I. Introduction and Context

Country Context

1. Ethiopia is one of the most populous (about 80 million) countries in Sub-Saharan Africa. With US$780 GNI per capita, Ethiopia’s position is significantly less than the Sub-Saharan Africa average of US$1,950. Although the country has abundant resources and good potential for development, poverty is pandemic and often linked to environmental and natural resource degradation. Approximately 44 percent of people fell below the basic needs poverty line in the last comprehensive national survey (FY2000).

2. Over the last decade, the Government of Ethiopia (GoE) has been implementing a development program aimed at poverty reduction through rapid economic growth and macroeconomic stability. The country has recorded strong economic growth over the past six years mainly due to the Government-led development policies emphasizing public investment, commercialization of agriculture and non-farm private sector development. After a significant draught-related contraction in FY2003, growth rebounded at an annual average of 11.2 percent for FY2004-2009 which was significantly above average of 6.3 percent of Sub-Saharan Africa. The economic growth rate has also exceeded the minimum growth target of 7 percent established in the Program for Accelerated and Sustainable Development (PASDEP) for FY2006-2010.

3. Ethiopia has been implementing policies to reduce inflation and rebuild the external reserves affected by the commodity price surges in FY2008. A policy package was adopted in late 2008 that included substantial fiscal and monetary adjustments, notably the elimination of fuel subsidies and measures to protect vulnerable groups. Following these reforms, inflation declined sharply to single digits by mid-2009. However, in the last few years, inflation has been again rising sharply and stood at nearly 40% at the end of September 2011, aided by significant increase in international food and fuel prices.

4. Ethiopia’s new Growth and Transformation Plan (GTP) for FY2011-2015 seeks to achieve macroeconomic stability and continued economic growth (at least 11 percent real growth rate) to enhance social development and reach the Millennium Development Goals. Although agriculture remains the engine of growth, industry is expected to play an increasing role in economic development. Large public investments in transportation and energy infrastructure are envisaged by the GTP.

5. The Country Assistance Strategy (CAS) for Ethiopia for FY2008-12 has supported the objectives of PASDEP and GTP. The present CAS aims at (i) fostering economic growth, (ii) improving access to and quality of basic services, (iii) reducing vulnerability, and (iv) fostering improved governance. Bottom-up initiatives have been strongly encouraged as a complement to traditionally strong top-down action.

Sectoral and Institutional Context
6. The long-term goal of the five-year development strategy, GTP, is for Ethiopia to become a middle income country in 20-30 years. Strong industrial development could be an essential part of this strategy. A stable supply of energy is a must for industrialization.

Power Sector Achievements over the last decade

7. Since the implementation of the last five-year plan PASDEP, the energy sector in Ethiopia has been growing at an extremely rapid pace. Prior to 2000, Ethiopia had less than 6% of its population receiving electricity from the grid network. From just over 800,000 customers connected to the grid in 2005, the number of connection increased to more than 2 million in 2011. Assuming a total number of household of 14 million in Ethiopia this corresponds to about 14% of the population which is connected to grid electricity.

8. With this increase in access, demand for electricity also increased at a rapid pace. Average demand growth rate of electricity was above 15% per annum during 2005-2010 with about 21% and 25% in FY 2009 and FY 2010 respectively. Ethiopian Electric Power Corporation (EEPCo) faced difficulty during this period to meet the demand as it surpasses EEPCo’s installed generation capacity of about 850 MW. To meet the demand, EEPCo had to rent expensive thermal generation and also rationed supply to households and industrial consumers. They also introduced several demand side management initiatives including free distribution of about 5 million CFL lamps to replace incandescent lamps.

Setting the Stage for the Next Five Years Growth and Transformation Plan (GTP)

9. In 2010 EEPCo commissioned 3 large hydro power plants – Tekeze 300 MW, Gibe II 420 MW and Beles 460 MW. With these plants under operation, EEPCo’s power generation capacity increased from about 850 MW to above 2000 MW during the PASDEP period. This eased the supply-demand balance for the time being. But with GoE target of having a real 11% GDP growth over the next five years, the demand for electricity is expected to grow at above 25% per annum.

10. The stated goal of the GTP is to increase electricity service coverage to 75% of the population (using GoE’s definition) amounting to 4 million consumers and to achieve power-generating capacity of 8,000 MW by 2015. At this moment, about 2,000 MW of additional capacity is at advanced stages of construction.

11. GoE is working hard to achieve these targets. The Gibe III (1,870 MW) hydro power plant is now under construction with about 45% completed as of September 2011. In April 2011 GoE inaugurated the construction of Grand Renaissance Dam Hydro Power Project (5,250 MW). Ashegoda (120 MW) Wind Power Project is under construction and with Bank’s support Ethiopia is developing its Aluto Langano (75 MW) Geothermal Power Plant. With about 45,000 MW hydro power potential, 10,000 MW wind power potential and 5,000 MW geothermal power potential Ethiopia plans to become the clean energy hub of Eastern Africa. It has already started exporting electricity to Djibouti. A transmission interconnection with Sudan is at its final stage of construction and an Ethiopia – Kenya transmission link project is now under preparation phase and is seeking financing from the World Bank and African Development Bank.

Plan to Reinforce the Electricity Network

12. In order to reliably and efficiently supply electricity from this massive generation expansion program, Ethiopia must reinforce its transmission network. EEPCo therefore plans to increase its 10,396 km of transmission lines to about 18,000 km of transmission lines by 2015. In terms of distribution line expansion, it plans to increase its 126 thousand km of distribution lines to about 250 thousand km to expand coverage to about 75% of the population. In addition, EEPCo is planning to increase the number of sub-stations from 138 in FY2010 to 200 in FY2015. While a large portion of these transmission lines will be newly constructed, EEPCo plans to upgrade some of its 45 kV to 132 kV transmission lines to a higher voltage level as many of these lines have been saturated and operating over maximum capacity.

Development in the off-grid renewable energy and energy efficiency sector

13. The Rural Electrification Fund, created under the Bank financed Energy Access Project, is successfully implementing Solar Home Systems to rural cooperatives. It has also disseminated this technology to primary schools and health centres which are not connected to the grid network. The Alternative Energy Technology Promotion and Dissemination Directorate, Ministry of Water and Energy, which manages the Rural Electrification Fund has also successfully disseminated improved cook stove technology in 4 regions of Ethiopia. The Ministry now wants to scale up these activities using the experience gained from the previous projects. The Ministry of Water and Energy has signed a MOU with the Lighting Africa Program to support market development activities to promote Lighting Africa Approved Solar LED Lighting Products in Ethiopia. They would like to involve the private sector entrepreneurs in disseminating these modern lighting and energy efficient (improved) cook stoves in rural Ethiopia.

The Bank’s Support for the Power Sector

14. The Universal Electricity Access Program (UEAP) of EEPCo is responsible to increase access to electricity in Ethiopia. The GoE supports this program through its own budget and also by raising funds from various multilateral and bilateral development partners. Some of the regular financiers of this program are: The World Bank, African Development Bank, OPEC Fund for International Development, Islamic Development Bank, Kuwait Fund, etc. By FY2011, total villages: 6,000; and total consumers: 2,030,000.
Relationship to CAS

25. Scaling up investments in infrastructure in a sustainable manner is one of the key objectives of CAS for Ethiopia (FY2008-12). The proposed project is in line with the CAS for Ethiopia. According to the CAS, supporting investments to boost access to electricity has been deemed critical. The proposed project will strengthen the existing transmission network by increasing its capacity and reliability and enhance access to electricity by providing assistance for connection intensification.

26. The CAS also states that investments in power generation will provide a sudden boost in generating capacity that will not be quickly accommodated with new distribution networks. Further, increasing regional power trade will generate export revenues and smoothening variability in energy supply will require investment in this sector. The reinforcement of electricity transmission network will support the massive growth plans as well as regional power integration plans of Ethiopia.

II. Proposed Development Objective(s)

Proposed Development Objective(s)

27. The Development Objectives of Electricity Network Reinforcement and Expansion Project (ENREP) are to improve reliability and increase access to electricity services in Ethiopia.

Key Results

28. PDO Level Results Indicators:
   a) Average interruption frequency per year in the project area (system average interruption frequency index, SAIFI);
   b) Electricity losses per year in the project area;
   c) Number households provided with access to electricity under the project (disaggregated by grid/ off-grid);
   d) Direct project beneficiaries (number), of which female (percentage) (mandatory Bank core indicator).

III. Preliminary Description

   Concept Description

29. The proposed project consists of four components: (i) Reinforcement of Electricity Network (Upgrade and Expansion), (ii) Access Scale-Up, (iii) Market Development for Renewable Energy and Energy Efficient Products, and (iv) EEPCo Modernization Support to provide the required capital and capacity building support to meet GoE’s electrification goals over the next 5 years through a least-cost electricity sector investment plan.

30. Component 1: Reinforcement of Electricity Network (estimated US$100 million): Reinforcement of the electricity network component includes two sub-components: (i) grid upgrade and (ii) grid extension in order to improve the overall service delivery of the Ethiopian electricity network.

31. Component 2: Access Scale-Up (estimated US$50 million): Access scale-up plan includes intensification of connections to the households and villages in the areas already connected by the grid. As the grid reinforcement component (below) addresses the technical bottlenecks in the transmission systems, the access scale-up would address the low connection intensity in the areas already connected.

32. Component 3: Market Development for Renewable Energy and Energy Efficient Products (estimated US$40 million): Development of off-grid renewable energy programs such as, stand-alone solar systems, solar lanterns, improved cook-stoves, CFLs, micro-hydro stations, etc. will provide additional coverage for household electrification; especially in the areas that are not yet connected to the grid. However, the target population for this component will not only be the households and villages that are not included in the grid areas, but also those that are in the grid area and are unable to afford a connection. This component will complement the grid reinforcement (component 1) by assisting in access scale-up (component 2) for energy inclusion targets.

33. Component 4: EEPCo Modernization Support (estimated US$10 million): Finally, ENREP will include comprehensive technical assistance, capacity strengthening, and implementation support for key aspects of the Government’s modernization program for EEPCo, including operational efficiency improvements, contract management, asset control and other required commercial utility good practices.

IV. Safeguard Policies that might apply

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VI. Contact point

World Bank
Contact: Raihan Elahi
Title: Senior Energy Specialist
Tel: 473-4401
Email: relahi@worldbank.org

Borrower/Client/Recipient
Name: The Federal Democratic Republic of Ethiopia
Contact: 
Title: 
Tel: 251-11-156-002
Email: 

Implementing Agencies
Name: Ethiopian Electric Power Corporation
Contact: Ato Miheret Dibebe
Title: Chief Executive Officer
Tel: 251-11-156-0041
Email: miheretdebebe@yahoo.com

Name: Ministry of Water and Energy
Contact: Wossenu Areda
Title: Director, Alternative Energy Tech Promotion & Disseminat Dir
Tel: 251-011-560-041
Email: miheretdebebe@yahoo.com

VII. For more information contact:
The InfoShop
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 458-4500
Fax: (202) 522-1500
Web: http://www.worldbank.org/infoshop