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AFRICAN DEVELOPMENT FUND

PROJECT: ELECTRICITY TRANSMISSION SYSTEM IMPROVEMENT PROJECT

COUNTRY: FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

PROJECT APPRAISAL REPORT

Date: July 2010

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Currency Equivalents*As of July 2010*

1 UA	=	1.4789 USD
1 UA	=	1.2025 EURO
1 UA	=	20.2127ETB (Ethiopian Birr)
1 USD	=	13.6674ETB
1 EUR	=	16.7712 ETB
1 EUR	=	1.2271 USD
1 ETB	=	100 (Ethiopian) Cents

Financial Year for EEPCo**July 8th – July 7th****Weights and Measures**

1 metric tonne	=	2204 pounds (lbs)
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 kilowatt (kW)	=	1000 watts
1 megawatt (MW)	=	1000 kW
1 gigawatt (GW)	=	1000 MW
1 kilowatt hour (kWh)	=	1000 watt hour
1 gigawatt hour (GWh)	=	1000 kWh

ABBREVIATIONS

ADB	=	African Development Bank Group
AFDF	=	African Development Fund
AFD	=	Agence Française de Développement
ASC	=	Audit service corporation
BADEA	=	Arab Bank for Economic Development for Africa
BPR	=	Business Process Re-Engineering
CAGR	=	Compounded Annual Growth Rate
CEO	=	Chief executive officer
CFS	=	Cash Flow Statement
CIDA	=	Canadian International Development Agency
CSP	=	Country strategy paper
DAG	=	Development Assistance Group
DFID	=	Department for International Development
DSCR	=	Debt Service Coverage Ratio
EFTA	=	Economic, Financial Technical Assessment study
EEA	=	Ethiopia Electricity Agency
EEPCo	=	Ethiopian Electric Power Corporation
EIB	=	European Investment Bank
EIRR	=	Economic Internal Rate of Return
ENPV	=	Economic Net Present Value
EMU	=	Environmental Monitoring Unit
EPA	=	Environmental Protection Agency
EREDPC	=	Ethiopian Renewable Energy Development and

		Promotion Centre
ESAP	=	Environmental Social Assessment Procedures
ESI	=	Electricity Supply Industry
ESIA	=	Environmental and Social Impact Assessment
ESMP	=	Environmental and Social Management Plan
ETB	=	Ethiopian Birr
ETFO	=	Ethiopia Field Office
FE	=	Foreign Exchange
FIRR	=	Financial Internal Rate of Return
FNPV	=	Financial Net Present Value
FY	=	Financial Year
GoE	=	Government of Federal Democratic Republic of Ethiopia
GEF	=	Global Environmental Fund
GEP	=	Generation Expansion Plan
GDP	=	Gross Domestic Product
GHG	=	Green house gases
GPN	=	General Procurement notice
GTP	=	Growth and Transformation Plan
GWh	=	Gigawatt hour
GTZ	=	German Technical Cooperation (Deutsche Gesellschaft für Technische Zusammenarbeit)
HV	=	High Voltage
HVTL	=	High Voltage Transmission Line
ICB	=	International Competitive Bidding
IFRS	=	International Financial Reporting Standards
IPP	=	Independent Power Producer
ICS	=	Interconnected System
IDA	=	International Development Association
JICA	=	Japanese International Co-operation Agency
kWh	=	Kilo Watt hour
KfW	=	Kreditanstalt für Wiederaufbau
LC	=	Local Cost
LCS	=	Least Cost Selection method
LRMC	=	Long Run Marginal Cost
LV	=	Low Voltage
MCM	=	Million Cubic Meters
MoFED	=	Ministry of Finance & Economic Development
MIS	=	Management Information System
MTS	=	Medium Term Strategy
MV	=	Medium Voltage
NDF	=	Nordic Development Fund
NEPAD	=	the New Partnership for Africa's Development
NEPTP	=	Northern Ethiopia Power Transmission Project
NGOs	=	Non- Governmental Organisations
O&M	=	Operation and Maintenance
QCBS	=	Quality and Cost Based Selection
OCGT	=	Open Cycle Gas Turbine
p.a.	=	Per Annum
PA	=	Project Area
PAPs	=	Project Affected Persons

PASDEP	=	Plan for Accelerated and Sustainable Development to End Poverty
PCBs	=	Polychlorinated Biphenyls
PCO	=	Project Coordination Unit
PCR	=	Project Completion Report
PFM	=	Public Financial Management
PIC	=	Public Information centre
PIT	=	Project Implementation Team
P&L	=	Profit and Loss
PPA	=	Power Purchase Agreement
PPER	=	Project Performance Evaluation Report
PSNP	=	Productive Safety Net Program
PSP	=	Private Sector Participation
PV	=	Photovoltaic
QPR	=	Quarterly Progress Report
RAP	=	Resettlement Action Plan
SCS	=	Self Contained System
SIDA	=	Swedish International Development Agency
SMEs	=	Small and Medium Enterprises
SNNPR	=	Southern Nations and Nationalities People's Region
STI	=	Sexually Transmissible Infections
ToR	=	Terms of Reference
TPP	=	Thermal Power Plant
UA	=	Unit of Account
UEAP	=	Universal Electricity Access Program
UNDB	=	United Nations Development Business
USAID	=	United States Agency for International Development

Loan Information

Client's information

BORROWER: The Borrower is the 'Federal Democratic Republic of Ethiopia'.

EXECUTING AGENCY: The Ethiopian Electric Power Corporation (EEPCo)

Financing Plan

Sources of financing	Amount (UA)	Instrument
ADF	93.75	Loan
ADF	58.00	Grant
EEPCo / GoE	23.06	Equity
Total project cost	174.81	

ADF's key financing information

Loan currency	Unit of Account (UA)
Commitment fees	0.50%
Service charge	0.75%
Tenor	50 Years
Grace period	10 Years
FIRR, FNPV @ 10% real (Base Case)	11.0%, USD 31.40 million
EIRR, ENPV @ 12% real (Base Case)	16%, USD 305 million

Timeframe - Main Milestones (expected)

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

PROJECT SUMMARY

1. PROJECT OVERVIEW

1.1 The project consists of (a) construction, on a turnkey basis, of four (4) 230 kV transmission lines and related substations. The lines and substations to be constructed are as follows: (i) 352 km of 230 kV Koka- Hurso transmission line (ii) 315 km of 230 kV Alaba-Hossana-Wolkite, Gilgel-Gibe I –Jimma-Agaro-Bedele transmission line (iii) 141km of 230 kV Alamata-Muhoni-Mekele line (iv) 140 km of 230 kV Metu - Gambela line (b) Construction of associated eight new substations, the extension of seven substations, and the upgrading of four major substations around Addis Ababa and Debre Markos (c) consultancy services (i) project supervision and management (ii) Addis Ababa distribution master plan study and (d) Compensation and Resettlement.

2. NEED ASSESSMENT

2.1 The biggest challenge facing the Government of Ethiopia (GoE) is to mobilize the necessary resources to meet the generation, transmission and distribution requirements as these involve considerable investment costs. The Government has mobilized resources for implementing four hydroelectric projects; namely: Tekeze (300 MW), commissioned in June 2009; Gibe II (420 MW) commissioned in August 2009 and Beles (460 MW), which was commissioned in May 2010 and a smaller hydro power project Fincha Amerti Neshe (100 MW) has already commenced with financing from the Chinese Government. Additionally other generation projects such as GIBE III (1870 MW), Genale III (258 MW), Helele Werabesa (422 MW) and Chemoga Yeda (278 MW) are currently under construction and are expected to be completed in 2013, 2014 and 2015 respectively. The implementation of the proposed project is therefore critical in ensuring the evacuation of power from generation sources to load centres and also facilitates the export of energy to Sudan and Djibouti and is thus a crucial part of the transmission expansion plan.

3. BANK'S ADDED VALUE

3.1 In support of the Government's programs, the Bank has funded several projects in the electricity sub-sector. These include feasibility studies of hydropower projects, namely (i) Alleltu, (ii) Beles, Chemoga-Yeda and Halele-Werebesa (iii) Ethiopia-Sudan Power Interconnection and more than 2300 km of transmission line at 230, 132 and 66 kV level namely (i) 230 kV Koka-Dire Dawa Power Transmission project, Gilgel Gibe I – Ghedo Transmission Project, 66 kV Transmission projects, Gefersa Fitch, Debere Markos – Bitchena and Debre Markos Finoteselam ii) Northern Ethiopia Power Transmission Project and Rural electrification I Project. These interventions have contributed to the development of Ethiopia's hydropower resources, and the improvement of the transmission network and rural electrification programs, which are vital for increasing the population's access to electricity. The Bank is currently financing Rural Electrification II Project, which involves electrification of 305 rural villages expected to be completed in December 2013 and Ethiopia Djibouti Power Interconnection project which is expected to be completed in December 2010. Due attention will be given for the project Completion Reports. The Project Completion Report for the Ethiopia Djibouti Power Interconnection Project will be prepared in March 2011. The completion report for Rural Electrification I Project was submitted in March 2010.

3.2 The Bank considers the support of infrastructure development, especially within the power sector, as a pillar of its strategy in the country. The Bank's participation is vital

for the following reasons: (i) the financial support to EEPCo will strength the implementation of rural electrification program through transmitting sufficient power to customers (ii) the supply of electricity will contribute to the improvement of the standard of living of the people (iii) the implementation of the project will facilitate dialogue between the Bank and Government of Ethiopia on policy issues related to energy policy and regulatory issues.

4. KNOWLEDGE MANAGEMENT

4.1 The contract agreement to be entered into by the contractors and the consultant responsible for the construction and supervision of Electricity Transmission Improvement Project are similar to previous contract awarded for same type of construction contracts implemented by Ethiopian Electric Power Corporation. The operation of higher voltage level increases EEPCo's knowledge in the management and operation of 230 kV and 400 kV transmission and substation contract. The inclusion of optical fibre for communication should increase EEPCo staff knowledge to deal effectively with the telecommunication sector.

5. RESULTS BASED LOGICAL FRAMEWORK

HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS															
Goal:	Impact:	Beneficiaries:	Impact Indicators:	By 2020:	Assumption statement:															
1.1 To enhance socio economic development of Ethiopia by increasing availability and reliability of electricity.	1.1 Improved availability of reliable and sustainable electricity for economic and social development 1.2 Improved quality of life. 1.3 Improved regional integration	1.1 Rural and urban populations. 1.2 Economic actors (industry, tourism, agriculture, commercial sectors, etc.). 1.3 Social sectors (education, health, etc.). 1.4 Women	1.1 Sustainable number of new customer connections. 1.2 Increase electricity access rate. 1.3 Sustained economic growth rates. 1.4 Improved well-being of the population in Ethiopia. 1.5 Reduced burden of women (Source & Method) EEPCo annual reports, Government Statistics, Central Statistics Agency data and UNDP Human Development Report	1.1 Increase in number of customer connections from 2.1 million in 2010, to 6 million in 2020. 1.2 Increased access to electricity from 45% in 2010 to 100% in 2020. 1.3 Sustained real GDP growth rate in Ethiopia at a minimum of 11% over the medium term. 1.4 Increased power trade to over. 2100GWh/p/a. 1.5 women (burden) reduced.	1.1 Government commitment to full and timely implementation of the GTP and Universal Electricity Access Program (UEAP). 1.2 Stable macro-economic and political environment															
Project purpose:	Medium term Outcomes:	Beneficiaries:	Outcome indicators:	Progress anticipated in the medium term: By December 2015:	Assumption statement:															
To improve the provision of power supply in terms of quantity and quality through the enhancement of transmission capacity, reduction of system losses and provision of alternative electricity paths	2.1 Increased availability of reliable and affordable electricity to rural, urban, industrial and regional consumers	2.1 Industrial, commercial, agricultural and domestic consumers nationwide. 2.2 EEPCo.	2.1 Increased power supply in the regions. 2.2 Reduction in technical losses 2.3 Sustainable number of new customer connections. 2.4 Increase electricity access rate (Source & Method) EEPCo's Report	<table border="1"> <thead> <tr> <th>2.1 Increase in power supply Line</th> <th>2010</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>1. Alamata-Muehuoni - Mekele 230 kV line</td> <td>120MW</td> <td>240MW</td> </tr> <tr> <td>2. Koka-Hurso 230 kV line</td> <td>120MW</td> <td>300MW</td> </tr> <tr> <td>3. Metu –Gambela 230 kV line</td> <td>15MW</td> <td>150MW</td> </tr> <tr> <td>4. Alaba-Hossaina-Wolkite-Gilgel Gibel –Jimma- Agaro-Bedele 230 kV line</td> <td>40MW</td> <td>170 MW</td> </tr> </tbody> </table>	2.1 Increase in power supply Line	2010	2015	1. Alamata-Muehuoni - Mekele 230 kV line	120MW	240MW	2. Koka-Hurso 230 kV line	120MW	300MW	3. Metu –Gambela 230 kV line	15MW	150MW	4. Alaba-Hossaina-Wolkite-Gilgel Gibel –Jimma- Agaro-Bedele 230 kV line	40MW	170 MW	Other on-going power generation projects are successfully completed as planned. Electricity distribution infrastructure is developed and maintained to
2.1 Increase in power supply Line	2010	2015																		
1. Alamata-Muehuoni - Mekele 230 kV line	120MW	240MW																		
2. Koka-Hurso 230 kV line	120MW	300MW																		
3. Metu –Gambela 230 kV line	15MW	150MW																		
4. Alaba-Hossaina-Wolkite-Gilgel Gibel –Jimma- Agaro-Bedele 230 kV line	40MW	170 MW																		

				5 Reduction in total losses to below 12% 6. Increase in number of customer connections from 2.1 million in 2010, to 3.6 million in 2015, 7. Increased access to electricity from 41% in 2010 to 75 % in 2015	serve new consumers.
<p><u>Inputs and activities:</u></p> <p>A. Construction of transmission lines.</p> <p>B. Construction of substations.</p> <p>C. Consultancy services for supervision, auditing and production of the Addis Ababa Distribution Master Plan Study</p> <p>D. Resettlement and Compensation.</p> <p><u>Inputs/Resources (UA million)</u></p> <p>ADF : 151.75</p> <p>-ADF loan : 93.75</p> <p>-ADF grant : 58.00</p> <p>GOE/EEPCo : 23.06</p> <p>Total : 174.81</p>	<p><u>Outputs:</u></p> <p>3.1 Four 230 kV transmission lines constructed.</p> <p>3.2 Eight new Substations constructed.</p> <p>3.3 Seven existing substations extended.</p> <p>3.4 Addis Ababa Master Plan delivered.</p> <p>3.5 Capacity to transfer 300 MW to eastern part of the country, 320 MW to the southern and south western part of the country and 240 MW from the northern part of the country to the national grid</p> <p>3.4. All project affected persons compensated and/or relocated.</p>	<p><u>Beneficiaries:</u></p> <p>3.1 Contractors.</p> <p>3.2 Suppliers.</p> <p>3.3 Consulting firms.</p> <p>3.4 Local population.</p> <p>3.5 EEPCo</p>	<p><u>Output indicator:</u></p> <p>3.1 Length of 230 kV Transmission line constructed.</p> <p>3.2 Number of substations Constructed.</p> <p>3.3 Number of people compensated.</p> <p>3.4 numbers of new jobs created....</p> <p>3.5 HIV/AIDS and Gender sensitization</p> <p>3.6 Compliance with recommendations for ESMP and auditing requirements.</p> <p><i>(Source & Method)</i></p> <p>Project Consultants and EEPCo's Report</p>	<p><u>Progress anticipated in the short term:</u></p> <p>By 31 December 2014:</p> <p>3.1. 948 km of 230 kV transmission line constructed.</p> <p>3.2. 15 substations (Seven extensions and eight new substations constructed</p> <p>3.3 Reinforcing three 400 kV substations around Addis Ababa</p> <p>3.4 Addis Ababa Distribution Master Plan Study produced</p> <p>3.5 Compensation of PAPs per RAP.</p> <p>3.6 At least 80% of temporary jobs go to local populations within which 30% are for women during implementation and 10% during operation at substations</p> <p>3.7 Sensitization programs on HIV/AIDS and gender carried in all four lines for workers and communities</p> <p>3.8 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><u>Risks</u></p> <p>3.1 Availability of counterpart funding from GoE Mitigation strategy</p> <p>3.2 Adequate resources made available for and timely completion of compensation and resettlement program.</p>

6. ETHIOPIA TRANSMISSION SYSTEM IMPROVEMENT PROJECT -TIME FRAME

No	Description	Year	2010				2011				2012				2013				2014			
		Quarters	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Concept Note approval																					
2	Project Approval																					
3	Effectiveness																					
	Selection of Consultants																					
4	Bid Preparation																					
5	Bidding period																					
5	Evaluation, Contract Award and Mobilization																					
6	Construction																					
7	Commissioning																					
8	Last Disbursement																					

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

Management submits the following Report and Recommendation on a proposed ADF loan of UA 93.75 million and grant of UA 58 million to finance the Electricity Transmission System Improvement Project.

1. STRATEGIC THRUST & RATIONALE

1.1 Project linkages with country strategy and objectives

1.1.1 The Bank's Country Strategy Paper (CSP) for Ethiopia covering the 2006-2010 period is built around three strategic pillars: (a) Infrastructure Development (power, roads, water and sanitation), (b) Agricultural Transformation and (c) Good Governance. The Bank's Medium Term Strategy also focuses on infrastructure development as a key driver of economic growth. Hence, the transmission system improvement infrastructure project is an intervention that is consistent and supportive of the Bank's CSP and medium term strategy as it underpins the economic growth pillar that supports infrastructure development in the energy sector in the country.

1.1.2 The Bank's assistance strategy is part of the international donor community's coordinated support for the implementation of the GOE's second poverty reduction strategy called Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) which covers the 2005/06-2009/10 period and is followed by an ambitious Growth and Transformation Plan (GTP) 2011 to 2015 currently under review and it put emphasis on the infrastructure development including energy as one of key drivers of economic growth. A key objective set in the PASDEP was to increase the country's generating capacity from 791 MW in 2005 to 2,019 MW by 2010, while the GTP plans to increase generating capacity from 2000MW to 8000-10000MW by 2015. The development of the country's hydro power potential (estimated at over 45,000 MW but developed at less than 5% of this potential capacity to date) and the associated and extensive transmission and distribution network rehabilitation and improvement program covering over 13,054km will continue to be essential elements of the growth path in the coming years. The energy loss is to be reduced from the current level of 19.5 % to the international average of less than 12%, during the same period of time. A stable supply of enough energy is an important linchpin for the government broad agriculture led industrialization plan of PASDEP and GTP. However, the access to energy in Ethiopia is relatively low, as little as 16 % (2005), while the average access rate of Sub-Sahara Africa is 26%. Only about 32 percent in 2009 (41% in 2010) of the population lives in electrified areas (i.e, areas with some form of electricity supply for residences and businesses). The low level of access to electricity is a major barrier to economic development, as well as being a hindrance to the provision of social services in rural towns and other rural areas. The access to energy is gradually improving, having reached 41 in 2010 as a result of the construction of new power plants and expanding the national transmission grid as well as the extensive rural electrification program. The current project is considered under the present CSP which was extended to the end of 2010. The new CSP will be prepared for the year 2011-2015 aligning it with the country's GTP.

1.1.3 Power supply still faces challenges including unreliability due to erratic rain falls and inadequate and low quality of distribution systems. These challenges pose a major constraint to rural growth as they limit opportunities for rural economic diversification. Hence, the Government's strategy for the power sector seeks to expand power supply with the objective of: (i) improving access to electricity for the rural population; (ii) improving reliability of power supply to businesses and manufacturing firms in urban areas through reduction in system

losses and frequency of outages and; (iii) stimulating the development of non-farm activities in peri-urban areas and small towns. The GOE has therefore developed a long term plan for power system expansion, involving significant extension of the network and construction of several new generation plants.

1.1.4 The project is intended to: (i) Support overall electrification plans of Ethiopia (ii) provide sustainable power for Northern, Eastern and South western part of the country, (iii) allow the transmission of reliable power from the interconnected system to demand centres across the country and in the region, (iv) facilitate the implementation of Universal Electrification Access program, (v) facilitates the export of energy to Sudan and Djibouti, and (vi) reduce high transmission losses and improve system efficiency, stability and reliability. The project will thus result in increased economic activities and enable Ethiopia to further exploit its hydro potential and earn foreign exchange for sustained economic growth. As such, the proposed project is in line with the Bank CSP and the Government's PASDEP (2005/06-2009/10) as well the new generation growth and transmission plan for 2011 to 2015.

1.2 Rationale for Bank's involvement

1.2.1 The intervention of the Bank has been requested and is justified in view of the following factors. The intervention of the Bank has been requested by the Government of Ethiopia (GOE) to support the country's efforts to sustain double digit GDP growth projected at 11% per annum for the next decade. Ethiopia's potential to achieve high economic growth through increased electrification provides a good rationale for the Bank's support to this project. The GoE attaches high priority to the provision of adequate cost-effective and reliable electricity supply and rapidly scaling up electricity coverage and access to all its citizens. The broad GoE's goal under GTP are to support a robust economic growth that enables the achievement of the MDGs, and address the basic energy needs of the poor in order to improve their quality of life. EEPCo has been mandated to plan and implement the UEAP an aggressive grid network expansion and rural electrification program – that seek to rapidly increase coverage of villages to meet the Government's target of 50% village coverage by 2010 and universal village coverage by 2015. Looking ahead to the next five year period (2011-2015), EEPCo is planning for further and significant acceleration of the grid rollout to increase access to households, enterprises, priority social and administrative facilities, etc. To support this continuous GDP growth, GOE expects a 11% per annum increase in its household, commercial and industrial consumers demand over the next decade. Over the last several years the numbers of consumers have increased by almost three fold with about 2 million consumers connected by March 2010, representing about 32% of the population. The country had less than 6% of its population receiving electricity from the grid network before 2000, with only about 574,000 consumers connected. EEPCo plans to continue expanding its rural network to connect villages at the same pace, in order to increase the rate of population with access to electricity from 32% in 2010 to 50% by 2015. Already a number of generation plants are being commissioned and/or studies are being finalised so as to increase the available power. The transmission grid expansion program of which the proposed project is part of will be helping to bring power from a number of generation stations that are being commissioned to the consumers throughout the country and region. Hence, the project underpins the Bank's country strategy paper (CSP) and the Medium Term Strategy (MTS) by supporting economic growth and rural development by making available the necessary power supply to meet the growing demand in Addis Ababa and others regions of the country, as well to as meeting the growing demand from the neighbouring countries. It is therefore important that the Bank continues to support the industrial development growth path and participate in expanding the transmission system network in the country to spur economic growth and help reduce poverty by increasing electricity access and support robust industrial and commercial development in the country.

1.2.2 The Bank is at present preparing to conduct an Economic Sector Work a flagship study in Ethiopia's Energy, Competitiveness & Growth. The concept was discussed and agreed with

the Government. The Study is expected to produce a flagship study report defining long term energy sector development options to guide energy sector planning, including an update of the Energy Sector Master Plan

1.2.3 The project will contribute to the improvement of the transmission system in Ethiopia, and provide the link to the interconnection lines with Kenya, Sudan and Djibouti. It will strengthen the regional interconnection projects by providing sufficient power transfer in the national grid. The regional nature of this project is also in line with the two priority areas of intervention under current CSP and MTS, namely infrastructure development and regional cooperation. The New Partnership for Africa's Development (NEPAD) which underpins the Bank Regional Integration Strategic Program recognises that lack of regional infrastructure in the continent leads to high transaction costs and low levels of competitiveness of African countries in the local, regional and global markets and therefore seeks to promote and foster sharing and integration of key infrastructure assets to enhance the development of the continent. Within the energy sector, it has been recognised that the availability of primary energy resources in the continent is very uneven, and therefore, to ensure availability of affordable energy to the peoples of the continent, there has to be a concerted effort to share energy resources through interconnection of electricity networks between the different countries of Africa. It is in this regard that the Ethiopia transmission system and associated regional interconnections which are under implementation in Ethiopia with financing of the African Development Bank become relevant and form part of the NEPAD agenda in the energy sector within eastern and southern Africa.

1.3 Donor Coordination

1.3.1 The Ministry of Finance and Economic Development (MoFED) is responsible for coordinating donor financing within the sector. This is done through regular consultations between GoE and the Donors active in the energy sector through the Development Assistance Group (DAG). The DAG also serves as a forum for donors to harmonise their strategies for intervention in all sectors including the energy sector, and to share experiences from their respective areas of operation in the country to provide useful lessons to the Group for incorporation in future interventions. Furthermore, the DAG serves as the conduit for development partners to assist GoE in formulating policies as well as monitoring policy implementation. The Bank's Field Office in Ethiopia (ETFO) is playing a leading role in the DAG. While there is no dedicated working group for the energy sector, there is active sharing of information and harmonization of donors' position at technical working groups on key sector issues with a view to promoting long-term sector viability and growth. Plans are underway to establish the energy sector technical working groups which eventual will be transformed in energy sector working group.

1.3.2 The most active development partners include: the World Bank, the European Investment Bank, the Arab Bank for African Economic Development (BADEA), the Kuwait Fund, India, China, Italy and the Bank Group (see Appendix 3). The World Bank has been supporting the following projects: (a) the Energy Access Project aimed at helping the country establish a sustainable programme for expanding the access to electricity, and to improve the quality of electricity supply; (b) Energy Access Global Environmental Fund (GEF); (c) the Second Energy Project designed to increase the efficiency and sustainability of Ethiopia's power sector; and (d) the Universal Electricity Access Programme (UEAP); (e) Gilgel Gibe I hydropower project. The European Investment Bank has financed the Gilgel Gibe II hydropower project. The involvement of BADEA, India and Kuwait Fund in the energy sector has been mainly in the rural electrification while China is involved in generation and transmission and Italy is involved in generation.

2. PROJECT DESCRIPTION

2.1. Project components

The Project Components are summarised hereunder:

- A. Transmission Lines Construction
- B. Construction of Substations and Substation, Upgrading and Rehabilitations
- C. Consultancy Services
- D. Audit Services
- E. Compensation and resettlement

Table 2.1: Project Components

No	Component Name	Est. cost (UA million)	Component description
A.	Transmission Lines Construction.	88.15	This component comprises construction of, on a turnkey basis, the following four 230 kV transmission lines. (i) 140 km Metu - Gambela line (ii) 352 km Koka-Hurso transmission line (iii) 141km Alamata-Muehuoni-Mekele line (iv) 315 km Wolkite -Hossana-Alaba, Gilgel-Gibe I-Jimma-Agaro-Bedele transmission line
B	Construction of Substations, Upgrading and rehabilitation of substations.	71.58	This component comprises extension of seven substations at Metu, Bedele, Koka, Alamata, Mekele, Welkite and Gilgel Gibe and Construction of eight new substations at Gambela, Hurso, Awash, Muehuoni, Alaba, Hosahina, Jimma and Agaro. Three 400 kV substations will be reinforced around Addis Ababa at Sululta, Sabatta II and Legetafo and one 400 kV substation at Debre Markos located in the north west of Addis Ababa.
C.	Consultancy & Audit services i) Project Supervision and Management. ii) Addis Ababa Distribution System Master Plan Study iii) Project Audit	8.19	This component includes procurement of the consultancy services for supervision of the construction contracts and for the preparation of distribution master plan for Addis Ababa and Audit service
E	Compensation and Resettlement	6.90	The Project has been categorized in ADB environmental and social category I. This component consists of implementation of mitigation measures and compensation of people affected by the project.

2.2. Technical solution retained and other alternatives explored

The Feasibility study selected the 230 kV extensions based on the length of the lines and the maximum required power transfer. The 230 kV voltage level was considered based on the recommendation of Ethiopian Power System Expansion Master Plan.

Project alternatives considered and reasons for rejection		
Alternative name	Brief description	Reasons for rejection
a) Expand the existing 132 kV system.	The feasibility study considered extension of existing 132 kV system to supply the demand.	The alternative option does not provide technically acceptable voltage at the receiving end. In addition the losses at 132 kV networks are considerably high and leads to multiple lines being strung at potentially higher cost compared to the construction of the 230 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

2.3. Project type

2.3.1 The proposed project is a standalone project. All 230 kV lines will be installed in parallel to the existing 132 and 230 kV transmission lines. The proposed new transmission lines will considerably increase the power transfer capacity from the existing and future generating sources to the national grid. In addition it creates an opportunity for strengthen regional interconnection with neighbouring countries such as Djibouti and Sudan. The transmission lines are part of the overall electrification plans of Ethiopia. The Koka – Hurso line will have a capacity of 250 MW transfer to the eastern and part of the country and Djibouti. Transmission capacity to North Sudan will also be increased through the Alamata - Mekele line. The Metu-Gambela line will support future interconnection with south Sudan. All

these lines are upgrading to meet the national demand. The current source of power supply is from the interconnected hydro generation plants such as Finchaa, Melkawakena, Koka, Awash II and III, Tis Abay I and II, Beles, Tekeze, Gilgel Gibe I and II.

2.4. Project cost and financing arrangements

2.4.1 The project cost is estimated at UA 174.81 million (USD 258.53 million), comprising foreign exchange costs (85.11%) of UA 148.78 million (USD 220.04 million) and local cost (14.89%) of UA 26.03 million (USD 38.50 million). The summary of the cost estimates by component, sources of financing and by category of expenditure are shown in tables 2.2, 2.3 and 2.4 below. Additionally, table 2.5 shows AfDB and EEPCo financing which contribution is estimated to be UA 23.06 million (USD 34.10 million). The cost estimate is based on exchange rates in July 2010.

Table 2.2: Summary of Project Cost Estimates by Component

No.	Category	FC	LC	Total	FC	LC	Total
		In Million USD			In million UA		
A	Transmission Lines	117.33	13.04	130.37	79.34	8.82	88.15
B	Substation	90.72	15.14	105.86	61.34	10.24	71.58
C	Consultancy and Audit Service	11.99	0.12	12.11	8.11	0.08	8.19
D	Compensation and Resettlement	0.00	10.20	10.20	0.00	6.90	6.90
	Total Project Cost	220.04	38.50	258.53	148.78	26.03	174.81

Table 2.3: Project cost break down by component in Million USD and Million UA

No	Component	FC	LC	Total	FC	LC	Total
		In million USD			In Million UA		
1	Transmission Line						
1.1	Lot-1						
	Wolkite-Hossaina -Alaba GGI-Jimma-Agaro-Bedele	35.37	3.93	39.29	23.91	2.66	26.57
1.2	Lot-2						
	Koka Hurso	46.70	5.19	51.88	31.58	3.51	35.08
1.3	lot-3						
	Metu – Gambela	19.76	2.20	21.96	13.36	1.48	14.85
1.4	Lot-4						
	Alamata- Muehuoni-Mekele	15.51	1.72	17.23	10.49	1.17	11.65
	Total for Transmission lines	117.33	13.04	130.37	79.34	8.82	88.15
2	Substations						
2.1	Lot-1						
	Alamata- Muehuoni-Mekele and Koka Hurso	29.57	8.37	37.94	19.99	5.66	25.65
2.2	Lot.2						
	Metu - Gambela and Wolkite-Hossaina -Alaba GGI-Jimma-Agaro-Bedele	42.96	4.75	47.71	29.05	3.21	32.26
2.3	Lot.3						
	Substation Upgrading and Rehabilitations	18.19	2.02	20.22	12.30	1.37	13.67
	Total for Substation	90.72	15.14	105.86	61.34	10.24	71.58
	Total For Works	208.05	28.18	236.23	140.68	19.05	159.73
3	Consultancy Services						
3.1	Project Supervision and Management	8.19	0.00	8.19	5.54	0.00	5.54
3.2	Addis Ababa Master Plan	3.80	0.00	3.80	2.57	0.00	2.57
4	Annual Audit	0.00	0.12	0.12	0.00	0.08	0.08
	Total for Services	11.99	0.12	12.11	8.11	0.08	8.19
5	Compensation and Resettlement	0.00	10.20	10.20	0.00	6.90	6.90
	Total Project cost	220.04	38.50	258.53	148.78	26.03	174.81

Table 2.4: Source of financing in million USD and UA

Source	In Million USD			In Million UA		
	FC	LC	Total	FC	LC	Total
ADF	220.04	4.39	224.43	148.78	2.97	151.75
EEPCo	0.00	34.105	34.105	0.00	23.06	23.06
Total	220.04	38.50	258.53	148.78	26.03	174.81

Table 2.5 Financing expenditure schedule in million USD and UA

Source	Year					Year				
	2011	2012	2013	2014	Total	2011	2012	2013	2014	Total
	In Million USD					In Million UA				
ADF	56.11	56.11	78.55	33.66	224.43	37.94	37.94	53.11	22.76	151.75
EEPCo	12.09	8.53	8.37	5.12	34.11	8.18	5.77	5.66	3.46	23.06
Total	68.20	64.63	86.92	38.78	258.53	46.12	43.70	58.77	26.22	174.81

2.4.2 Table 2.6 shows the split between the loan and grant amount. The grant amount will be used to support EEPCo's capacity building in design and construction supervision. 100% of the consultancy contract will be financed from the grant portion, whilst the balance of the grant amount has been apportioned equally to both the transmission and substation packages. Both the grant and loan proceeds

Table 2.6 Split between ADF loan and grant in million UA

No.	Category	FC	LC	Total	FC	LC	Total	FC	LC	Total
		ADF Loan			ADF Grant			Total		
1	Works									
1.1	Transmission Lines	54.39	1.48	55.87	24.95	0.00	24.95	79.34	1.48	80.82
1.2	Substation	36.40	1.48	37.88	24.95	0.00	24.95	61.34	1.48	62.83
	Total for Works	90.78	2.97	93.75	49.89	0.00	49.89	140.68	2.97	143.65
2	Services									
2.1	Consultancy and Audit Service	0.00	0.00	0.00	8.11	0.00	8.11	8.11	0.00	8.11
3	Compensation and Resettlement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Project Cost	90.78	2.97	93.75	58.00	0.00	58.00	148.78	2.97	151.75

2.5. Project's target area and population

2.5.1 The project is located in the Northern, Southern, South Western and Eastern part of the country and is linked to the existing generation plants and to a new plant recently commissioned including Beles, Gibe II, Tekeze as well as the upcoming Mekele wind farm. Along the project line, there are existing electric transmission lines supplying the demand from households to big and small industries as well as evacuating power from generation plants as indicated in the Map in Appendix IV. The new transmission lines will support the growing demand in the region. The project area is selected based on the requirement of sustainable and sufficient power transfer to the national grid and to satisfy the demand growth in various parts of the country.

2.5.2 The main project beneficiaries will therefore includes (i) the clients of the Power Utility EEPCo including Households, industries, health centres commercial and agriculture (irrigation schemes) consumers. Existing electricity consumers connected to the national grid will also benefit from the supply and increased reliability of service as a result of the project

2.6. Participatory process for project identification, design & implementation

2.6.1 Participation in identification was embedded in the government's annual budget programming process. In line with the National Energy policy which emphasizes the need for the development of indigenous resources, Ethiopia has started to aggressively develop its immense hydro power potential both for internal consumption and export purposes. The energy generated at the remote hydro sites has to be transported to the load centres.

2.6.2 At design and preparation stage, views of the various stakeholders were captured through meetings and workshops carried out as part of the ESIA, ESMP and RAP studies. The main objective was to ensure that all issues concerning the proposed project have been covered. Consultations included stakeholders in relevant government ministries, communities, districts, national and international NGOs and civil society. Awareness campaigns and participatory assessments such as discussions with local leaders, public village meetings and interviews with focus groups were held.

2.6.3 Results of the consultations have been incorporated into the project design. Issues were discussed and consensus reached on land acquisition procedures, compensation in terms of valuation and timeliness for buildings and crops, the prospect of increased spread of HIV/AIDS and possibility of connecting villages along the line, among other issues. Although villagers are concerned about losing their properties, especially houses and farmland, they also revealed their willingness to relocate as they consider the project to be in the best interest of the country

2.7. Bank Group experience, lessons reflected in project design

2.7.1 The ADF has been a partner of the Ethiopia government in the development of the electricity sub-sector in Ethiopia for a long time. Since 1979 it has provided financing for seven projects in the sub-sector. The Bank has also been supporting Ethiopia's effort to expand and exchange power with its neighbouring countries. The Bank's support has been focused on providing finance for the high voltage transmission lines, rural electrification and regional interconnection projects. Major transmission projects financed by the Bank are the Koka Dire Dawa, 317 Km of 230 kV line, Gilgel Gibe I - Ghedo 127 km of 230 kV and the Northern Ethiopia Power Transmission project consisting of construction of over 1000 km of 230, 132 and 66 kV lines and associated substations. Currently the Bank is financing 230 kV interconnection line between Ethiopia and Djibouti which is expected to be completed in December 2010. In addition the rural electrification II project is progressing well and expected to be completed in 2013. The rural electrification I project was completed in 2009. Each of the operations above ensured that the ESIA were properly handled.

2.7.2 In this regard, the Bank has learnt several important lessons which have been taken into account in the design of the current project. The important lessons include: (i) Implementation of projects in health and education sector was delegated to the regional and district (Woredas) levels and weaknesses in technical capacity have been demonstrated in all cases. Due to the fact that EEPCo is Federal Government entity, projects implementation in energy sector is not delegated to regional level; (ii) in the past, there have been difficulties in managing Bank resources that are advanced under special revolving account of some projects. Since then the direct payment method was used with the view to ensure a proper utilization of the Bank's resources; (iii) there have been delays in submitting procurement plans, bidding documents, evaluation reports and contracts in the past. The Bank is continuously training procurement experts in the country and this has improved the situation. In addition the Bank's field office is providing necessary support to the PITs to help accelerate the procurement process; (iv) As is the case with this project, 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. The stores are moved closer to the project site since Rural Electrification I project. In this project, procurement packaging will be

designed to consist of both transmission lines and substations. (v) Non-availability of counterpart funds at the early stage of implementation, especially for compensation, could delay project implementation. This issue has been mitigated in this project by ensuring that funds are put into an escrow account from which they will be drawn to compensate the affected persons. Also regular site visit by staff from Field Office is crucial in addressing bottlenecks at the early stage in the project implementation. The Bank Field Office has a balanced skill mix to address project implementation issues in a timely manner. The implementation of the UEAP as a coordination mechanism among donors for the transmission and rural electrification program has increased EEPCo capacity in project management and this has been taken into account in the project .

2.8. Key performance indicators

2.8.1 The main deliverables of the project are: (i) construction of 948 km of 230 kV single and double circuit transmission lines: (ii) extension of seven substations at Metu, Bedele, Koka,, Alamata, Mekele, Welkite and Gilgel Gibe I; (iii) Construction of eight new substations at Gambela, Hurso, Awash, Muehuoni, Alaba, Hosahina, Jimma and Agaro; (iv) improve electricity power supply, stability and reliability (v) delivery of the Addis Ababa Master Plan and (vi) full implementation of the ESIA and RAP measures.

2.8.2 The project will allow the transfer of 300 MW to eastern part of the country, 320 MW to the southern and south western part of the country and 240 MW from the northern part of the country to the national grid. The project will contribute to regional integration due to an increase in power trade to over 2100GWh per annum in the medium term and help the country to realise 50% electricity access from the current rate of 45%. It will also help to reduce technical losses to less than 12% in the medium term.

2.8.3 During construction, several direct jobs will be created, including sub-contracting to local transmission and substations contractors, supply of local material such as cement and reinforcement bars and casual labour for construction that could be sourced directly from the project area as well as contracts for services such as security, bush clearing, digging and catering. Salaries, wages and fees to construction workers and local sub contractors will give a boost to the local economy. It is estimated that 15-20% of project costs could be spent in the project area.

2.8.4 The progress during implementation will be monitored by the establishment of the Project implementation Team who will ensure timely commencement of the works, regular disbursements, timely submission of quarterly progress and environmental monitoring reports and annual audit reports. EEPCo already has the baseline data relating to customer numbers and connections, access rates, level of technical losses, number of people to be compensated and the number of people to be employed by the project.

3 – PROJECT FEASIBILITY

3.1. Economic and financial performance

3.1.1 The financial and economic analysis of the project was carried out by the EEPCo Planning Division and validated by the Bank. The study concludes that the project is both financially and economically viable.

3.1.2 The base case Financial Net Present Value (FNPV) is estimated at USD 31.40 million and an FIRR of 11.0%, which is greater than the company's estimated weighted average cost of capital (WACC) of 10%. The base case Economic Net Present Value (ENPV) is estimated as USD 305 million and an EIRR of 16%, which is greater than the opportunity cost of capital of 10%.

3.1.3 The greatest positive impacts are likely to stem from the impact of improved electricity supplies to households, manufacturing and other business activity. The project will also generate significant direct opportunities for the local population and indirect employment.

Table 3.1: Base Case financial and economic returns and indicators

Item	Base case returns
FIRR, FNPV @ 10% real	11.0%, USD 31.40 million
EIRR, ENPV @ 10% real	16%, USD 305 million

3.1.4 A sensitivity analysis was conducted on key variables, namely the lag in tariff adjustment, cost overrun, volume of energy transmitted and the rate of real tariff adjustment. Due to the fact that the current tariff policy seeks to continually benchmark the tariff to the USD (USc 6/kWh), there should be minimal impact from a depreciation of the domestic currency against the lending currencies, unless if there are long lags in the adjustment in future. A one year lag in adjusting the tariff to capture the effects of depreciation and inflation results in the project losing its viability and posting a negative FNPV of USD24.91 million. Cost overrun is not very sensitive as the project is able to withstand up to a 10% increase in the investment costs and the project break even is after an increase of 17% in the investment cost. The project is also relatively sensitive to the volume of energy that is transmitted through the lines. A 10% shortfall in the volume results in an 80% reduction in the FNPV of the project to only USD5.62 million. The base case also assumes that the tariff will be adjusted by a real rate of 10% after every five years in an attempt to adjust it to the long run marginal cost. However just a 1% shortfall in this increment to 9% will result in the project breaking even point. A detailed discussion of the assumptions and results of this analysis is included in annex B.7.

3.1.5 Separately, the analysis considers EEPCo's group financial projections in order to assess the performance of the Corporation over coming years. EEPCo's forecasts show that the company will find it challenging to meet its financial obligations over the coming four years particularly as financial obligations will increase considerably as a result of principal repayments that are due on existing loans and of increasing obligations in relation to bonds in issue. This comes as a result of tariffs having been kept low with the last tariff adjustment undertaken in 2006 despite the heavy expenditure that the company has undertaken in the past few years. This has resulted in a very low (negative in real term) returns on capital being realised by EEPCo. Assuming that the tariff is adjusted to USc 6.00/kWh by 2012 and adjustments are made yearly to reflect the depreciation of the BIRR against USD (major borrowing currency), the company's Debt Service Coverage Ratio, (DSCR) will reach very low levels in coming years (1.27 times in FY12, 1.07 times in FY13 and only 0.96 times in 2014. However the situation will deteriorate further if there is a time lag in adjusting the local tariff. A one year lag in adjustments will result in a DSCR of 1.22 times in FY12, 0.98 times in FY13 and only 0.91 times in 2014. Whilst a number of short-term measures could be implemented to meet financing obligations over coming years, such as government contributions or debt restructuring, the viable solution in the longer term is to ensure that the tariffs allow EEPCo to recover the investment costs (including the financing costs) and generate acceptable levels of return on capital and for the sector to become attractive to private sector investors.

3.1.6 Government has expressed its willingness to ensuring the viability of EEPCo and the electricity sector in general. The current tariff review requested by EEPCo is under review by the government. There is general agreement among the major financing partners in the energy sector that EEPCo tariff levels should be adjusted to enable EEPCo achieve a positive average operating margin and improve its operational efficiencies All the measures currently underway to improve operational efficiency are expected to have been completed by 2015. This will be an undertaking of the loan and grant proceeds from the Bank.

3.2. Environmental and Social Impacts

3.2.1 Environment

3.2.1.1 The Ethiopia Electricity Transmission System Improvement project has been classified, as Category 1 in accordance with the AfDB's Environmental and Social Assessment Procedures (ESAP) and the Involuntary Resettlement policy. This classification is based on the voltage level of the lines, which is 230 kV exceeding the Bank's threshold of 110 kV and spanning on aggregate over 900 km; and has a potential impact of displacing a large population in various settlements. This Categorization is also consistent with the Ethiopian Environmental Laws, regulations and Environmental Protection Authority, Environmental Impact Assessment Procedural Guideline series 1, of November 2003, that requires the preparation of full Environmental and Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) reports. The ESIA Summary of the project was posted on the Bank's Public Information Centre in July 2010, with reference P-ET-FAO-008.

3.2.1.2 The key environmental issues associated with the plant include adverse impact on large predatory birds, including night active birds which are the ones most affected by high voltage transmission lines (HVTL). These will be because of physical clearance and hazard to birds especially on the Koka-Hurso line, which lies in the Rift Valley where birds are potentially to migrate through; and are a danger to climbing animals and people. Extensive clearance of the way-leave can potentially create a specific biotope in areas with denser vegetation hence may become hunting ground for carnivores. The HVTL are also likely to cause visual impacts hence disturbing the aesthetic beauty of the area, more so through the where tourist will be seeking pristine natural environments they may find this disturbing; however, from the perspective of rural populations, it is seen as a sign of development. Furthermore, traffic impact may be expected to occur during a short period at peak construction in the form of increased congestion on the main roads to the power plant. All of these impacts are expected to be localized, short lived, and reversible. Mitigation measures are included in detail in the environmental social management plan (ESMP). The project is also expected to affect 752 households through creation of the way leave for the transmission line. All the mitigation, monitoring and management measures proposed will be adopted by the EEPCo. The assessment of the potential impacts are within the acceptable limits of the Ethiopian and African Development Bank's safeguard policies and guidelines.

3.2.1.3 An estimated USD 10.2 million will be made available in the project budget for ESMP implementation and resettlement and compensation in accordance with AfDB policy on Involuntary Resettlement.

3.2.2 Climate Change

The implementation of the project will foster development in the major hydroelectric production areas. This will allow for substitution of the current use of generators using diesel gas, which releases greenhouse gases into the atmosphere, with less polluting hydroelectric production and by way of providing access to electricity to the rural Ethiopians, will reduce the burning of woods for fuel consumption.

3.2.3 Gender

3.2.3.1 The project is not expected to cause any major negative impacts on either women or men both during construction and during implementation. However, it suffices to say that the most potentially negative impacts of the project will emanate from relocation and destruction of property including food crops whose incidences impact women more than men. Women bear the disproportionate burden of constructing the tukuls (a traditional hut) and taking care of children. Traditionally women in rural areas tend to rely more heavily than men on informal support networks. Interruption to these networks due to relocation will potentially affect women more than men. Implementation of the resettlement action plan in the project has

included women as committee members and women interests will be highly considered. Similarly, the scourge of HIV/AIDS impacts more on women and girls more than men and this will be made worse by the influx of male workers into the project area. The project will embark on HIV/AIDS/STI awareness and prevention programs geared towards women and girls especially students.

3.2.3.2 During project implementation, women just like men will have the opportunity for direct and indirect jobs. It is expected that 30% of the semi-skilled and unskilled jobs will be designated to women. An additional 10% of jobs will be available for women at each of the 15 substations. In order to ascertain conditions that are conducive and encouraging for women to get involved and participate in the implementation of the project, a provision of USD100, 000 has been set aside which will be used for carrying out gender sensitization and awareness programs in communities along the transmission lines. During operation benefits to women shall include improvements to existing social infrastructures and services within reach such as health and secondary education services; and availability of flourmills will reduce the labour input by women and girls in so doing free up time for other productive uses and girls would devote time into school work. Increased use of electricity into home appliances such as cooking and lighting saving time from collecting firewood; and also result in improvements in water supply where water pumps shall receive adequate pumping power.

3.2.4 Social

3.2.4.1 The construction phase of the transmission lines will take approximately 24 months and during this period, the project will create a number of employment and business opportunities associated with the construction works. Over 90% of the rural economy is agricultural based. The project will therefore enhance the economies in the project area hence contribute towards poverty alleviation through creation of jobs for local communities and supply of reliable and affordable electricity. The power project is expected to generate as many as 1000 jobs in semi-skilled and unskilled areas. Hence the project has a potential to inject into the local economies an estimated ETB 22 million over the construction period. An additional 85 people will be employed during operation to operate each of the 8 new substations. Since the power transmitted will be within the national grid, project benefits should be seen in a national context where-by facilitate economic growth in the project area and nation through industrial growth in sectors such as manufacturing, agriculture and services, resulting in more jobs being created hence increased incomes.

3.2.4.2 Although there are on-going awareness campaigns against the dangers of HIV/AIDS/STI and TB, field workers such as those to be employed under this project may inevitably indulge in behaviours that may put them at risk of contracting or spreading the diseases. The project has, therefore, put into place and made provisions for implementing awareness and prevention campaigns for both contractor workers and the communities in the project areas. A provisional sum has been included in the ESMP for HIV/AIDS and STI awareness and prevention activities.

3.2.5 Involuntary resettlement

The project will result in affecting 752 households through creation of the way leave for the transmission line, tower foundations, access roads and establishing sub-stations. The project has set aside ETB 83,912,340 (equivalent of USD 6, 075,497) for implementation of the Resettlement Action Plans (RAPs) (see Annex B.8 for details. This will ensure that appropriate compensation and resettlement assistance will be paid out and implemented in accordance with AfDB policy on Involuntary Resettlement. Implementation will be carried out by EEPCo which has accumulated sufficient experience over the years in managing resettlement and compensation. In this regard an escrow account will be created to deposit the amount and this will be made a condition for the loan and the grant.

3.2.6 Stakeholders

3.2.6.1 Stakeholder consultations were performed during project preparation and conceptualization mainly through the ESIA and RAP exercises. Public Consultations were made with affected people, and selected communities at Adama Woreda Sire Robi Kebele. The consultations were conducted at Semein Woreda, Felegedearo village, Sire Robi Town, Guraghe Chahe, Jimma Mana, Gara Bechano and Kunde kebeles. The related ESIA documentation is publicly available on EEPCo's web site at– www.EEPCO.gov.et. During the Scoping Phase, public participation was comprehensive and included advertising in national, regional, and local newspapers, subsequent notifications in regional and local newspapers, and the dissemination of a nontechnical Background Information Document (BID) in English, Amharic, Tigrigna and Oromigna languages. Consultations and disclosure meetings were held with the affected community households, elders and chairpersons of the Kebele (Peasant) Associations.

3.2.6.2 Additional consultations took place at Sisum, Butore, Gari peasant associations for the Alaba-Jimma-Bedele line; Alle district, Gari Bachana peasant Association for the Metu-Gambela line; Tigray Regional Administration Office, Mekele Semen Woreda, Enderta Woreda Administration, Cultural and Tourism Office on the Alamata-Mekele line; and on the Koka– Dire Dawa line, organizations that were consulted include: Oromia Region Administration, health, education agriculture, offices Adama Woreda, Sire Robi town Administration, Cultural and Tourism Office, etc. All key agencies such as Department of Wildlife, Department of Forestry, and Ministry of Agriculture, etc. will be served with copies of the respective ESIA's. Regional and District Administration offices will also be supplied with copies to be shared and discussed with local leaders. The Bank also posted the Executive Summary of the ESIA and RAP on its website and distribute to PIC (Public Information Centre) and Ethiopia Field Office.

4. IMPLEMENTATION

4.1 Implementation arrangements

4.1.1 Executing Agency: The Federal Democratic Republic of Ethiopia shall be the Borrower of the loan. EEPCo will serve as Executing Agency (EA) for the project. Some of EEPCo's staff members benefited from training on project management and procurement provided through donor support, including the Bank Group over the past years. EEPCo has also gained adequate experience in implementing projects financed by the Bank Group.

4.1.2 The project will be a turn-key operation coordinated by a Project Implementation Team (PIT) and five sub-offices at each of the project sites from within EEPCo existing establishment. The five sub offices will be located in Dire Dawa, Mekele, Metu, Hosahina and Jimma. The PIT will be headed by a Project Coordinator reporting to the Executive Officer of transmission line and substation construction in EEPCo. The Project Coordinator will be assisted by five project site managers consisting at least of four Transmission engineers, two Electrical substation engineers, two Civil engineers, one environmental officer, one social expert and seven accountants. Additional supervisors will also be assigned as necessary. Project accounting and reporting in accordance with the Bank's requirements will be done at PIT. In this regard, seven appropriately qualified and experienced accountants will be assigned by EEPCo (2 at the Project Coordination Office and one each for the five sub-sites) All accountants will be assigned during establishment of the project implementation office.

4.1.3 The project implementing arrangements for the Electricity Transmission System Improvement Project will comprise the overall PIT and five sub-offices at each of the project sites. EEPCo will submit the CV of the Project Coordinator, Site Managers, one environmentalist, one social expert and two accounting staff to be assigned to the project for the Bank's approval. Hence, the establishment of the project implementation team at EEPCo,

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 two accountants are given in technical annex B.3 implementation arrangement.

4.1.4 Selection of the consultant for the project supervision and management will be done prior to award of the contract for construction.

4.2 Procurement Arrangement

4.2.1 All procurement of works and acquisition of consulting services financed by the Bank will be in accordance with the Bank's Rules and Procedures for Procurement of Goods and Works or, as appropriate, Rules and Procedures for the Use of Consultants, using the relevant Bank Standard Bidding Documents. EEPCo through the Project Implementation Team to be set up will be responsible for the procurement of works, consulting services, and miscellaneous items. The World Bank recently under the Additional Financing for Energy Access Project undertook an assessment of procurement capacity for EEPCo and agreed on measures to be implemented in order to institutionalize the procurement functions. The measures include a study for creation of a centralized procurement unit and recruitment of a Senior Procurement Specialist to strengthen the procurement function. In this regard, the services of the Senior Procurement Specialist may be extended to this project in order to minimize duplication of efforts. EEPCo has experience implementing similar projects with the Bank and any delay in engaging the Senior Procurement Specialist will not affect the Project.

4.2.2 Detailed procurement arrangements are presented in Annex B5 and the table below summarizes the scope of procurement, proposed procurement modes for works and selection methods for consultancy services:

Table 4.1 – Procurement Arrangements

Contract Description	Total Cost (UA million)	ADF Financing (UA million)	Mode of Procurement or Selection Method
Works			
Construction of transmission Lines	88.15	80.82	ICB
Substations	71.58	62.83	ICB
Services			
Project supervision and management	5.54	5.54	QCBS
Addis Ababa distribution Master Plan	2.57	2.57	QCBS
Audit Services	0.08	0.00	LCS*

– ICB International Competitive Bidding; QCBS –Quality and Cost Based Selection; LCS – Least Cost Selection method

** The audit Service will be financed by EEPCo*

4.2.3 Procurement of Works: Procurement of works for the construction of the transmission lines valued at UA 88.15 million and substations valued at UA 71.58 million in aggregate will be carried out under International Competitive Bidding Procedures and implemented using the supply and installation contracts.

4.2.4 Consultancy services: Selection of consultants for (i) Project management and supervision valued at UA 5.54 million and (ii) Addis Ababa distribution Master Plan valued at UA 2.54 million will be done through International Shortlist using the Quality and Cost Based Selection Method. Audit Services to be recruited under the project will be done through National Shortlist and Least Cost Selection method. The Audit Service amount is part of the project cost and will be financed by EEPCo.

4.3 Financial Management

4.3.1 EEPCo will implement the Electricity Transmission System Improvement Project through Project Implementation Team that directly reports to the Executive Officer for Transmission Construction. An assessment of EEPCo's financial management arrangements for the implementation of the project indicates that they satisfy Bank requirements to ensure

that the funds made available for the financing of the project are used economically and efficiently and for the purpose intended. EEPCo is a well-established organization that has experience in the implementation of Bank financed projects with adequate staff and systems in place to enable proper planning, budgeting, accounting and reporting for the use of Bank funds in the implementation of the project. A detailed financial management assessment is attached as technical annex B.4.

4.3.2 EEPCo prepares annual financial statements audited by the Audit Services Corporation. The audited report for EEPCo for the year ended 7 July 2008 was qualified by the auditors due to their inability to verify an amount of ETB 132.8 Million shown as receivables from new connections (resulting from data interface problems) and non compliance by EEPCo with the policy on cash balances. These issues are being addressed by EEPCo. The audit report for the year ended 7 July 2009 was submitted to the Bank early September 2010. Project audit reports for other Bank financed projects have however, generally been submitted on time and have been unqualified, with no major weakness in internal control reported by the auditors.

4.3.3. Project accounting and reporting in accordance with the Bank's requirements will be done at Project Coordination Office. In this regard, seven appropriately qualified and experienced accountants will be assigned by EEPCo (two at the Project Coordination Office and one each for the five sub-sites). EEPCo will submit the CV of the two accounting staff to be assigned to the project for the Bank's approval.

4.3.4 **Disbursement Arrangements:** All disbursements under the loan and grant will be made using the Direct Payment method where the Bank will pay the supplier directly based on satisfactory performance in accordance with the terms of the contract. Disbursements under the loan would be made in accordance with the Bank's rules and procedures as laid out in the Disbursement Handbook applicable.

4.3.5 **Audit Arrangement:** EEPCo has an Internal Audit department comprising 34 staff that gives the board audit committee and management information on the appropriateness and effectiveness of the internal controls in accordance with their work program. It is expected that the project will be part of the work program of the internal audit department to provide added assurance to management on the implementation of the project. Independent external auditors that will be recruited competitively by EEPCo will carry out the audit and report on the financial statements in accordance with the Bank's requirements. The audit fees for the project audit have been provided for under the project costs. The project audit will be carried out in accordance with a Terms of Reference (TOR) that has been approved by the Bank and include specific opinions on the project financial statements, internal control systems, procurement arrangements etc with a detailed management letter. (The draft audit TOR that can be used as a guide has been given to EEPCo). The audit report will be sent to the Bank within six (6) months of the end of the respective fiscal year.

4.4 Monitoring and Evaluation.

4.4.1 EEPCo performance is monitored through the preparation of periodic monthly and quarterly reports for both senior management and the boards. There are established performance indicators and budgets against which actual reporting is done and significant variances explained. The Bank requires quarterly Progress Reports showing cash receipts by sources and expenditures by main expenditure classifications together with Physical Progress Reports linking financial information with physical progress and highlighting issues that require attention. The sector indicators for power infrastructure projects as captured in the Log Frame will be monitored using reports produced by EEPCo and the Ethiopia Electricity Agency.

4.4.2 The Project will be launched in the first quarter of 2011 and will be monitored through field mission from headquarters at least once a year from 2011 through to 2014. The Bank

supervision will also involve desk supervisions including review of bi-annual progress and annual audit reports. The Bank's Ethiopia Field Office (ETFO) will also carry out field supervisions once a year or on a need basis. The coordination of the missions will be done by the Ministry of Finance and Economic Development in collaboration with the Executing Agency.

4.4.3 Project Implementation Team assisted by the consultant has the primary responsibility of monitoring project implementation and fulfilling EEPCo's reporting obligations to the Fund, including preparation and submission of Quarterly Progress Reports (QPRs) and annual audit reports. These reports shall cover all aspects of project implementation, including the status of progress, implementation of environmental and social mitigation measures as well as status of fulfilment of the loan conditions. Moreover, EEPCo shall maintain separate accounts that permit the identification of expenditures by category and financing source for all components of the project

4.4.4 The supervision consultants shall be required to prepare and submit to EEPCo and the Bank, final commissioning reports at the completion of their assignments. After the commissioning of the project, the EA will prepare and submit a Project Completion Report (PCR), which would serve as input in the preparation of the Bank's own PCR. During implementation, EEPCo's Environmental Monitoring Unit (EMU) assisted by the consultant will monitor the ESMP and will prepare and submit to the Bank quarterly environmental reports. The EMU will also be responsible for monitoring impacts on gender and women in particular both during implementation of RAP and the project as a whole. The Unit has been handling such tasks and is fully conversant with Bank procedures. The Ethiopian Environmental Protection Agency will also be actively involved during the monitoring phase

4.4.5 Mid-Term Review (MTR): The Bank mid-term review of the project will be held not later than 18 months after the loan approval, which shall inform any adjustments to the project design to ensure that project objectives are achieved.

4.4.6 Project completion Report (PCR): After the commissioning of installations, the EA and the Bank will prepare and submit a joint Project Completion Report (PCR).

4.4.7 Implementation Schedule and Supervision: The project will be implemented over a period of 32 months. On the assumption that the ADF loan is approved in December 2010, the project is scheduled for completion by August 2013, with the commissioning of all sections of transmission lines and substations. The critical milestones for project implementation are given below

Table 4.2 Project Implementation milestones

No.	Activity	Responsible Agency	Target Date
1	Loan Approval	ADF	December 2010
2	General Procurement Notice	ADF/EEPCo	August 2010
3	Loan Signed	ADF/EEPCo	January 2011
4	Effectiveness	EEPCo	March, 2011
5	Recruitment of the Project Supervision and Management Consultant	EEPCo/ADB	March 2011
6	Bid document submitted to the Bank	EEPCo	November 2010
7	Review of bidding document and no objection	ADB	November 2010
8	Bidding	EEPCo	December - February 2011
9	Evaluation, no objection	EEPCo/ADB	March 2011
10	Contract Signature for construction and Mobilization	EEPCo/ADB	April-May, 2011
11	Commissioning	Contractors	July 2013
12	Project Completion Report	EEPCo/Consultant	October 2014

4.4.8 All contractors for the line and substations will be mobilized at site in April 2011. Before commencement of the construction work EEPCo will implement the environmental mitigation measures as per the recommendation of ESIA report. The manufacturing supply and installation of all sections of the line and the substation will be undertaken in parallel and completed within 24 months from contract commencement. The testing and commissioning of the transmission lines and substations is planned to take place in July – August 2013, and the project will be commissioned by August 2013

4.5. Governance

4.5.1 EEPCo is managed by the Board of Directors consisting of 9 members from various Ministries and Government organizations and the chief executive officer (CEO) of EEPCo. The Board holds monthly meetings and works closely with the Management Committee of EEPCo with regard to the overall activities of the Corporation. The internal controls of the company are very effective in monitoring the utilization of its resources. Furthermore, EEPCo's financial statements are audited annually by the Audit Service Corporation (ASC), a governmental entity which carries out annual audits for public and private organizations in the country. At the project level, the Project Office will be required to maintain accounting and financial records that will be audited in accordance with international accounting standards.

4.5.2 In general, the energy sector's governance issues are well-articulated in Ethiopia. Currently, the country has begun undergoing Civil Service Reform Program in all sectors including the energy sector. Since 2004, the government has also endorsed business process reengineering (BPR) as a foundation for strengthening Result Based Performance Management System in the Civil Service. In order to enhance the capacity of public institutions in country and to create an ideal environment for investment and economic growth, EEPCo like other institutions in the country has gone through a series of reform processes. The decentralized model of service delivery contributed significantly to the improvements in electricity access rates and the expansion in basic electricity services has especially benefited the poor with distribution of fluorescent lamps. In order to enhance the achievements realised to date EEPCo is judiciously embarking on the BPR and is currently undertaking a new and major study on the Reorganisation and recommendations are expected to change dramatically the way it performs under the GTP. The results of the study are expected by the first quarter in 2011. Furthermore, the Government has established an Anti-Corruption and Ethics Commission with an objective of fighting corruption at all levels and enhancing transparency and accountability. The commission is being strengthened through technical assistance programs from some development partners.

4.6. Sustainability

4.6.1 The Government of Ethiopia (GoE) has shown great commitment to implementing the project due to the fact that the project will provide sufficient power transfer and strengthen the national grid.

4.6.2 EEPCo has over the decade implemented similar projects and the staffs have gained considerable experience in the implementation of such projects. EEPCo also has staffs that are experienced in the 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.

4.6.3. **Tariff:** Under the current practice, EEPCo proposes a tariff structure to government for approval, after it has been reviewed and recommended by the Ethiopia Electricity Agency (EEA). The objective of the tariff policy is to (a) achieve full cost recovery through user charges (b) ensure a uniform tariff structure for all geographic regions covered by the ICS and (c) provide for cross-subsidies across the various customer categories in favour of low-income

households. EEPCo is able to supply electricity at an affordable rate through a social tariff built into the tariff structure. Electricity consumption by residential customers for the first 50 kWh is charged at ETB 0.2730/kWh (approximately US¢ 2/kWh), making it the lowest in the region. The current tariff level has been maintained since 2006. Annual tariff adjustments from EEPCo are permissible provided certain operational efficiency benchmarks are maintained or achieved. However, the prevailing practice in EEPCo appears to be working within the framework of achieving a selling price of electricity placed or suppressed to a rate equivalent to US¢6.00/kWh depending on the prevailing exchange rate. Meanwhile, EEPCo has submitted an average tariff adjustment of approximately ETB 0.242/kWh (US¢ 1.50/kWh) because the rate has fallen below the benchmark rate of US¢6.00/kWh due to mostly foreign exchange fluctuations. However the proposed increment will only take the average tariff to the approximate equivalent of US¢ 4.8/kWh which is still quite low and will not threaten the objectives of expanding electricity access to the poor. The request is under consideration by the EEA. In the meantime EEA has advised EEPCo to review its operational efficiencies to make it easier for tariff approvals.

4.6.4 The measures to improve operational in efficiencies include reduction in technical and non technical losses to less than 12% by 2012 through the installation of capacitors to reduce power factor in the industrial sector and implementation of demand side management encompassing distribution of over 11 million of compact fluorescent lamps to the households. Prepaid meters are increasingly being used to improve metering, billing and collection. Increased use of solar and wind energy to reduce the use of diesel generation for the off grid power supply; hence reduce operational and maintenance costs of those plants. A study is also underway on the organisational restructuring of EEPCo to meeting the new and changing landscape in the electricity sector, where more and more private partners are involved in renewable sources of energy. A number of wind farm are under development and this is expected to provide an additional generation capacity of about 1000MW in the next decade. The geothermal resources are also been harnessed to change the generation mix. This should help reduce the number of people supplied from off grid system and therefore reduce diesel costs. As part of the public service program EEPCo is implementing and reforming its BPR by extending services to remotes areas under the decentralisation program and thereby help to reduce respond time to complaints by clients.

4.6.5 Private sector participation: The Government of Ethiopia has been following a private-sector-led development policy by creating an enabling business environment designed to increase the role of the private sector in the development of the national economy. The government has adopted a two-track strategy, comprising grid extension by EEPCo, and isolated electrification by the private sector, including community organized cooperatives and similar entities. For the grid extension arm of this strategy, the key to progress was seen as success in implementing the commercialization and decentralization of EEPCo's operations. For the isolated rural electrification arm of the strategy, the key was providing conditions that would encourage and promote private or community involvement. The Ethiopian Renewable Energy Development and Promotion Centre (EREDPC) and Rural Electrification Fund (REF) has been established and this allows local private investment in generation facilities up to 25 MW (hydro or thermal) and local or foreign investment in projects over 25 MW. Increasing access to electricity services is the government linchpin for promoting income generation activities and promoting and enhancing social service delivery outside the major urban centres so as to improve people livelihoods and contribute to poverty reduction.

4.7 Risk management

4.7.1 The major risks and mitigating measures during project implementation are outlined below:

a) *Cost overrun:* In addition to the physical (5%) and price (5%) contingencies built into the project costs, the contract packaging will ensure that all necessary construction guarantees and insurances will be in place. Furthermore, liquidated damages will serve to act as an incentive against completion delays. This risk was mitigated during the process of setting the Project costs which were also estimated using the most recent input unit cost estimates and by integrating adequate contingency provisions.

b) *Financial viability of EEPCo:* Tariff levels in Ethiopia are below EEPCo's true costs of producing, transmitting and distributing electricity (including financing costs). Moreover, EEPCo's financial forecasts show that the corporation will find it challenging to meet financing obligations over the medium-term. The government has been very supportive through financing some of EEPCo's capital investments and granting debt restructuring to reduce the burden of loan repayments on EEPCo's cash flows. It is expected that such level of support will be maintained going forward. Whilst EEPCo does not currently employ foreign exchange hedging mechanisms, the impact of BIRR devaluation can be mitigated by ensuring the timely adjustment of the tariff and partly through foreign earnings from energy exports that will commence to Sudan and Djibouti by 2011, generating close to USD 25 million per annum. The Economic Sector Work (ESW) being undertaken in collaboration with OREB, will review the tariff issues and financial viability of the sector and provide related policy recommendations.

c) *Affordability:* The proposed increment in tariffs should not significantly affect the project objectives of increasing electricity access and connecting more customers. The adjusted tariff would still be one of the lowest in the region and the tariff system in Ethiopia ensures that electricity remains affordable to the poor through consumer cross subsidisation. EEPCo also has a good consumer mix with 30% domestic consumption, 40% industrial consumption and 30% service sector & others. It has experienced good demand growth in all its consumer categories over the last several years which will ensure a balanced growth supported by steady demand from industrial and commercial consumers.

d) With regard to the environmental mitigation measures every effort will be made to avoid displacement and land acquisition, avoid any visual impact on cultural heritage sites such as churches, mosques, schools, clinics/hospitals, archaeological and historical sites and away from any sites of outstanding natural beauty. The flexibility in the positioning of transmission towers and the relatively low cost of changing line direction mean that the alignment can be modified to avoid displacing any households, hence avoiding land acquisition or resettlement. The final alignment is decided following a line survey and takes account of legal conditions, including avoiding disrupting houses, forested routes, wetlands or other environmentally sensitive areas.

e) There is also the potential risk that the resettlement and compensation program may not be implemented in a timely manner owing to litigations which might arise. The appraisal mission has critically examined the implementation program, the skill mix composition of the team which will discharge the responsibility of implementing the agreed plan. The mission is confident that the team has adequate experience and competence mix on resettlement and compensation issues.

4.8 Knowledge building

4.8.1 The proposed project is one of the biggest transmission projects to be undertaken in the country. The project provides an opportunity to the staff of EEPCo in building transmission lines and associated substations. Therefore, during the construction of the transmission line and the installation of the equipment, EEPCo's staff will be trained on the job by the contractors

and the consultant. The Bank staff involved in the project will also gain access to the technology which could be applied to other regional member states that intend to build similar projects.

4.8.2 The ESIA and the ESMP for the project conducted by EEPCo conform to international best practice on Health, Safety and Environment (HSE) standards. Implementation of the ESMP including the monitoring system will allow EEPCo to promote best international practice in operating transmission system of such voltage level. EEPCo's knowledge building resulting from the Bank's intervention will help GoE to attract more investment in the power generation sector. In turn the Bank will also draw lessons from its planned supervision on how best to promote high HSE standards.

5 – LEGAL INSTRUMENTS AND AUTHORITY

5.1. Legal instrument:

5.1.1 The legal instrument for the project used is an ADF loan and ADF grant which will be given to the Federal Democratic Republic of Ethiopia and the proceeds of the loan on-lent to EEPCo on terms acceptable to the Bank.

5.2. Conditions associated with Bank's intervention

5.2.1. Conditions Precedent to Entry into Force:

- a) The entry into force of the Loan Agreement shall be subject to the fulfilment by the Borrower of the provisions of Section 12.01 of the *General Conditions Applicable to the African Development Fund Loan Agreements and Guarantee Agreements*.
- b) The Protocol of Agreement shall enter into force on the date of its signature by the Fund and the grant Recipient (Section 10.1 of the General Conditions Applicable to Protocols of Agreement for Grants of the African development Fund).

5.2.2. Conditions Precedent to First Disbursement of the ADF Loan and ADF Grant:

The obligation of the Fund to make the first disbursement shall be conditional upon the entry into force of this Agreement in accordance with Section 4.01 above and evidence by the Borrower, to the satisfaction of the Fund, that the following conditions have been fulfilled:

- (a) An on-lending agreement has been signed between the Borrower and EEPCo in which the Borrower agrees to transfer the entire proceeds of the Loan to EEPCo on terms and conditions acceptable to the Fund;
- (b) The Borrower has established a Project Implementation Team (PIT) including the appointment of a project coordinator, five site managers, an environmentalist, a social expert and at least two accountants; and
- (c) Confirmation from a bank acceptable to the Fund that the Borrower has opened an escrow indemnification account with terms and conditions acceptable to the Fund, and has deposited into the escrow account funds reserved for the resettlement and compensation of Project-Affected Persons (PAPs) for the first year of Project implementation.

5.2.3. Conditions to other Disbursements: The obligation of the Fund to make further disbursements of the Loan under this Agreement shall be conditional upon the Borrower having provided evidence, in form and substance acceptable to the Fund, of the following:

- (a) Having compensated and resettled any Project-Affected Persons (PAPs) in accordance with any updates to the Resettlement Action Plan (RAP) prior to the commencement of any construction works of any transmission lines.

Undertakings

- (a) The Borrower shall ensure that the Resettlement Unit responsible for the implementation of the RAP is established within the PIT and a valuation committee is put in place;
- (b) The Borrower shall implement and report on the implementation of the Environmental and Social Impact Assessment, the Environment and Social Management Plan and the RAP on a quarterly basis;
- (c) The Borrower shall ensure that no construction works shall commence prior to full compensation and resettlement of any PAPs has taken place in accordance with any updates to the RAP;
- (d) The Borrower shall maintain the escrow indemnification account in clause 5.01(c) above, with a bank acting as an agent. Such escrow account shall remain open until the last of all payments to PAPs is effected; and
- (e) The Borrower shall based on tariff review recommendations maintain electricity tariffs at levels that enable EEPCo to achieve a positive operating margin.

5.3. Compliance with Bank Policies

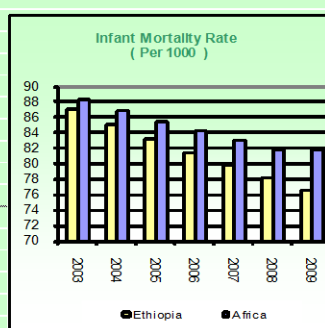
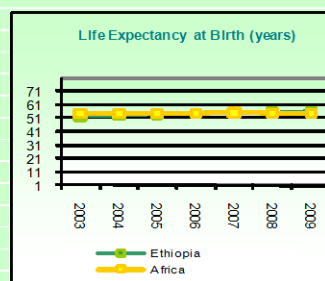
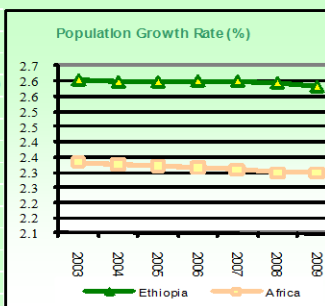
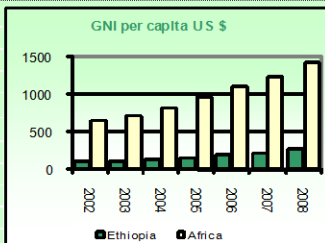
5.3.1 This project complies with all applicable Bank policies.

6- RECOMMENDATION

6.1 Management recommends that the Board of Directors approve the proposed Grant of UA 58 million and Loan UA 93.75 million to the Government of Ethiopia for the purposes and subject to the conditions stipulated in this report and the Loan and Grant Agreement.

Appendix I: Comparative socio – economic Indicator

	Year	Ethiopia	Africa	Developing Countries	Developed Countries
Basic Indicators					
Area ('000 Km ²)		1 104	30 323	80 976	54 658
Total Population (millions)	2009	82.8	1,008	5,629	1,069
Urban Population (% of Total)	2009	17.2	39.6	44.8	77.7
Population Density (per Km ²)	2009	75.0	3.3	66.6	23.1
GNI per Capita (US \$)	2008	280	1 428	2 780	39 688
Labor Force Participation - Total (%)	2009	48.9	41.2	45.6	54.6
Labor Force Participation - Female (%)	2009	47.7	41.2	39.8	43.3
Gender -Related Development Index Value	2005	0.393	0.525	0.694	0.911
Human Develop. Index (Rank among 182 countries)	2007	171	0.514	n.a	n.a.
Popul. Living Below \$ 1 a Day (% of Population)	2005	39.0	50.8	25.0	...
Demographic Indicators					
Population Growth Rate - Total (%)	2009	2.6	2.3	1.3	0.7
Population Growth Rate - Urban (%)	2009	4.4	3.4	2.4	1.0
Population < 15 years (%)	2009	43.5	56.0	29.2	17.7
Population >= 65 years (%)	2009	3.2	4.5	6.0	15.3
Dependency Ratio (%)	2009	87.6	78.0	52.8	49.0
Sex Ratio (per 100 female)	2009	99.0	100.7	93.5	94.8
Female Population 15-49 years (% of total population)	2009	23.3	48.5	53.3	47.2
Life Expectancy at Birth - Total (years)	2009	55.7	55.7	66.9	79.8
Life Expectancy at Birth - Female (years)	2009	57.1	56.8	68.9	82.7
Crude Birth Rate (per 1,000)	2009	37.7	35.4	21.5	12.0
Crude Death Rate (per 1,000)	2009	11.6	12.2	8.2	8.3
Infant Mortality Rate (per 1,000)	2009	76.5	80.0	49.9	5.8
Child Mortality Rate (per 1,000)	2009	126.2	83.9	51.4	6.3
Total Fertility Rate (per woman)	2009	5.2	4.5	2.7	1.8
Maternal Mortality Rate (per 100,000)	2005	673.0	683.0	440.0	10.0
Women Using Contraception (%)	2005	14.7	...	61.0	75.0
Health & Nutrition Indicators					
Physicians (per 100,000 people)	2004	1.5	42.9	78.0	287.0
Nurses (per 100,000 people)*	2004	13.7	120.4	98.0	782.0
Births attended by Trained Health Personnel (%)	2005	5.7	50.5	63.4	99.3
Access to Safe Water (% of Population)	2008	38.0	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	12.0	38.5	54.6	99.8
Percent. of Adults (aged 15-49) Living with HIV/AIDS	2007	2.1	4.5	1.3	0.3
Incidence of Tuberculosis (per 100,000)	2007	378.0	313.7	161.9	14.1
Child Immunization Against Tuberculosis (%)	2007	72.0	83.0	89.0	99.0
Child Immunization Against Measles (%)	2007	65.0	74.0	81.7	92.6
Underweight Children (% of children under 5 years)	2005	38.0	25.6	27.0	0.1
Daily Calorie Supply per Capita	2005	1 826	2 324	2 675	3 285
Public Expenditure on Health (as % of GDP)	2006	2.3	5.5	4.0	6.9
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	2008	97.8	100.2	106.8	101.5
Primary School - Female	2008	92.3	91.7	104.6	101.2
Secondary School - Total	2008	33.4	35.1	62.3	100.3
Secondary School - Female	2008	28.1	30.5	60.7	100.0
Primary School Female Teaching Staff (% of Total)	2008	39.1	47.5
Adult Illiteracy Rate - Total (%)	2004	64.1	59.4	19.0	...
Adult Illiteracy Rate - Male (%)	2004	50.0	69.8	13.4	...
Adult Illiteracy Rate - Female (%)	2004	77.2	57.4	24.4	...
Percentage of GDP Spent on Education	2007	5.5	4.5	...	5.4
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	2007	14.0	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	0.1	1.1	1.9	12.3



Sources : ADB Statistics Department Databases; World Bank: World Development Indicators;

last update : September 2010

Appendix II: Table of ADF ongoing Portfolio in Ethiopia

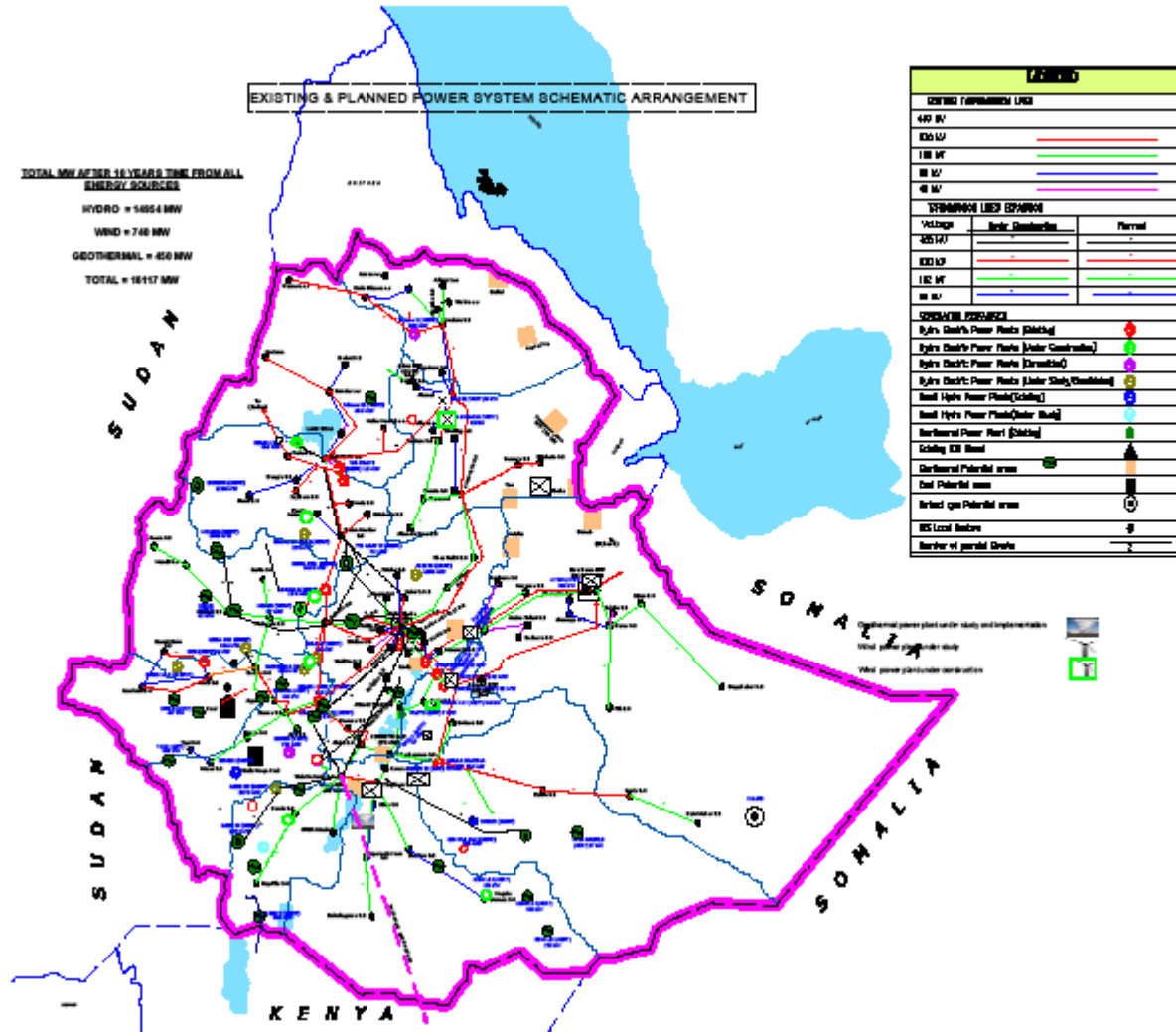
Agriculture Sector				
Name	Type	Rating	Net Loan Amount	Approval Date
Koga Irrigation and Watershed Management Project	L/G	U	33.92	28-Jun-01
Rural Finance Intermediation Support Project	L/G	S	35.17	16-Jul-03
Agriculture Sector Support Project	L/G	S	39.00	5-Nov-03
Creation of Sustainable Tsetse and Trypanosomiasis-free areas in East and West Africa: PATTEC- ETHIOPIA	L/G	U	9.79	8-Dec-04
TOTAL APPROVALS			44.96	
Transport Sector				
Butajira-Hossaina-Sodo- Road Up-grading	L	S	41.31	10-Oct-01
Wacha- Maji Road Upgrading	L/G	S	23.70	11-Jun-03
Jimma-Mizan Road Upgrading	L	S	65.00	13-Dec-06
Addis Ababa-Nairobi-Mombassa Road Corridor dev. Study	G	S	1.35	13-Dec-04
TOTAL APPROVALS			131.36	
Public Utility Sector				
Rural Electrification II Project	L	S	87.20	20-Dec-06
Harar Water Supply and Sanitation Project	L/G	S	21.01	4-Sep-02
Rural Water Supply and Sanitation Project	G	S	43.61	21-Dec-05
Ethiopia-Djibouti Power Transmission Project	L	S	20.88	13-Dec-04
Ethiopia-Djibouti Power Transmission Project Supplementary	L	S	5.20	08-Oct-08
TOTAL APPROVALS			177.9	

L- Loan, G-Grant, U-unsatisfactory, S-Satisfactory

Appendix III: Key related projects financed by the Bank and other development partners in Ethiopia

Country/Agency	Sector	Project	Completion time
AfDB	Rural Electrification	Electrification of 36 rural woreda towns in all regions	2009
AfDB	Rural Electrification II	Electrification of 335 towns and villages in Amhara and Oromiya regions	2013
AfDB	Transmission	Ethiopia-Djibouti Interconnection project	2010
China	Transmission	Sululita-Bahir Dar transmission line	2010
China	Generation	Amertin Neshi Hydro Electric power project	2013
Italy	Generation	Gilgel Gibe II Hydro Electric power project	2009
World Bank	Transmission	Ethiopia-Sudan Interconnection Project	2011
World Bank	Distribution Rehabilitation	Addis Ababa distribution rehabilitation project	2010
World Bank	Rural Electrification	Electrification of 265 towns through grid expansion and additional villages through mini off grid system and development of produce use of energy	2011
Kuwait	Rural Electrification	Electrification of 27 towns, improvement of 4 substations and construction of 3 transmission lines in Afar Region	2010
BADEA	Rural Electrification	Electrification of 44 towns in two regions, Amhara and SNNP region.	2010
BADEA	Transmission	132 KV line and substation for SAWLA Key Afer Project	2011
India	Rural Electrification	Electrification of 27 towns in Hagare-Mariam Mega area	2011

Appendix IV – EEPCo’s Generation & Transmission with existing and planned grid map



Appendix V Map of Project Area

