

**PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE**

Report No.: AB6618

Project Name	Energy Sector Support Project
Region	Africa
Country	Malawi
Sector	General energy sector (100%)
Lending Instrument	Sector Investment Loan
Project ID	P099626
Borrower(s)	REPUBLIC OF MALAWI
Implementing Agencies	Ministry of Natural Resources, Energy & Environment Private Bag 350 Malawi ESCOM PO Box 2047 Blantyre Malawi
Environmental Screening Category	{ }A { X }B { }C { }FI
Date PID Updated	May 19, 2011
Estimated Date of Appraisal Completion	May 20, 2011
Estimated Date of Board Approval	June 28 2011
Decision	Project authorized to proceed to negotiations upon agreement on any pending conditions and/or assessments.

I. Country Context

- Malawi is one of the world's poorest countries, ranking 160 out of 177 countries in the 2009 United Nations Human Development Index and with an estimated GNI per capita of US\$2801. It is one of Southern Africa's most densely populated countries, with a population of 15.3 million as of 2009, and a very young and growing population expected to reach 20 million by 2025. The country is landlocked, with a territory encompassing 118,484 km², or slightly smaller than the state of Pennsylvania.
- Malawi's economic performance has improved on most measures over the past five years. For many years, the Government of Malawi (GoM) faced fiscal discipline challenges, eventually leading to an economic crisis prior to 2004, when domestic debt had reached 24

¹ World Bank: "The Little Data Book 2010".

² World Bank: "Malawi Poverty and Vulnerability Assessment, Investing in Our Future". June 2006.

percent of GDP. In 2004, Malawi implemented a strong stabilization policy, and obtained debt relief from the Heavily Indebted Poor Countries (HIPC) initiative, which helped bring about a rapid turnaround in government finances, improved management of public spending and created the fiscal setting needed for the resumption of growth. As a result, real GDP growth has averaged about 7 percent in the last five years. The economy is predominately agricultural with about 80 percent of the population living in rural areas. In 2009, Malawi experienced some setbacks, including a general shortage of foreign exchange, which damaged its ability to pay for imports, and investment fell by 23 percent. Although several improvements are noted, there are still impediments to sustainable long-term growth such as unreliable power, water shortages, poor telecommunications infrastructure, and high costs of services.

3. The Malawi Growth and Development Strategy (MGDS) (2006-2011) sets out the government's economic growth and development priorities for the next five years. The MGDS identifies energy, along with five other key priority areas, as a crucial input for industrial processing. The GoM recognizes that the power sector is a key constraint to Malawi's economic growth. The objective of the MGDS with respect to energy is to reduce the number and duration of blackouts, increase access to reliable and affordable electricity in rural areas and other targeted areas, and improve coordination between the needs for energy for households and those of other high growth sectors such as tourism and mining.
4. The World Bank's Country Assistance Strategy (CAS) for Malawi (2007-2010) is derived from the MGDS and outlines a program of country assistance in support of the overall MGDS, which underscores the importance of putting in place a foundation for long-term economic growth through improved infrastructure and the investment climate. Specifically, it proposes the Bank continues to play a central role in infrastructure development, focusing its efforts in energy and water development. The same focus will continue with the new CAS for 2011-2014, which is currently under preparation.

II. Sectoral and Institutional Context

5. Less than 7 percent of the population has access to electricity, mostly in urban centers. For the 80% of the people living in rural areas, access to electricity is less than 1%. Currently, electricity supply cannot meet demand. To meet both currently suppressed demand as well as project future demand, Malawi would need to have in place by 2015 an estimated additional 140 MW of available capacity. Load shedding is a regular day-to-day occurrence for almost all customers of the utility, the Electricity Supply Corporation of Malawi (ESCOM).
6. ESCOM's network has suffered from many years of under-investment in transmission and distribution infrastructure, with frequent failures, especially during the rainy season, and generally poor quality and unreliable supply. The network configuration is based on radial feeders, which are inflexible and susceptible to outages. Overloading and bottlenecks are evident

in many parts of the transmission system. As a result, during peak periods, load has to be shed has to be done to avoid dangerous overloads on these lines and transformers, which would otherwise result in voltage collapse or even equipment failure.

7. Most of the LV distribution networks supplying the main load centers are heavily overloaded, are operating beyond their design limits and extend beyond regulatory voltage requirements, thereby affecting quality and reliability of supply. Transformers and LV lines are oversaturated and over-extended, resulting in localized loss of power and contributing to high technical losses and excessive voltage drops. In some cases, single phase lines extend large distances, causing high losses and phase imbalances on the networks.

8. The GOM has developed a number of strategies in the energy sector, including power sector reform, rural electrification, biomass energy and renewable energy. The Power Sector Reform Strategy (PSRS) approved by the GOM in 2003, provided for the unbundling of the ESCOM and private sector participation via long term concessions in transmission and distribution and entry of Independent Power Producers (IPPs) for new generation capacity. However, the GoM has subsequently reviewed the PSRS and is currently drawing-up a sector reform 'Road Map' to clarify the framework for private sector investment in energy. However, new feasibility studies are needed for sources of new hydropower generation, whether the sites themselves are ultimately developed by public or private means.

9. The proposed Energy Sector Support Project is directly associated with the CAS outcome of putting in place a foundation for long-term economic growth through improved infrastructure by improving the electricity transmission and distribution sector and by helping close the capacity supply-demand gap.

III. Project Development Objectives

10. The Project Development Objective is to increase the reliability and quality of electricity supply in the major load centers in Malawi.

IV. Description

11. The proposed project activities will comprise of four components: (1) Electricity Network Strengthening and Expansion, (2) Hydroelectric Power Generation Feasibility Studies, (3) Demand Side Management and Energy Efficiency Measures, and (4) Capacity building and Technical Assistance. A brief description of each component is provided below:

- (1) *Component 1: Electricity Network Strengthening and Expansion.* This component includes the rehabilitation, upgrade and expansion of priority parts of the existing distribution and transmission system, including extension of the network in selected peri-urban areas, and consist of three sub-components:
- Component 1a: Distribution and Transmission Uprating and Expansion. Activities in this sub-component include: (i) construction of new substations and associated transmission lines; (ii) uprating of existing substations; (iii) construction and rehabilitation of 33/11 kV distribution lines; (iv) underground cables rehabilitations; (v) extension of peri-urban networks; (vi) purchase of spare parts for generation, transmission and distribution systems; and (vii) resettlement costs, as needed (such as compensation for crop damage).
 - Component 1b: Low Voltage Reticulation Reinforcement. Activities in this sub-component include: (i) reconfiguration and extension of medium voltage overhead lines supplying consumer substations/distribution transformers; (ii) installation of approximately 200 new such consumer substations; (iii) construction of new three phase low voltage overhead lines and conversion of single phase to three phase low voltage overhead lines; (iv) a limited intensification of the peri-urban network; and (v) enhancement of ESCOM's Training School in Blantyre.
 - Component 1c: Consulting Engineer. Activities in this sub-component include: (i) preliminary survey and design work for transmission and distribution lines investments in Component 1a and 1b; (ii) support to ESCOM to supervise contractors during implementation of Components 1a and 1b; and (iii) advising ESCOM on establishing a dedicated materials management system
- (2) *Component 2: Hydroelectric Power Generation Feasibility Studies.* This component will support financing of full feasibility studies needed for eventual development of an additional 260-400 MW of new hydropower generation capacity, required to meet Malawi's growing energy demand. Activities in this component include: (i) full feasibility study at Lower Fufu on the South Rukuru River; (ii) feasibility study at Mpatamanga on the Shire River; (iii) feasibility study at Chingonda on the Dwambazi River; and (iv) feasibility study on a new 'inland' transmission backbone line from Lilongwe via Kasungu to Mzuzu. In addition, where the studies include dam design work, there will be support for a separate and independent expert (or group of experts) to review the quality of the studies and designs being undertaken by the main consultant, in order to guarantee that they reflect international best practice and standards with respect to dam safety. There will also be an Environmental and Social Advisory Panel (ESAP), consisting of one environmental expert and one resettlement expert, to review the TOR, full ESIA, RAP and other safeguard documents and advise on safeguard aspects.
- (3) *Component 3: Demand Side Management (DSM) and Energy Efficiency Measures.* This component will support several demand side management (DSM) and energy efficiency activities in industrial and urban residential areas. Activities supported in this component

include: (i) time-of-use meters and sensitization campaign; (ii) derating of Hot Water Geyser (HWG) element ratings; (ii) HWG management system with insulation; (iii) installation of solar water heaters; (iv) radio control to switch off water heaters to reduce demand at peak times; (v) SMS messages to manage peak load demand; and (vi) media campaign.

(4) *Component 4: Capacity Building and Technical Assistance.* This component will provide institutional strengthening and technical assistance to both MNREE and ESCOM to support their efforts to further develop the country’s energy sector. Activities under this component include: (i) a wind power resource study; (ii) a preliminary assessment of geothermal prospects; (iii) a technical assessment of the opportunities to expand bagasse-fuelled cogeneration capacity from the sugar production operations in Malawi; (iv) sectoral studies to underpin the evolving agenda; (v) support for specialist transaction advisers to provide financial, legal, and technical advice to GoM and MERA on private sector investment in the power sector; and (vi) institutional strengthening of the project implementing agencies at MNREE and ESCOM, including for incremental operating costs, goods and equipment for office functioning and training, relevant consultancy services and training in World Bank procurement and financial management procedures, environmental and social safeguards issues, project management, energy planning, monitoring and evaluation systems, etc.

V. Financing

Source:	(\$m.)
Borrower/Recipient	-
IDA	84.7
Others (specify)	-
	Total 84.7

VI. Implementation

12. The Ministry of Natural Resources, Energy & Environment (MNREE) will be the overall coordinator for the proposed project. It will also be the implementing agency for Component 2 (Hydroelectric Power Generation Feasibility Studies) and the MNREE portion of Component 4 (Capacity Building and Technical Assistance). MNREE will assemble a Energy Support Project Secretariat (ESPS).

13. ESCOM will be the implementing agency for Component 1 (Electricity Network Strengthening & Expansion), Component 3 (DSM and Energy Efficiency Measures) and the ESCOM portion of Component 4 (Capacity Building and Technical Assistance). A Subsidiary Agreement will be signed between GoM and ESCOM, allowing the appropriate portion of the IDA financing to be passed on to ESCOM for the project activities. MNREE will assemble a

Project Implementation Unit. A consulting engineer will assist ESCOM in the planning and implementation of both Component 1a (Distribution and Transmission Upgrading and Expansion) and 1b (Low Voltage Reticulation Reinforcement).

14. The Ministry of Finance will be actively involved in project preparation and implementation, as one of the Ministries to which ESCOM reports. The Ministry has appointed a project focal person to this end.

VII. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP 4.01)	X	
Natural Habitats (OP/BP 4.04)		X
Pest Management (OP 4.09)		X
Physical Cultural Resources (OP/BP 4.11)	X	
Involuntary Resettlement (OP/BP 4.12)	X	
Indigenous Peoples (OP/BP 4.10)		X
Forests (OP/BP 4.36)		X
Safety of Dams (OP/BP 4.37)		X
Projects in Disputed Areas (OP/BP 7.60)		X
Projects on International Waterways (OP/BP 7.50)	X	

VIII. Contact point at World Bank and Borrower

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