



renewable
energy
& energy
efficiency
partnership

Malawi

Section 1: Energy provision¹

1.1 Main fuel sources for direct use and power generation

Malawi's energy supply sector encompasses the following components: liquid fuels, gas, coal, biomass, hydro and other renewable sources of energy. Malawi's energy balance is dominated by biomass (firewood, charcoal, agricultural and industrial wastes), which accounts for 97% of the total primary energy supply. Statistics have shown that more than a third (34%) of biomass resources are obtained from agricultural and industrial residues. Electricity accounts for 3% of the total primary energy supply and is mainly used in urban areas. Coal and petroleum based energy represents 5% of the total energy demand and are largely consumed in the industrial and commercial sectors. A significant number of commercial and industrial enterprises have installed their own diesel and petrol driven generators. The country has low-grade bituminous coal reserves but mining only started around 1985. There is a sizeable deposit of uranium in northern part of Malawi. The process of mining this uranium is underway for purpose of exporting (there have been some discussions regarding nuclear energy, but no official statements, policies or programmes have been released by the government).

1.2 Degree of reliance on imported energy

Malawi has no refinery for petroleum products hence it must import 97% of its refined petroleum products. The balance is contributed by locally-produced ethanol, sold directly to the oil companies for blending with petrol. Coal annual production seems to meet only 25% of the country's total energy requirements.

1.3 Extent of connection to electricity network (households and businesses; rural and urban)

Electricity is provided by the Electricity Supply Commission of Malawi (ESCOM). ESCOM has a relatively extensive transmission system. The main transmission line is a 132kV spine that runs the length of the country and connects all the main towns. Sub-transmission lines of 66kV further extend the system. The level of electrification is, however, extremely low.

¹ Information based on:

<http://ipsnews.net/africa/nota.asp?idnews=37989>, <http://www.dailytimes.bppmw.com/article.asp?ArticleID=13234>,
<http://www.biofuelsdigest.com/blog2/2008/06/11/malawi-government-says-jatropha-biodiesel-production-will-commence-in-2009/>

Outside the main urban areas only the larger trading areas and some of the smaller towns have electricity supply. Only about 25 percent of urban households and about 1 percent of rural households have electricity supply, and the rate of expansion of the system is declining. The overall rate of electrification is estimated at 7%.

1.4 Any capacity concerns (power generation and/or transmission/distribution)

Poor power supply has been identified as one of the constraints affecting private sector development in the country. The demand for energy consumption for both domestic and industrial consumption is increasing. This has put on pressure on existing energy sources and has prompted government to find alternative sources of energy to meet the demand and reduce the negative impact that other forms of energy have on the environment. The energy sector's contribution to deforestation is mainly related to the wood obtained from unsustainable sources for charcoal production and firewood. It has also prompted the government to initiate energy reforms and adopt several energy renewable programmes to better meet the needs of the country. Some of the initiatives include importing power from Mozambique.

1.5 Potential for renewable energy, energy efficiency and co-generation (i.e. any authoritative assessments)

Hydropower generation is the largest source of energy. Solar, especially PVs, are used in modular form for telecommunications, lighting and water pumping in rural areas where there is no grid power. Ethanol is locally available in large quantities since it is a by-product in the sugar manufacturing industry. The government said that the country is on track to commence biodiesel production in 2009 from several jatropha projects. The government also said that the Department of Science and Technology and Lilongwe Technical College are developing engine modifications that will allow conversion of cars to E100 sugarcane ethanol, with initial tests scheduled to be complete by mid-2009. Malawi is seen as well endowed with renewable energy sources. However, the proportion of renewable energy sources (excluding hydroelectricity) in the total energy balance has remained insignificant, approximately 0.2%. This is attributed to the prevalence of a number of technical, economic, skills, institutional and socio-cultural barriers. There is no wind turbine generation because the winds are inadequate for large-scale power generation. Some wind power is used for pumping water.

Section 2: Energy market²

2.1 Ownership (state/municipality/private/mixture) of electricity and gas utilities and other sources of energy

The commercial Electricity Supply Industry is dominated by a publicly owned and vertically integrated power utility, the Electricity Supply Corporation of Malawi (ESCOM) Ltd., established by an Act of Parliament in 1957 (revised 1963 and 1998). ESCOM is nominally an autonomous parastatal organisation, but in reality all decisions on tariff setting, investments, and borrowing are made by the government. ESCOM's total installed capacity is estimated at 304 MW. Of this, approximately 285MW (94%) is generated by hydropower and the remaining 19MW (6%) is thermal.

² http://www.unctad.org/sections/wcmu/docs/c1mem3p35_en.pdf

2.2 Extent of competition in power generation and energy retail

The monopoly on petroleum imports and distribution exercised by the Petroleum Control Commission ended in March 1999. ESCOM dominates the electricity market.

2.3 Structure: extent of vertical integration of generation / transmission / distribution / retail.

ESCOM is regarded as vertically integrated.

Section 3: Energy policy framework

3.1 Existence of an explicit energy policy framework and key policies or not – what role is envisaged for sustainable energy?

The Malawi Government's economic programme is set out in the Malawi Growth and Development Strategy (MGDS). It is the overarching strategy for Malawi for the five years between 2006–2011. The overall objective of the MGDS is "poverty reduction through sustainable economic growth and infrastructure development". The MGDS states that the "provision of energy in Malawi is inadequate, unreliable and inaccessible to all who need it largely on account of lack of competition in the sector, non-functioning power plants and inability to generate sufficient amounts of energy". In terms of the MGDS, the goal is to "reduce the number and duration of blackouts, increase access to reliable, affordable electricity in rural areas and other targeted areas, and improve coordination and the balance between the needs for energy and those of other high growth sectors such as tourism and mining".

Government places energy supply as one of the priority sectors in the MGDS and defines its long term goal in energy generation and supply as "to generate sufficient amount of energy to meet economic and social demands".

Although the National Energy Policy for Malawi was approved in 2003, its implementation was not immediate. What was crucial to the implementation process was the establishment of the sector wide regulator, MERA, which was established in December 2007. The process to make MERA operational also took time to the effect that operations of MERA are not in the full swing.

Other policies such as Environment Act and Fair Competition Act have some impacts on regulation of the energy sector.

The government encourages both domestic and foreign investment in most sectors of the economy without restrictions on ownership, size of investment, source of funds, and the destination of final products. There is no government screening of foreign investment in Malawi.

3.2 Any current energy policy debates/developing legislation

The restructuring of ESCOM to deal with the crisis in the generation and distribution electricity (and thereby the creation of a basis for rural electrification) might be the most current prevailing debate. The financial sustainability of ESCOM is also an important question.

3.3 Any specific policies or programmes to promote sustainable energy

In an attempt to minimize the use of biomass fuels and provide the communities in rural and urban areas with alternative source of energy, the government undertook a number of initiatives including the programme for biomass energy conservation (ProBEC) which seeks to

promote the use of clay stoves to save fuel; the Promotion of Alternative Energy Sources Project (PAESP) which seeks to promote non-traditional fuels for cooking and heating to reduce environmental degradation; and a renewable programme which promotes renewable energy technologies (RETs) in Malawi. The Malawi Rural Electrification Project (MAREP) has also been established. Reducing the wood supply/wood demand deficit and improving the dependability of imported oil and coal are considered to be first priorities.

3.4 Any major energy network or sustainable energy studies available

The Government has conducted feasibility studies for the development of further hydropower generating stations in an on-going programme to meet the demand for electricity.

3.5 Role of government in energy policy – which departments are involved?

The Department of Energy Affairs in the Ministry of Energy and Mines manages the energy sector. The Department aims at fully satisfying the public need for quality energy services by providing sound policy guidance and effective private sector driven industry. It also monitors the utilisation of energy sources in the country and also certifies companies which install solar PV.

3.6 Any government (or government funded) agencies with a specific role in sustainable energy and/or environmental protection (with an energy role)

The structure of the Institutional Framework in the energy sector encompasses the following stakeholders: the Department of Energy, Malawi Energy Regulatory Authority, players in the liquid fuels and gas sub-sector, players in the biomass sub-sector, players in the renewable energy sub-sector, players in coal sub-sector; and the Ministry of Energy and Mines.

3.7 Any energy planning procedure in place

The Malawi Growth and Development Strategy (MGDS) seems to be the main planning document.

Section 4: Energy regulation

4.1 Is there an energy or utility regulator? When was it established?

The Malawi Energy Regulatory Authority (MERA) was established in December 2007. MERA regulates all the energy players (production and supply) in the country in collaboration with the Department of Energy and both entities reports to the Ministry of Energy and Mines.

4.2 Degree of independence of the regulator from government (legal structure, who appoints the regulator and board)

The newly established regulator is regarded as independent; however, it has strong relationship with the government which could impair its level of independence.

4.3 Regulatory framework – legislation, duties, powers (any references to environment, sustainable energy)

In December 2007 government established the Malawi Energy Regulatory Authority (MERA) to regulate the energy sector. This followed the establishment of the Energy Framework Law

and the repealing of the Electricity Act (1998), the Petroleum Commission Act (1996) and Petroleum (Storage) Act (1951). MERA replaced the National Electricity Council and Petroleum Control Commission.

4.4 Regulator's roles – key tasks (e.g. price controls, promoting competition etc), actions to date, any action/role in the sustainable energy field)

MERA's vision is "Sustainable Demand Driven Energy Supplies". MERA is busy developing a strategic plan to give itself direction on how it will regulate the energy sector for the next five years as the country positions itself to address its power supply problems. MERA was to provide clear support to government's energy sector plans as outlined in the Malawi Growth Development Strategy (MGDS) and its recent pronouncements that it would invest heavily in power generation to end blackouts in the country. Among other things, the strategic plan will support the initiatives the government is putting in place to end the problem of electricity blackouts so as to enable the country to attract meaningful private investment.

4.5 Have any regulatory barriers to sustainable energy been identified and if so what are they?

Challenges (regulatory and others) to sustainable energy in Malawi include:

- the restructuring of ESCOM;
- the revision of connection charges, especially capital contribution charges;
- the development of safety standards for low-cost technologies for rural electrification distribution networks;
- the encouragement of entrepreneurs to enter the electrical service contracting business; and
- the provision of incentives to encourage entry of new electricity retailers.