

# A Qualitative Analysis of Renewable Energy used and Policies in Lesotho

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# INTRODUCTION

- The global community is confronted by a lot of challenges including: environment, energy, food, health and water. Energy is a primary vehicle for socio-economic development for any nation and access to modern energy was also seen as a prerequisite to achieving the Millennium Development Goals (MDG) that ended in 2015.
- Lesotho subscribe to UN Sustainable Development Goals that replaced the MDGs in 2015, this included access to affordable, reliable, sustainable and clean energy as one of the goals.

# INTRODUCTION

- According to Royal Society of Chemistry(2018), to ensure sustainable energy future, nations around the world would face two further challenges:
  1. **Energy security:** managing energy supply, reliability of energy infrastructure, and ability to meet current and future demand.
  2. **Energy equality:** accessibility and affordability for everyone.
- Current demographic, economic, social, and technological trends – if not counterbalanced by strong government policies-poses major challenges to long term sustainability of the global energy system (EOCD:2007)

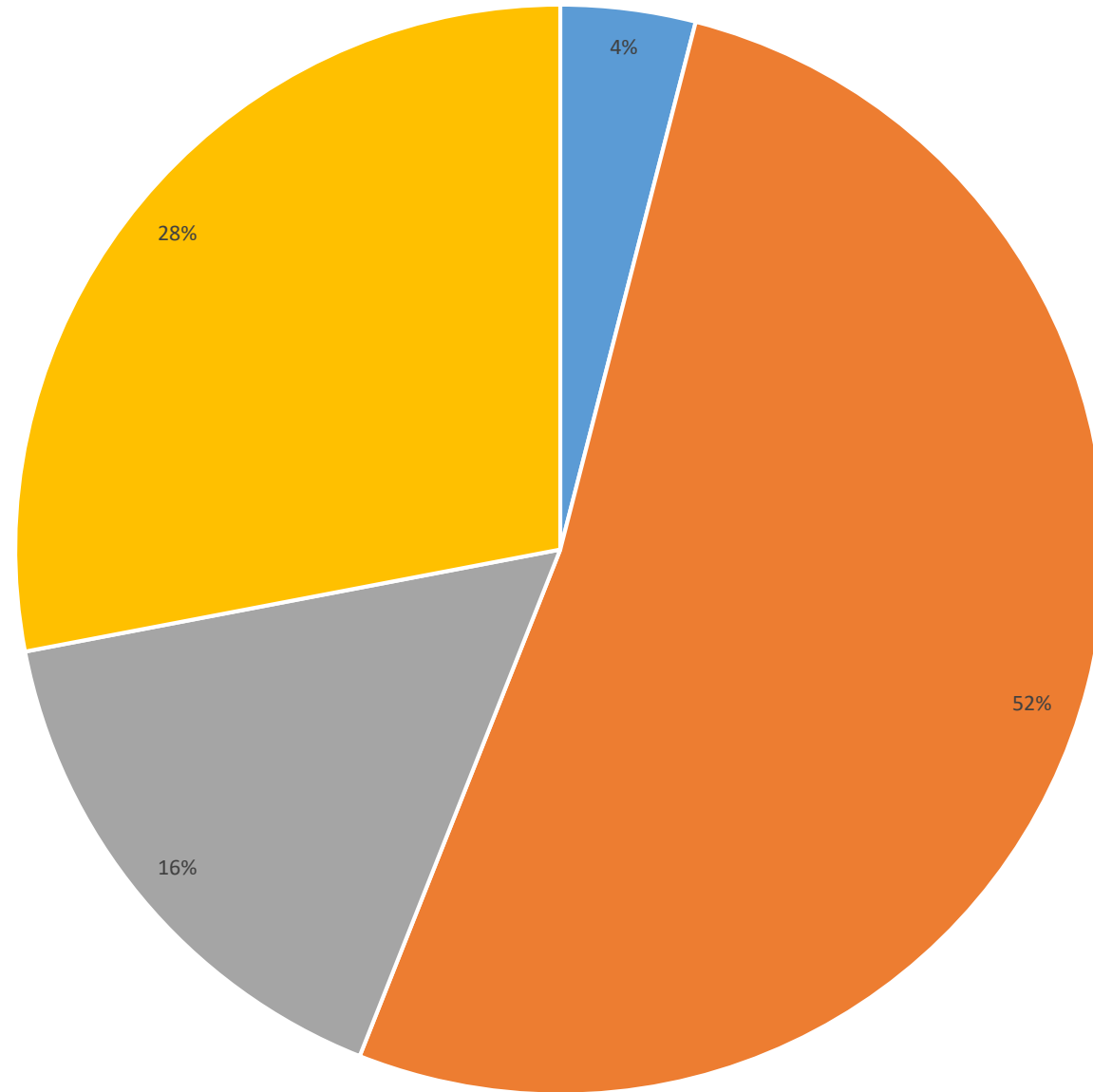
# OBJECTIVES:

- To qualitatively analyse renewable sources of energy in Lesotho
- To evaluate how access to renewable energy is affected by policy and decision making,
- To discuss energy socioeconomic impacts on communities in Lesotho.

# ENERGY SITUATION IN LESOTHO

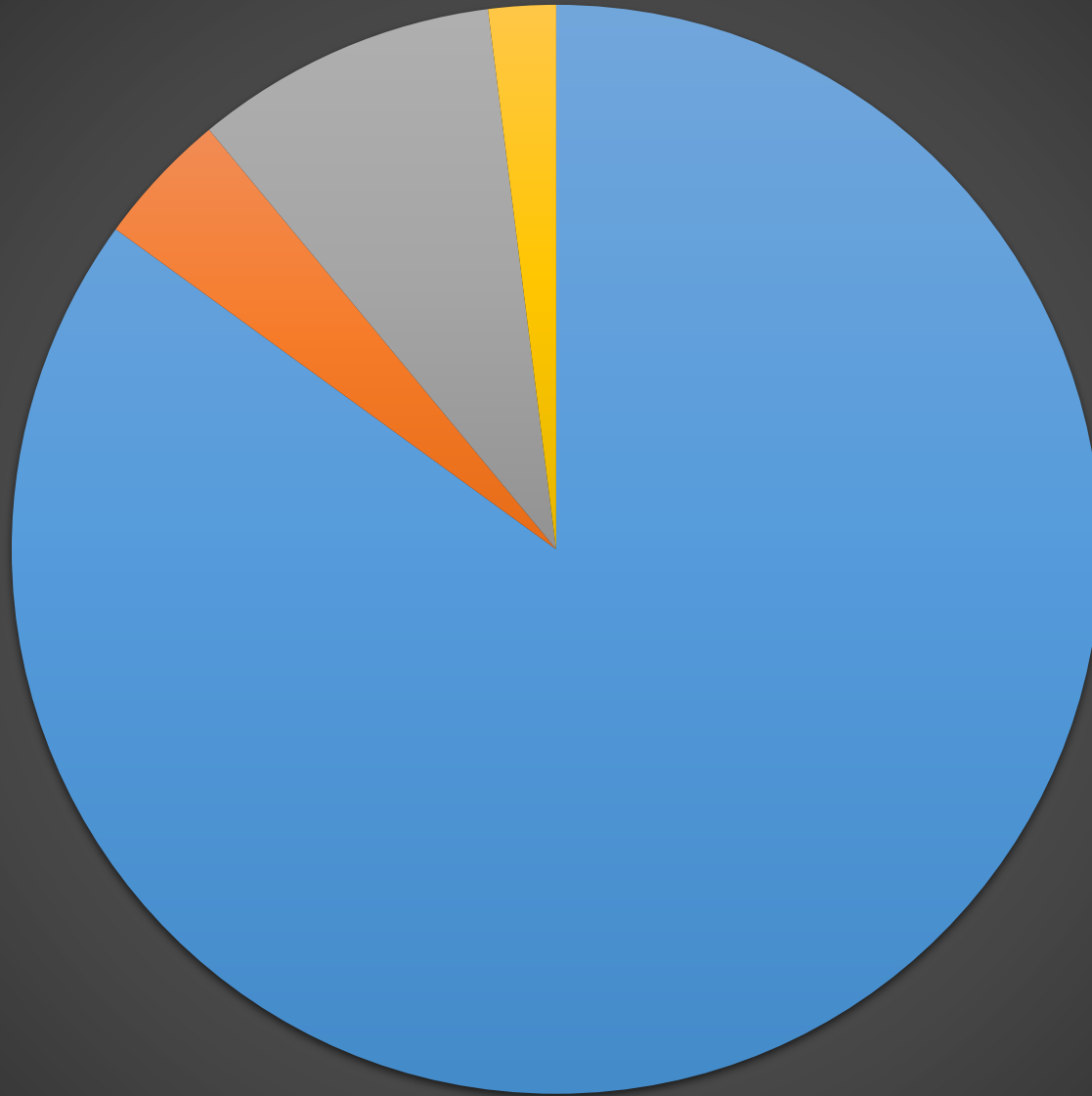
- According to Department of Energy (2017), there are four main sources of energy in Lesotho – as shown on Figure1 below, biomass constitute over half of Lesotho energy balance at 52%.
- Fossil fuels including coal and petroleum contribute to 28% and 16% of the energy mix respectively, while electricity is the least.

Composition of energy demand



■ Electricity ■ Biomass ■ Petroleum ■ Coal

# Final Energy Consumption by Sector and Source (Lewa Report 2017)



■ Residencial   ■ Commercial/Government   ■ Transport   ■ Industry

# LESOTHO ENERGY SUPPLY

- Energy supply
- Primary energy
- Secondary energy



# Generation Assets in Lesotho (DoE:2017)

Assets	Connection	Technology	Installed Capacity (MW)	Available Hydro capacity
Muela	Grid	Hydro	72	72
Mantsonyane	Grid	Hydro	2	2
Katse	Grid	Hydro/diesel	0.54(0.8)*	0.54
Semonkong	Off-grid	Hydro/diesel	0.18(0.4)*	0.18
		Total capacity	72.72 hydropower only	74.72

# ENERGY DEFICIT

- Electricity peak demand has reached up to 153 MW in 2016, forcing Lesotho to meet the deficit with more expensive imports from Mozambique and South Africa.
- 2020: Lesotho electricity demand is expected to reach 304 MW
- 2035: demand is expected to reach 432 MW (LEWA Report 2017)

# PHYSICAL ENERGY POTENTIAL

Technology	Capacity
Wind	6 000 MW
Hydro	450 MW

# WIND AND POWER PLANT PROPOSAL IN LESOTHO

- “The tiny mountain kingdom of [Lesotho](#) is to harness the power of wind and water in a \$15bn (£9bn) green energy project, the biggest of its kind in Africa.
- Investors say the power project will create 25,000 jobs over 15 years. Some 1,500 technicians and engineers will be employed on a permanent basis.
- Construction is expected to take between 10 and 15 years. The first phase is a 150-megawatt windfarm, set to start next year. South Africa's Harrison and White Investments and its Chinese technology partner, Ming Yang Wind Power, will build wind turbine components factories in South Africa and Lesotho.”

[WWW.THEGUARDIAN.COM/WORLD/2011/OCT/31/LESOTHO-HARNESS-WIND-WATER-ENERGY](http://WWW.THEGUARDIAN.COM/WORLD/2011/OCT/31/LESOTHO-HARNESS-WIND-WATER-ENERGY)

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# ENERGY POLICY AND REGULATORY FRAMEWORK

- Vision 2020 energy target is to have at least 35% of the population by 2015, 40% by 2020 and to reduce the rate of wood use in energy consumption.
- National Strategic Development Plan 2012/13 – 2016/17
- Lesotho Energy Policy 2015-2025 – divided into the following facets:

# ENERGY POLICY AND REGULATORY FRAMEWORK

1. Institutional and regulatory framework and improved information system.
2. Promotion of bioenergy resources and renewable energy technology services.
3. Enhancing efficiency of electricity equipment and upgrading and expansion of facilities for power generation, heat and fuel production.
4. Increase market efficiency, ensuring fair and transparent pricing and promoting private investments with attractive business environment.
5. Ensuring the access and security of electricity and petroleum products.

# KEY CHALLENGES

- Policy integration
- Intergenerational assessment
- Coordination and institutions
- Local governance
- Stakeholder participation
- Indicators and targets
- Monitory and evaluation



# Conclusion

Consistent policies are a prerequisite to unlocking the vast potential resources of Lesotho, which if effectively harnessed can move the country from least developed status to a developing country status.