.17	Appraisal Report presented to the Board on 6 May2009 and approved
Interconnection of Electric Grids of Nile Equatorial Lakes Countries - NELSAP	Multinational	Transmission	AfDB	150.89	Appraisal Report presented to the Board on 27 November 2008 and approved
Olkaria II Extension	Naivasha	Generation	EIB	50	Under implementation
KPLC Grid Development	National	Distribution	EIB	55.84	Under implementation
Transmission Line Nairobi - Mombasa	National	Transmission	EIB	77.92	Under implementation
Olkaria I and IV Project	Naivasha	Generation	EIB	155.84	To be appraised in February 2010
Promoting use of Sustainable Energy in Wajir District			European Commission	0.47	Under preparation

Community based mini hydropower development in upper tana river basin for poverty alleviation			European Commission	2.99	Under preparation
Up scaling the smaller biogas Plants for agricultural producers and processors			European Commission	1.75	Under preparation
Developing energy enterprises project East Africa			European Commission	2.6	Under preparation
Removal of barriers to energy conservation and energy efficiency in small and medium scale enterprises.			GEF (UNEP)	8.32	
Market transformations for efficient biomass stoves for institutions and small and medium enterprises			GEF (UNEP)	1	
"Decentralized Re-system for electrification and Empowerment"	National		GoFinland	-	Under planning
Rural Electrification Master Plan	National	Distribution	GoFinland	1.95	Under implementation
Rural Electrification Programme Phase III	All Kenya except North Eastern	Distribution	Go Spain	15.58	Under implementation
Electrification project		Distribution	Go Belgium	15.58	Being identified
Energy Sector Recovery Project	National	Sector wide	IDA /WB	80	Under implementation
Energy Sector Recovery Project Additional financing	National	Sector-wide	IDA/WB	80	Under implementation
Energy Access Expansion	National	Sector-wide	IDA/WB	250	Being identified
Kenya-Uganda interconnector	Regional	Transmission	IDA/WB	42	Under preparation
Kenya-Ethiopia interconnector		Transmission	IDA/WB	TBD	Under preparation
Agricultural productivity and Agribusiness project		Generation	IDA/WB	2	Under preparation
Lighting Africa			IDA/IFC/GEF	0.6	Under implementation
Community Development Carbon Fund - Emission reductions purchase agreement		Generation	IDA/Carbon finance	-	Under implementation
OrPower4 (Olkaria III)		Generation	MIGA/WB	-	
Kisumu-Lessos-OlkariaTransmission Line Upgrading Project	Nyanza/Rift Valley	Transmission	JICA	TBD	Under preparation
Sondu-Miriu Hydropower Project Sang'oro Power Plant	Nyanza	Generation	JICA	57.66	Under implementation
Olkaria Geothermal Project	Naivasha	Generation	JICA	TBD	Under preparation
Menengai F/S	Nakuru	Generation	JICA	TBD	Under preparation
Renewable Energy Promotion Program	Regional	Distribution	JICA	TBD	Under preparation
Olkaria IV appraisal drilling (geothermal)	Naivasha	Power production	KfW	9.87	Under preparation
Olkaria IV Transaction Advice	Naivasha	TA	KfW	1.3	Under preparation

Transmission Line Kenya-Ethiopia	Regional	Transmission	KfW	0.32	Under preparation
Hydropower Plant Kindaruma	Tana River	Generation	KfW	TBD	Under preparation
Olkaria I and IV Project	Naivasha	Generation	KfW	77.92	Under preparation
Olkaria III (geothermal)	Naivasha	Power production	KfW/DEG	20	Under implementation
Energy Sector Recovery Project - Component D contract V	Nairobi / Coast	Distribution	NDF	12.99	Under implementation
Access to Clean and sustainable energy services	Kenya	Distribution / power production	UNDP	2	Under preparation
Standards and Labling	Kenya	Energy Efficiency	UNDP	2.5	Ongoing
Sustainable charcoal production	Kenya	Energy Efficiency	UNDP	0.1	Ongoing
Market transformations for efficient biomass stoves for institutions and small and medium enterprises		Distribution	UNDP (GEF)	1	Under implementation
Technical Assistance to EAPP	Regional	Power production	USAID	-	Processing tender
Technical Assistance to COMESA	Regional	Power production	USAID	-	Completed

Map of the Project Area

