

The Kingdom of Lesotho

Section 1: Energy provision

1.1 Main fuel sources for direct use and power generation, including reliance on imports

In 2007, 50kWh was imported into Lesotho from ESKOM, South Africa's main electricity producer¹. The electricity production for 2006 was 200 million kWh, while consumption for 2006 was 226 million kWh². Lesotho did not export any electricity during the course of 2007³. Lesotho is able to generate 400-450 GWh per annum from the Muela hydro power plant, which has a capacity of 72 MW and 540 kW from the Katse mini hydro plant, both of which form part of the Lesotho Highland Water Project and are operated by the Lesotho Highlands Water Development Authority (LHWDA), although this is not sufficient to sustain Lesotho's electricity requirements, hence the need to import electricity from South Africa⁴.

The Lesotho Government is considering the rehabilitation of four mini hydro plants which are owned by the Lesotho Electricity Corporation⁵. All four of the plants are grid connected, but are currently not in operation. The Mantsonyane Dam will be able to generate 2MW, the Tlokoeng will be able to generate 670kW, the Tsoelike 400kW and the Semonkong 180kW. There is also a proposed large scale hydropower project in the Quthing district. This is discussed in more detail below in paragraph 1.4.

Lesotho does not have any natural gas, coal or oil reserves. These sources are imported from South Africa⁶. In 2006, Lesotho used an estimated 1 400 bbl/day⁷. The Rural Electrification Unit (REU) which falls under the guise of the Department of Energy (DOE) is currently investigating potential models to provide electricity to the population, such as diesel generators, hydro mini-grids and stand-alone Solar Home Systems⁸. Wind generated electricity is a further potential source.

¹ Ibid.

² Ibid.

³ Ibid.

⁴ <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Lesotho%20%20Electricity%20Project%20-%20APR-%20eg.pdf>

⁵ Ibid.

⁶ Ibid.

⁷ <https://www.cia.gov/library/publications/the-world-factbook/geos/lt.html>

⁸ <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Lesotho%20%20Electricity%20Project%20-%20APR-%20eg.pdf>

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

Approximately 16% of the households are connected to the grid and the Government of Lesotho has set a target of 35% of households to be connected by 2015⁹. The Lesotho Electricity Company (LEC) is the main utility responsible for transmission, distribution and consumer connections. The LEC has a Service Territory which constitutes a geographical area within Lesotho where electrification is viable. The 132kV double circuit LEC transmission system is connected to the 72 MW Muela Hydropower Plant in the north and Eskom Tweespruit in the west. Outside of the Service Territory, the REU is responsible for the transmission, connection and distribution of electricity.

1.3 Any capacity concerns (power generation an/or transmission/distribution)

Power consumption in Lesotho has grown significantly over the last few years. Although the excess required is provided by ESKOM, South Africa is facing power shortages and load shedding occurred during the course of 2007 and 2008. ESKOM has advised the Government of Lesotho of future supply restraints¹⁰. Furthermore, there are concerns regarding the environmental impacts around the expansion of the LHWP¹¹.

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

Lesotho has identified hydropower, wind generation and solar power as potential renewable energy sources. As mentioned above, there are plans to rehabilitate four mini hydropower plants that are currently not in operation. There are also two other hydropower projects that are proposed. The Quthing hydropower project in the Quthing district is envisaged as having a capacity of 15MW, which will be connected to the existing grid by a 15km grid extension¹². The Oxbow hydropower plant is anticipated to produce an energy generation output in the region of 180GWh per annum, and recently the DOE signed an agreement for the development of Oxbow to a maximum capacity of 75MW¹³. It is estimated that the hydro generation potential for Lesotho is approximately 450 MW. Wind power potential of a few hundred MW has been identified, and there are currently three sites being investigated¹⁴. Solar power has been implemented in several schemes such as the World Bank project and the UNDP/GEF project¹⁵.

⁹ Ibid.

¹⁰ Ibid.

¹¹ <http://www1.american.edu/ted/LESOTHO.HTM>

¹² <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Lesotho%20-%20Electricity%20Project%20-%20APR-%20eg.pdf>

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Ibid.

Section 2: Energy market

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

As mentioned above, electricity is supplied by the LEC. The LEC is a parastatal entity established under the Electricity Act 7 of 1969, and is empowered to distribute, transmit and supply electricity¹⁶. However, it was privatised in 2000 through the Lesotho Utilities Sector Reform (LURP), although it is state-owned¹⁷. The LHWDA is the agency responsible for the generation of hydroelectricity from the Muela hydropower station. The roles and responsibilities of these two bodies are set out in the 1993 Policy on the LHWDA / LEC interface¹⁸. Although Lesotho does not have any natural gas, oil or coal reserves, there are no foreign oil and gas companies in Lesotho conducting exploration or refinement, rather they focus on the marketing of refined products. These companies include BP, Total, Chevron, Shell and Engen.

2.2 Extent of competition in power generation and energy retail

LEC and the LHWDA remain the main players in the Lesotho energy generation and retail. As the industry grows, other stakeholders might find meaningful roles to play in developing the energy development industry particularly renewable energy technologies. Furthermore, due to the planned extension of the electricity grid, and the goal of privatisation of the energy sector as set out in the Energy policy for the Kingdom of Lesotho,¹⁹ there might well be room for development for small role players.

2.3 Structure: Extent of vertical integration of generation / transmission / distribution / retail

LEC and LHWDA remain the main players in the Lesotho energy generation, transmission, distribution and retail.

Section 3: Energy Policy framework

3.1 Existence of an explicit policy framework and key policies – what role is envisaged for renewable energy?

Lesotho has a policy framework with regards to energy. Within this framework, the Energy Policy for the Kingdom of Lesotho is the most important document. This policy provides for general energy policy direction, and guide decisions and activities of the DOE and its interactions with other Government departments. The National Electricity Master Plan of 1998 aims to increase domestic connections in urban and rural areas from about 10,000 in April 1994 to 20,000 by the end of 2000 (5%), and to 40,000 by 2010 (13%)²⁰. There is also the Energy Action Plan.

¹⁶ <http://www.lec.co.ls/about/index.php?id=background.htm>

¹⁷ <http://www.lea.org.ls/AboutLEA/Regulatory/ElectricitySector.php>

¹⁸ <http://www.undp.org.ls/energy/prodoc-gef%20site.pdf>

¹⁹ <http://www.lea.org.ls/AboutLEA/Reports/Energy%20Policy%202003.pdf>

²⁰ <http://www.undp.org.ls/energy/prodoc-gef%20site.pdf>

3.2 Any current energy policy debates / developing legislation

As one of the main aims of the Government is the electrification of rural areas, it remains an active issue for the Government. There are several ongoing projects under this banner, such as the UNDP / GEF Renewable Energy-based rural electrification project. The increase of private players in the energy sector is also an area that is under debate²¹.

3.3 Any specific policies / programmes promoting sustainable energy

The UNDP / GEF Renewable Energy-based rural electrification project and the proposed reinstallation of the four mini hydropower plants.

3.4 Any major network / sustainable development energy studies available

The UNDP / GEF project have released various studies. There is also a "Project Appraisal Report" for the Lesotho Electricity Supply Project done by the African Development Bank Group in 2008. The Rural Electrification Working Group in 2003 published a report entitled "*Overall Action Plan for Rural Electrification in Lesotho – Phase I: Preparation and Implementation of RE Pilot Projects*"²².

3.5 Role of government in energy policy

The DOE, which falls under the Ministry of Natural Resources, is the government department responsible for the implementation of all the energy policies. DOE is responsible for overall national energy policy, coordination and monitoring of energy programmes and projects. DOE is fully responsible for the planning and implementation of rural electrification in Lesotho.²³

3.6 Any government agencies with specific roles in sustainable energy

The National Rural Electrification Fund and the Rural Electrification Unit have both been established to assist and implement electrification in the rural area. These projects include sustainable energy sources such as solar power²⁴. The National Rural Electrification Fund's role is to channel capital subsidy resources into rural electrification.

3.7 Any energy planning procedure in place.

The Energy Action Plan was developed to provide specific sector targets in accordance with the Energy Policy Framework²⁵, although no further information on this could be found. The DoE is responsible for all planning and policy. The Energy Planning Unit (EPU) implements appropriate energy policy and programs with regards to the production, storage, distribution, and use of all forms of energy. The Lesotho Electricity Authority regulates all electrical energy matters, and this is discussed more fully below²⁶. The National Electrification Master Plan sets out a planned grid extension and connections programme, and it is anticipated that by 2020

²¹ Ibid.

²² Ibid.

²³ Ibid.

²⁴ Ibid.

²⁵ Ibid.

²⁶ <http://www.reeep.org/index.php?id=9353&text=policy-db&special=viewitem&cid=46>

288MW will be required²⁷. However, no new electricity generation capacity has been implemented. As mentioned above, hydro power generation capacity has been identified. There are also several challenges that need to be overcome in order to achieve the Government's goal of 35% of households being connected to the grid by 2015.

Section 4: Energy regulation

4.1 Energy regulator

The Lesotho Electricity Authority (LEA) is the independent authority that regulates the electricity sector. It was established through the Lesotho Electricity Authority Act of 2002. Section 21(1) of the Act sets out the duties of the LEA to, *inter alia*, "to promote expansion of electricity supply in Lesotho, where this is economic and cost effective, ensure the operation and development of a safe, efficient and economic electricity sector in Lesotho, ensure the security of the supply of electricity in Lesotho" as well as "reviewing the provision of electricity supply in Lesotho; issuing and enforcing licences; establishing technical standards, reviewing and monitoring safety standards; implementing customer care standards; and regulating prices charged to consumers of electricity"²⁸.

4.2 Degree of independence of regulator

The LEA website²⁹ provides that the purpose of the LEA is to regulate the sector in the interests of all electricity sector stakeholders. It receives its funding from licensed electricity operators and a levy paid by electricity customers. The LEA Act provides that its members are appointed by the Minister of Natural Resources, who also has the power to appoint tribunal members. While it purports to be independent, the fact that there is quite a high level of governmental involvement does put the independence of the LEA into question.

4.3 Regulatory framework

The LEA website provides that it is currently in the process of devising a regulatory framework which provides certainty to suppliers while at the same time protecting the interests of electricity customers³⁰. There does not appear to be any regulations promulgated in terms of any legislation by the Government regarding energy.

4.4 Regulator's roles

As provided for above, the LEA is tasked with promoting "the expansion of electricity supply in Lesotho, where this is economic and cost effective, ensure the operation and development of a safe, efficient and economic electricity sector in Lesotho, ensure the security of the supply of electricity in Lesotho" as well as "reviewing the provision of electricity supply in Lesotho; issuing and enforcing licences; establishing technical standards, reviewing and

²⁷ Ibid.

²⁸ <http://www.lea.org.ls/AboutLEA/Duties.php>

²⁹ <http://www.lea.org.ls/AboutLEA/AboutLEA.php#>

³⁰ <http://www.lea.org.ls/AboutLEA/Regulatory/Technical.php>

monitoring safety standards; implementing customer care standards; and regulating prices charged to consumers of electricity”³¹.

4.5 Role of government departments in energy regulation

The Energy Planning unit, a division within the Ministry of Water, Energy and Mines is responsible for implementing appropriate energy policy and a program for the production, storage and distribution and use of all forms of energy³².

4.6 Regulatory barriers to sustainable energy identified?

The UNDP / GEF Rural electrification-based project report identified four main barriers to the large scale utilisation of renewable energy-based technologies in Lesotho, namely, institutional; economic, commercial and market; technical and information; and education and training.

³¹ <http://www.lea.org.ls/AboutLEA/Duties.php>

³² <http://www.mbendi.com/indy/oilg/af/le/p0005.htm>