GOVERNMENT OF MALAWI

NATIONAL ENERGY POLICY

July 2018

FOREWORD

The Government of Malawi (GoM) realises that industrial and socio-economic development of the country depends on access to modern, reliable and sufficient energy. As such, it has put the energy sector as a priority in its National Development Agenda. The Government further realises that sustainable development and management of energy sector through well-defined policies including legal and institutional frameworks, international assistance from development partners, and partnerships with the private sector positively impact on other sectors.

In view of this, the National Energy Policy of 2003 has been revised to provide a new policy direction and guidance to all stakeholders in the implementation of energy interventions. This is necessary in order to spur development as aspired for in the Malawi Vision 2020, and Malawi Growth and Development Strategy (MGDS) III in the national agenda, and Sustainable Energy for All Initiative and Sustainable Development Goals (SDGs) in the international agenda.

The revision of the National Energy Policy of 2003 was necessitated by several factors including the following: it had a number of shortfalls or challenges which needed to be rectified; it was driven by the Millennium Development Goals (MDGs) which have given way to the Sustainable Development Goals (SDGs); Government's adoption of Energy Sector Reforms (Power market restructuring policy and an oil importation policy); Malawi's commitment to achieve targets set under the Sustainable Energy for All (SE4ALL) Initiative; and Government's adoption of Public Sector Reform Programme aimed at ensuring efficiency, transparency and accountability in the delivery of public services, of which energy services is a part. All these factors needed to be factored into the policy and therefore provided the rationale for the review of the policy.

Whilst recognizing the numerous challenges in the energy sector, the National Energy Policy (2018) overall goal, therefore, is to provide guiding framework for increased access to affordable, reliable, sustainable, efficient and modern energy for all sectors and every person in the country. It emphasises the importance of private sector participation in the sector and provides an environment conducive for such participation, be it in the form of direct investment, PPPs, IPPs or other participation vehicles. It also emphasises on sustainable and clean energy which is accessible to all. Energy efficiency is another priority area of this Policy, which also recognises the importance of security of energy supply systems. Mitigating environmental, social, safety and health impacts of energy production and utilization is a key part of the policy. All this will be done under a robust, investor-friendly and consumer sensitive regulatory regime.

The Government of Malawi is committed to addressing the challenges facing the energy sector while managing environment and climate change. As such, it has developed an

Integrated Resource Plan as a policy implementation tool to guide and facilitate investments in the sector. Further the Government has developed Independent Power Producers (IPP) Procurement framework, Malawi Renewable Energy Strategy and SE4ALL Action Agenda. These are envisaged to facilitate private sector participation in power generation and exploitation of renewable energy resources in the country.

It is, therefore, my conviction that the policy will be critical in attaining socio-economic development of our country. I call upon all the stakeholders in the energy sector to join hands with the Government as it works tirelessly to achieve the aspirations and targets set in this policy.

Hon Aggrey Masi, MP
Minister of Natural Resources, Energy and Mining

PREFACE

The Government of Malawi adopted the Sustainable Development Goals (SDGs) and is part of the Sustainable Energy for All (SE4All) Initiative whose overall goal is to achieve universal access to affordable, reliable, sustainable, efficient and modern energy services.

This Policy demonstrates the government's commitments to achieve these international development agenda through programmes, projects and activities there under. In the same vain, this revised energy policy has been guided by national development agenda and aspirations as stated in the Malawi Vision 2020, Malawi Growth and Development Strategy (MGDS) III and Malawi Public Sector Reforms Program. Further, the Policy demonstrates government effort to realise positive gains from various international as well as regional associations and agreements such as the Southern African Power Pool (SAPP), International Energy Agency (IEA), among others.

The Policy strongly advocates for the private sector to take a leading role in the implementation of energy sector interventions. There are also a number of opportunities for Civil Society Organisations (CSOs), communities and other partners to participate in the implementation of the Policy.

Much as there are a number of challenges including inadequate funding and technical support which could hamper implementation, it is hoped that with this revised Policy being supported by an equally attractive legal and regulatory environment, various traditional and non-traditional sources of funding can be accessed.

The Policy was reviewed through a consultative process that involved a range of stakeholders including Government ministries, parliamentarians, development partners, private sector, Academia, CSOs, local leaders and communities. Desk studies of various countries' energy policies and systems in Africa and Asia were also conducted. Lessons learnt from these countries further enriched the process and outcome of this Policy.

The Government of Malawi is highly indebted to all stakeholders that were involved in reviewing the Policy. Special appreciation goes to United Nations Development Programme (UNDP) for providing funding for the review process and the Millennium Challenge Corporation (MCC) for providing technical support on Social and Gender Inclusion.

Patrick C.R. Matanda
Secretary for Natural Resources, Energy and Mining

ACRONYMS AND ABBREVIATIONS

AfDB	African Development Bank
AUC	African Union Commission
CA	Catchment Area
CDB	China Development Bank
CDM	Clean Development Mechanism
CFPP	Coal-fired Power Plant
CFTC	Commission for Fair Trade and Competition
CO	Carbon Monoxide
CO2	Carbon Dioxide
COCO	Company Owned Company Operated
CODO	Company Owned Dealer Operated
COLEDO	Company Leased Dealer Operated
COMESA	Common Market for Eastern and Southern Africa
CSI	Coal Supply Industry
CSO	Civil Society Organisation
DfID	Department for International Development
DoE	Department of Energy Affairs
DoI&WD	Department of Irrigation and Water Development
DODO	Dealer Owned Dealer Operated
DSM	Demand Side Management
DSW	Department of Social Welfare
EAD	Environmental Affairs Department
EAPP	East African Power Pool
EDVP	Ethanol Driven Vehicle Project
EGENCO	Electricity Generation Company
EIA	Environmental Impact Assessment
ESCOM	Electricity Supply Corporation of Malawi
ESI	Electricity Supply Industry

ESIA	Environmental and Social Impact Assessment
ESIMP	Environmental and Social Impact Management Plan
ESSP	Energy Sector Support Project
ETHCO	Ethanol Company of Malawi
FDI	Foreign Direct Investment
FS	Feasibility Study
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GoM	Government of Malawi
GTF	Global Tracking Framework
ICA	Investment Climate Assessment
IDA	International Development Association
IEA	International Energy Agency
IFC	International Finance Corporation
IHPS	Integrated Household Panel Survey
IPP	Independent Power Producer
IRP	Integrated Resource Plan
JICA	Japanese International Cooperation Agency
kV	Kilovolt
kWh	Kilowatt-hour
LDC	Least Developed Country
LED	Light Emitting Diode
LF	Liquid Fuel
LF&GSI	Liquid Fuel and Gas Supply Industry
LPG	Liquefied Petroleum Gas
MAREP	Malawi Rural Electrification Programme
MBS	Malawi Bureau of Standards
MCC	Millennium Challenge Corporation
MCCCI	Malawi Confederation of Chambers of Commerce and Industry

MDG	Millennium Development Goals
MERA	Malawi Energy Regulatory Authority
MGDS	Malawi Growth and Development Strategy
MIGA	Multilateral Investment Guarantee Agency
MNREM	Ministry of Natural Resources, Energy and Mining
MoAI&WD	Ministry of Agriculture, Irrigation and Water Development
MoEST	Ministry of Education, Science and Technology
MoI&CE	Ministry of Information and Civic Education
MoITT	Ministry of Industry, Trade and Tourism
MoL&MD	Ministry of Labour and Manpower Development
MoT&PI	Ministry of Transport and Public Infrastructure
MVA	Megavolt-ampere
MW	Megawatt
MWK	Malawi Kwacha
NCHE	National Council for Higher Education
NCIC	National Construction Industry Council
NCST	National Commission for Science and Technology
NEPAD	New Partnership for Africa's Development
NPCA	NEPAD Planning and Coordinating Agency
NEP	National Energy Policy
NGO	Non-Governmental Organization
NOCMA	National Oil Company of Malawi
NSO	National Statistics Office
OMC	Oil Marketing Company
PCG	Partial Credit Guarantee
PCL	Press Corporation Limited
PIL	Petroleum Importers Limited
PIDA	Programme for Infrastructure Development in Africa
PIDA-PAP	PIDA Priority Action Program
PRG	Partial Risk Guarantees

PPA	Power Purchase Agreement
PPP	Public Private Partnership
PPPC	Public Private Partnership Commission
PSP	Pico Solar Products
PwC	PricewaterhouseCoopers
REA	Rural Electrification Agency
RE	Renewable Energy
RER	Renewable Energy Resources
RET	Renewable Energy Technologies
ROW	Right(s) of Way
SADC	Southern Africa Development Community
SAPP	Southern Africa Power Pool
SDGs	Sustainable Development Goals
SE4All	Sustainable Energy for All
SGIP	Social and Gender Integration Plan
T&D	Transmission and Distribution
ESCOM	Electricity Supply Corporation of Malawi
UN	United Nations
UNCB	United Nations Convention on Biodiversity
UNCD	United Nations Convention on Desertification
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
USA	United States of America
USD	United States Dollar
VAT	Value Added Tax
WEO	World Economic Outlook

GLOSSARY

Biogas: A mixture of gases that is produced from bio-degradable materials such as agricultural materials (crop residues, liquid manure and energy crops), animal manure and slaughterhouse waste, vegetable waste, as well as municipal and sewage waste.

Biomass: Organic matter that can be used to provide heat, produce liquid fuel and generate electricity.

Electricity Access: In Malawian context, means connection to and usage of electricity from national grid, mini-grids, own generators, Solar PV home systems and Pico Solar Products.

Energy Balance: A coherent picture about the flows of all types of energy from their original form, through transformation processes to their final use.

Energy Efficiency: Total energy input to a machine or equipment that is consumed in useful work and not wasted as useless heat.

Grid Code: A set of rules made by the regulatory authority for operation, dispatch and reporting of the Malawi Electricity Supply Industry.

Independent Power Producer (IPP): A person that privately builds, own and operate facilities to generate and sell electricity to the Malawi Electricity Supply Industry.

Integrated Resource Plan: A document detailing process of planning to meet users' needs for electricity services in a way that satisfies multiple objectives for resource use.

Life line tariffs: A subsidised tariff targeting low income households to enable them access and sustain electricity usage.

Liquefied Petroleum Gas (LPG): A flammable mixture of hydrocarbon gases used as fuel in heating appliances, cooking equipment, and vehicles

None-Renewable Energy: Sources of energy available to mankind arising from natural processes in the interaction between the sun and the earth's surface but not regularly replenished, and these include Uranium and fossil fuels e.g. coal, peat, crude oil and natural gas.

Petroleum-based fuels: Fossil fuels, which include petrol (gasoline), diesel, paraffin (kerosene) and heavy fuel oil (HFO).

Power Purchase Agreement: A contract between a generator and a single buyer or between a single buyer and a distributor to buy electricity for a pre-established period of time.

Renewable Energy: Sources of energy arising from natural processes in the interaction between the sun and the earth's surface and regularly replenished. These include the sun as the primary renewable energy resource and the secondary renewable energy resources that derive from the sun such as wind, hydro, ocean thermal, ocean wave, ocean tidal energy and electricity from photo-voltaic effects, biomass and geothermal energy.

Rural Electrification: Grid or off-grid extension of distribution lines and installation of solar photovoltaic systems, generation of electricity from mini-and micro hydro whose internal rate of return is up to 6 per cent per annum and line capacity is less than 66 KV or generation capacity is up to 5 MW.

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1.0 INTRODUCTION

This Policy seeks to guide planning and implementation of programmes, projects and activities in the energy sector with the aim of increasing access to affordable, reliable, sustainable, efficient and modern energy services for every person in the country. It reflects the latest developments in the energy sector and new national goals. It has an Implementation Plan and a Monitoring and Evaluation Plan with time-bound deliverables, and sets out clear updated goals, objectives, strategies and priority actions.

Cognizant of the fact that biomass dominates the current energy mix, at 89%, this Policy aims at reducing the contribution of biomass in the energy mix by promoting development and use of modern energy sources as shown in **Annex 1.** This Policy has categorised energy sources as follows: Electricity from Non-Renewable Sources; Electricity from Renewable Sources; Biomass; Petroleum Fuels; Biofuels; Liquefied Petroleum Gas (LPG); Biogas and Natural Gas (NG); Coal; and Electricity from Nuclear Energy.

1.1 Background

The Government of Malawi identified energy as a priority sector in order to spur socio-economic development of the country. Improvements in the energy sector are expected to positively impact on other sectors, through well-defined policies and institutional frameworks, international assistance from development partners, and partnerships with the private sector.

In recognition of the above, the Government of Malawi, adopted National Energy Policy (NEP) in January 2003. The Policy aimed at achieving the following long-term goals;

a. Make the energy sector sufficiently robust and efficient to support GoM's socio-economic agenda of poverty reduction, sustainable economic development, and enhanced labour productivity.

b. Catalyse the establishment of a more liberalized, private sector driven energy supply industry in which pricing will reflect the competition and efficiency that will develop in the reform process; and

c. Transform the country's energy economy from one that is overly dependent on biomass to one with a high modern energy component in the energy mix.

The NEP 2003 had the following successes;

a. Formulation of the Malawi Energy Regulatory Authority to regulate the energy sector

b. Formulation of National Oil Company of Malawi (NOCMA)

c. Increased awareness for renewable energy technologies

d. Capacity building in Renewable Energy Technologies through introduction of Testing Centre for Renewable Energy Technologies (TCRET) and establishment of department of energy studies at Mzuzu University;

e. Increased penetration of renewable energy into the energy mix;

f. Establishment of Rural Electrification Fund and Rural Electrification Management Committee;

g. Implementation of Power Market Reforms;

   - Amendment of the Electricity Act of 2004 to allow participation of Independent Power Producers.
   - Unbundling of ESCOM into two companies- one responsible for generation (EGENCO) and the residual ESCOM for transmission and distribution.

h. Implementation of Bulk Fuel Procurement System; and

i. Increased fuel storage holding capacity to 75days.

Despite making progress in implementing NEP 2003, a lot remains to be done if the energy needs of all Malawians are to be met. The unfinished agenda is detailed below:

a) Despite the successful unbundling of ESCOM, there is still need to create two publicly owned companies one responsible for transmission and the other for distribution.

b) Electricity generation in the country is inadequate to meet the demand. There is little private sector participation in generation of electricity to assist Government in filling the supply-demand gap. The generation is predominantly hydro (98% as at April 2018) with 99% of the power plants located on Shire River. To be efficient and stimulate inclusive growth, efforts to strengthen electricity generation must deliberately co-opt strategies aimed at preventing and mitigating project risks for different social groups, as well as creating an enabling environment for equal opportunities in the sub-sector. With revised legislation including the unbundling of ESCOM it is anticipated that more private players will be attracted to the industry.

c) Electricity Transmission Capacity constraints are prevalent in the country as evidenced by overloading of transmission lines and transformers. Increased transmission system capacity is crucial for evacuation of power from the generation stations.

d) Access to electricity remains a major challenge that calls for urgent attention. Some of the barriers are high cost of connection to the grid, inadequate capacity by ESCOM to connect customers to the grid and lack of flexible connection incentives.

e) The Rural Electrification Fund has had impact of extending the grid to the rural areas but with limited connections. The fund has not been utilised for off-grid electrification.

f) Renewable energy contribution to the energy mix is still low. Some of the barriers to exploitation, development and use of renewable energy sources are:

   i) Prohibitive capital costs of renewable energy-based systems and renewable energy technology (RET) products, e.g. mini grid systems, solar PV systems, bagasse co-generation systems and Pico Solar Products (PSPs);

   ii) Inadequate human capacity building at all levels in RET products, services, installation and maintenance, and marketing;

   iii) Lack of enforcement mechanisms for standards resulting in a proliferation of poor quality products, e.g. PSPs, on the market, and

   iv) Limited dissemination of information to or awareness by the population.

g) Biomass remains the major source of energy for cooking, heating and brick burning which exerts pressure on the diminishing resources. There is low adoption of efficient and alternative technologies that could reduce demand for biomass. There is no biomass energy regulatory framework.

h) Bio-ethanol and biodiesel contribution to the energy mix is low due to limited production capacity, lack of appropriate incentives and limited distribution infrastructure.

i) Liquefied Petroleum Gas (LPG), Biogas and Natural Gas as alternative sources of energy for cooking, heating and electricity generation have not been fully exploited. There are, however, challenges that are hindering the uptake of these fuels. These include; lack of awareness, cultural barriers and knowledge on the existence of the fuels; high capital costs for equipment, inadequate technical expertise in, the design and construction of the systems.

j) Coal has not been used much as an energy source despite the country having proven reserves. There are five main challenges facing the Coal Supply Industry (CSI) that need to be addressed:

   i) Lack of price competitiveness of local coal compared to imported coal;

   ii) None existence of competition within the industry (23 years after the liberalisation of the industry in 1995, there are still just a few coal mining companies in operation);

   iii) Low productivity and high production costs owing to the use of obsolete technologies; and

iv) Overlaps in policy and regulatory framework to govern downstream marketing, transportation and utilisation.

k) Nuclear energy has not been used for electricity generation despite the country having uranium deposits. Government has decided to harness the locally available nuclear energy for electricity generation. To this end, Government intends to formulate a capacity building programme in nuclear science in consultation with the International Atomic Energy Agency. The intention is to build adequate capacity to have the first nuclear power plant running by 2035.

l) Demand Side Management (DSM) and Energy Efficiency programmes have not been comprehensively implemented and fully adopted resulting in a lot of wastage of electrical energy and biomass in end-use activities such as cooking, water and space heating, as well as lighting occasioned by use of inefficient appliances and devices.

m) The NEP 2003 was promulgated after the Millennium Development Goals (MDGs) were put in place. However, the MDGs did not have any specific goal on energy, thereby omitting an important element in development. The new United Nations Sustainable Development Goals (SDGs) that have since been put into place include energy as Goal No. 7. The revised policy has taken this into account. In addition, the advent of the SE4ALL Initiative of 2011 necessitated a review of the old policy to factor in aspects thereof.

In view of the above, the revised National Energy Policy addresses the unfinished agenda and reflects the latest developments in the energy sector both nationally and internationally. This Policy has an Implementation Plan and a Monitoring and Evaluation Plan with time-bound deliverables. The Policy sets out clear updated goals, objectives, strategies and priority actions, and focuses on the following issues:

a) Sustainable and reliable energy provision that will catalyse industrialisation and modernisation of the economy. Support rapid growth of the productive sectors such as agriculture, manufacturing, mining and the service sector;
b) Achieving universal energy access in line with the SE4ALL and United Nations Sustainable Development Goals (SDGs) i.e. Goal No. 7;
c) Ensuring cost-reflective pricing with internationally acceptable returns on investment. This will include automatic price adjustment mechanisms for all sources of energy;
d) Promotion of regional power interconnection;
e) Reducing the impact of climate change on energy;
f) Promotion of efficient biomass stoves and biomass briquetting and other alternative sources of energy;
g) Enhancing energy intervention's planning and implementation at district level; and
h) Social and gender inclusion in energy programmes.

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1.2 Rationale

The first integrated National Energy Policy was formulated in 2003. Since then, Energy Sector as well as the overall economy have gone through structural changes, where the role of government in some areas has changed, markets have been liberalized and private sector initiatives encouraged. Hence the National Energy Policy of 2018 has been formulated considering these changes.

The formulation of the National Energy Policy of 2018 was also necessitated by changes in national and international development agenda. The MGDS II has given way to the MGDS III and the MDGs have given way to SDGs - both of which have put energy as a high priority area. The country is also committed to achieving targets set under the Sustainable Energy for All (SE4ALL) Initiative which had to be reflected in the Policy.

1.3 Policy Guiding Principles

The guiding principles of this Policy are as follows:

a) Sustainable Energy Supply and Services

b) Energy Efficiency and Conservation

c) Sustainable Energy for All (SE4ALL)

d) Equitable and Inclusive Energy Access

e) Promotion of Private Sector Participation

f) Good Governance in Energy Services

1.4 Linkages with Existing Policies, Laws and International Obligations

Constitution of the Republic of Malawi

The Constitution under Section 13 embodies principles of national policy that will ensure that the State is actively promoting the welfare and development of Malawians. Among others, it mandates the State to develop policies that will prevent the degradation of the environment, enhance the quality of rural life, support the furtherance of education, support people with disability in all spheres of life and ensure the full participation of women in all areas on the basis of equality with men. To effectively realise this right, the State has an obligation to take all necessary measures, including facilitating equality of opportunity for all in their access to basic resources, education, health services, food, shelter, employment and infrastructure.

Malawi Vision 2020

Malawian Vision is that :

"By the Year 2020, Malawi, as a God-fearing nation, will be secure, democratically mature, environmentally sustainable, self-reliant with equal opportunities for active participation by all, having social services, vibrant cultural and religious values and a technologically driven middle-income country".

Energy was set to play a major role in attaining the Vision 2020. However, success of Vision 2020 has been limited, in part due to limited development and growth in the energy sector.

Malawi Growth and Development Strategy (MGDS) III

The Malawi Growth and Development Strategy (MGDS) III recognises that energy is the lifeblood of the economy as it serves as a crucial input to all economic and social services. A well-developed and comprehensive energy sector can improve service delivery and increase outputs in industries such as manufacturing, trade, tourism and other services. Access to clean, reliable, reasonably-priced and sustainable energy supply is central to maintaining and improving the living standards of people.

Legislations

This Policy shall be implemented in line with the existing legislation that touches on energy related issues such as: The Environmental Management Act 2016, Mines and Minerals Act 1981, National Forestry Act 1997, Water Resources Act 2013 and Gender Equality Act 2015, among others.

National Gender Policy 2006

The National Gender Policy, under the priority area of 'environment, climate change and management,' expects the energy sector to ensure integration of gender in environmental impact assessments (EIAs). Further, like all sectors, the energy sector is expected to contribute to achievement of the priority area on 'gender and economic development' under which there is a call to mainstream gender in national budgets, plans, strategies and programmes.

National HIV and AIDS Policy 2013

The National HIV and AIDS Policy (2013) requires implementation of comprehensive workplace HIV interventions that target highly mobile groups. Workers in energy infrastructure development projects would fall under this category. Therefore, mainstreaming HIV awareness in the energy sector is necessary for purposes of developing HIV prevention measures to protect women and men according to their specific vulnerabilities; minimizing disruptions to critical health/treatment services; and to generally prevent, mitigate and monitor HIV and AIDS risks in energy projects.

Mines and Minerals Policy 2013

The Mines and Minerals Policy advocates the development of adequate infrastructure to support development of mining in the country. It is therefore important that, in order to

ensure rapid development of the mining sector, there is sufficient and reliable energy supply in the country.

National Forestry Policy 1996

Biomass is a downstream product of forests hence its use as an energy source must comply with the Forestry Policy.

National Climate Change Management Policy (2016)

Power generation and supply has been adversely affected by the negative impact of climate change. The National Climate Change Management Policy is promoting adaptation and mitigation measures to climate change that will also benefit the energy sector.

International Obligations

Programme for Infrastructure Development in Africa (PIDA)

The African Union Commission (AUC), the New Partnership for Africa's Development (NEPAD) Agency (NPCA) and the African Development Bank (AfDB) have developed a continental and consensual Programme for Infrastructure Development in Africa (PIDA). The PIDA Priority Action Program (PIDA-PAP), aims to boost energy trade within and between regional power pools which will benefit the region through reduced cost due to economies of scale, improved energy mix and increased access to modern energy services.

Tripartite Free Trade

The Tripartite Free Trade area comprising of SADC, COMESA and the East African Community are focusing on harmonising the Regional Economic Communities (RECs)' programmes in the areas of trade and infrastructure which include energy.

SADC Energy Protocol and Energy Cooperation Policy and Strategy (1996)

SADC through its *Energy Protocol (1996)* and its *Energy Cooperation Policy and Strategy (1996)* identified four key areas in which energy can contribute to regional integration: trade in energy, investment and finance, capacity building and training, the exchange of information and the sharing of experience.

SADC Regional Infrastructure Development Master Plan (RIDMP)

SADC, through its Regional Infrastructure Development Master Plan (RIDMP), is expected to run until 2027, and is to be implemented in three phases, i.e. short term (2013-2017), medium term (2017-2022), and long term (2022-2027) and will benefit SADC member states in different aspects of development including building roads, rails and ports. The energy division is one of the prioritized sectors and falls under the RDIMP Energy Sector Plan (ESP) 2012.

International Energy Agency (IEA)

The key themes for International Energy Agency (IEA) are energy security, environmental protection and economic development. The agreed international goal of greenhouse gas (GHG) emissions reduction is the driver for many energy policies world-wide, and is targeted by both improved energy efficiency and a higher level of renewables in national energy systems.

Power Africa Initiative

The United States Government's Power Africa initiative is supporting economic growth and development by increasing access to reliable, affordable, and sustainable power in Africa. This initiative is expected to support the implementation of this Policy.

Sustainable Energy for All (SE4ALL) Initiative 2011

The SE4All initiative by the United Nations launched in September 2011 aims to achieve the three main goals of ensuring universal access to modern energy services; doubling the global rate of energy efficiency; and doubling the share of renewable energy in the global energy mix by the year 2030. This Policy provides a platform for achieving these targets.

Sustainable Development Goals

The Sustainable Development Goal Number 7 aims at ensuring universal access to affordable, reliable, and modern energy services by 2030; increasing substantially the share of renewable energy in the global energy mix by 2030; and doubling the global rate of improvement in energy efficiency by 2030.

2.0 BROAD POLICY DIRECTIONS

2.1 Policy Goal

The goal of the policy is:

"To increase access to affordable, reliable, sustainable, efficient and modern energy for every person in the country."

2.2 Policy Outcomes

The following are the expected outcomes for this Policy:

a) Diversified energy sources;

b) Developed and efficient energy sector;

c) Modernised and sustainable energy services;

d) Improved living standards for men and women due to equitable provision of energy services, and

e) Increased access to clean, sustainable and affordable energy for all people.

2.3 Broad Policy Objectives

The broad objectives of this Policy are:

a) To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading;

b) To ensure adequate production and supply of petroleum and biofuels at affordable prices;

c) To ensure availability of LPG, biogas and natural gas in sufficient quantities at affordable prices for industrial and domestic use;

d) To promote a coal supply industry that is more efficient and competitive, and harnesses clean technologies that eliminate or greatly reduce harmful emissions;

e) To ensure biomass is sustainably used and carbon emissions are reduced through the use of energy efficient technologies;

f) To establish a vibrant, reliable, incentivized and sustainable private sector-driven Renewable Energy Technology industry; and

g) To promote energy programming, budgeting and monitoring that routinely address all aspects of social and economic development in energy programmes and services.

3.0 POLICY PRIORITY AREAS

This Policy has identified Electricity, Biomass, Petroleum Fuels, Bio-ethanol and Other Biofuels, Liquefied Petroleum Gas, Biogas and Natural Gas, Coal, Nuclear Energy and Demand Side Management, as priority areas for actions.

3.1 Policy Priority Area 1: Electricity

Electricity as a priority area covers generation, transmission, distribution, rural electrification, electricity from renewable energy, and definition and measurement of access to electricity.

3.1.1 Policy Priority Area 1.1: Electricity Generation

Electricity generation industry in Malawi is currently composed of one National Company, Electricity Generation Company (EGENCO). The industry is liberalised but currently there are no private generators operating on the ground. The total installed capacity for the country is 361MW, 98% of which comes from hydro power plants located on Shire River and Wovwe River and the remaining 2% comes from stand-by diesel/petrol generators.

The key challenges in electricity generation are the following; inadequate installed capacity of 361MW against an estimated demand of over 700MW; there are no IPPs in the generation industry that could assist in filling generation gap; overdependence on Shire River for hydropower generation; and the national electricity grid is currently not interconnected with those of neighbouring countries, hence the country is unable to trade power under SAPP or EAPP trading arrangements.

Policy Statements

I. Government will create an enabling environment in order to diversify power generation sources for security of supply and expand generation capacity to meet the demand for electricity in the country.

Strategies:

- Reviewing the 2017 -2035 Integrated Resource Plan every five years.
- Creating an enabling environment for private sector investment in power generation.
- Conducting feasibility studies on sites for power generation from hydro, coal, geothermal, natural gas, solar, wind, agricultural waste, forestry waste, and biogas resources.
- Developing the sites for power generation from Hydro, Coal, Geothermal, Natural Gas, Solar, Wind, agricultural waste, forestry waste, and biogas resources, up to commissioning.
- Developing new hydro power plants up to commissioning.

II. Government will support all the necessary processes relating to the full operationalization of Electricity Generation Company (EGENCO) and the company responsible for transmission and distribution (ESCOM).

Strategies:

- Implementing power sector reforms in accordance with the Electricity Amendment Act of 2016

III. Government will interconnect its power system with the regional grids of SAPP and EAPP to ensure availability of additional generation capacity.

Strategy:

- Interconnecting the Malawi power system with those of Mozambique, Zambia and Tanzania

IV. Government will promote plans, programmes and strategies that deliberately advance the development of equal opportunities for marginalized and vulnerable groups in the electricity generation value chain.

Strategies:

- Developing Social and Gender Integration Plans (or equivalent) by the electricity generation company (EGENCO) and IPPs to address inward looking and outward looking social and gender issues across all generation functions.
- Developing robust socially responsive Environmental and Social Impact Assessment (ESIAs) for generation projects.
- Developing and implementing comprehensive socially responsive Environmental and Social Impact Management Plans for generation projects.
- Developing gender sensitive Resettlement Action Plans and/or fair compensation packages.

3.1.2 Policy Priority Area 1.2: Electricity Transmission

Electricity Transmission in Malawi has one national utility owning, operating and maintaining the national electricity transmission grid, comprising power transmission lines and grid substations operated at two voltage levels, namely 66kV and 132kV. The transmission power lines are on either wood or steel structures. The System Operations Department, which ran the National Control Centre, is one of the departments of the national utility company's Transmission Division.

This power system is isolated from those of the neighbouring countries, except for cross-border supplies (through the distribution system) to small border towns in Mozambique and Zambia.

There are some capacity constraints in the power transmission system more especially in the northern region where highest voltage in use is 66kV. Some transmission lines in the Southern and Central Regions are also heavily loaded and cannot transfer additional capacity available from expected power stations and interconnections with Mozambique and Zambia.

Increased transmission system capacity is crucial for evacuation of power from the generation stations, whether operated by National generation stations, IPPs or PPPs. The coming in of IPPs will also require that there should be a robust regulatory regime to ensure open access to the transmission system in a non-discriminatory manner. Hence the unbundling of the national utility company by separating the generation function from transmission and distribution was a necessary condition for ensuring this open and non-discriminatory access to the transmission system, so that all generation plants should have access thereto in a properly regulated manner under a robust Grid Code.

Since transmission projects can disturb the way of life of local communities then social and gender considerations come into play when implementing these projects.

Policy Statements

I. Government will intensify the expansion and rehabilitation of the transmission system in line with the IRP and in a socially and environmentally responsible manner, with a view to catalysing industrialisation, rural transformation, sustainable economic development, inclusive growth and creation of wealth.

Strategies:

- Operationalising in full the new transmission and distribution company
- Including all candidate transmission expansion and strengthening projects in a 20-year IRP and updates thereof.
- Empowering generation companies to build transmission lines and substations to interconnect the power stations with the transmission grid under the Transmission Operator's coordination.

II. Government will put in place robust power market operation rules and enforce the Grid Code.

Strategy:

- Reviewing the Grid Code.

III. Government will interconnect its power system with the regional grids of SAPP and EAPP to facilitate Regional power trading.

Strategy:

- Interconnecting the Malawi power system with those of Mozambique, Zambia and Tanzania.

IV. Government will ensure that transmission operations do not perpetuate inequalities amongst marginalized groups and project affected persons.

Strategies:

- Developing Social and Gender Integration Plans by ESCOM and contractors to address inward looking and outward looking social and gender issues across all transmission operations.
- Developing robust socially responsive Environmental and Social Impact Assessment (ESIAs) for transmission projects.
- Developing and implementing comprehensive socially responsive Environmental and Social Impact Management Plans for transmission projects.
- Developing gender sensitive Resettlement Action Plans and/or fair compensation packages.

3.1.3 Policy Priority Area 1.3: Electricity Distribution

The country's electricity distribution network is owned, operated and maintained by a national utility company, ESCOM. The network is operated at 33kV and 11kV, and these voltages are stepped down using distribution transformers to 400/230Volts for secondary distribution. As of 2016, the country's national utility supplied electricity to about 250,000 customers, categorized as domestic, general, commercial and industrial. The current number of customers translates to about 10.0 per cent of the national population having access to electricity. The government had, under the National Energy Policy of 2003, planned to increase the number of people with access to electricity from 4% to 10% of the population by 2010, 30% by 2020, and 40% by 2050.

Access to electricity in the country remains a major challenge owing to a number of factors which include: low coverage distribution network; high cost of connection to the grid, including the cost of transformers. Further, as of 2016, ESCOM had a considerable number of applications for connection of power supply, but it was unable to do the connections for various reasons, including material procurement bottlenecks and limited capacity to construct the lines to customers.

Policy Statements

I. Government will intensify the expansion and rehabilitation of the distribution network in a socially inclusive manner.

Strategies:

- Constructing new distribution lines and substations.
- Developing robust socially responsive ESIAs for new distribution lines and substations projects.
- Developing and implementing comprehensive socially responsive ESIMPs for new distribution lines and substations projects.

- Developing gender sensitive Resettlement Action Plans and/or fair compensation packages
- Rehabilitating existing distribution lines and substations.

II. **Government will incentivise distribution licensees to devise schemes that will enable consumers connect electricity to their homes, and afford basic energy efficient electrical appliances.**

Strategies:

- Removing duty and VAT on energy efficient domestic electric cooking and water heating appliances.
- Introducing lifeline tariffs to enable low income households access electricity.

III. **Government will encourage distribution licensees to expedite connections to customers' premises.**

Strategies:

- Implementing a policy whereby the distribution licensees shall allow customers to procure transformers and other materials in the event of procurement bottlenecks, and thereafter take over the assets with appropriate compensation.
- Implementing a policy whereby construction works will be contracted out.
- Promoting initial connection cost recovery from tariff payments

IV. **Government will ensure that distribution licensees have plans and strategies for fostering equal access to services and opportunities for low-income consumers and marginalized societal groups.**

Strategy:

- Developing Social and Gender Integration Plans by ESCOM and distribution licensees to address inward looking and outward looking social and gender issues across all distribution functions.

3.1.4 Policy Priority Area 1.4: Rural Electrification

Rural electrification entails increasing electricity access to rural and peri-urban areas using grid and off-grid options. The Malawi Rural Electrification Program (MAREP) which is being implemented by GOM and ESCOM using the Rural Electrification Fund, has had some impact on electrification of rural and peri-urban areas in the country.

Rural electrification programme has, up to the time of formulating this policy, targeted mainly grid extensions. Renewable energy and mini grids have not been promoted significantly. Further, rural electrification has so far concentrated on electrifying selected trading or rural growth centres in the districts. Villages, especially households, grain mills,

and social service facilities need to be reached in order to increase access to electricity as over 80% of the population of Malawi is living in rural areas.

Rural electrification projects in the country have not fully involved subgroups of rural men and women in planning, governance, management, recruitment, procurement and operations.

Many rural public institutions are not connected to electricity from the national grid, mini grids, or other sources, including renewable ones such as solar installations.

Policy Policy Statements

I. **Government will restructure Rural Electrification and Renewable Energy Management governance.**

Strategy:

- Establishing a Rural Electrification Agency as a semi-autonomous legal entity to manage the Rural Electrification Fund and Rural Electrification activities (in both grid extension and off-grid options).

II. **Government will through the Rural Electrification Fund, pay for the cost of a transformer and associated infrastructure where it is intended to serve a minimum prescribed number of customers.**

Strategy:

- Making a provision for payment of infrastructure costs in the new Rural Electrification Act.

III. **Government will intensify electrification of rural growth or trading centres as well as rural settlements and villages, and provide funding for off-grid solutions.**

Strategy:

- Committing funds from the Rural Electrification Fund to off-grid rural electrification.

IV. **Government will facilitate wiring of public institutional buildings and connection of electricity thereto, and devise schemes for the connection of electricity to low income households within 500-metre radii of distribution substations in rural areas.**

Strategies:

- Electrifying institutional buildings, such as schools and hospitals using the Rural Electrification Fund
- Devising schemes for the Rural Electrification Fund to connect low income households within 500m radii of distribution substations.

V. Government will promote rural electrification programmes that create and strengthen equal opportunities for all segments of society.

Strategies:

- Developing Social and Gender Integration Plans by the Rural Electrification Agency, MAREP and contractors to address inward looking and outward looking social and gender issues across rural electrification functions.
- Devising rural electrification interventions for low income households- that deliberately target male, female, child and elderly headed households.

3.1.5 Policy Priority Area 1.5: Electricity from Renewable Energy

Malawi is well endowed with renewable energy resources including good sunshine throughout the year for photo-voltaic and photo-thermal applications, reasonable wind speeds for water pumping and power generation, a number of perennial rivers with hydro power potential, reasonably large quantities of biomass materials for electricity generation and hot springs for geothermal power generation. GOM has developed renewable energy strategy and SE4ALL action agenda which will guide investments in renewable energy sub-sector. Social and gender issues will be taken into consideration in implementing renewable energy interventions. Despite having abundant renewable energy resources, they have not been fully exploited and their penetration into the energy mix is still low.

The barriers to exploitation of renewable energy resources include the following:

a) Prohibitive capital costs of RET systems and products,

b) Inadequate human capacity building at all levels in RET products, services, installation and maintenance, and marketing;

c) Lack of information to or awareness by the population; and

d) Lack of enforcement mechanisms for standards resulting in a proliferation of poor quality products.

Policy Statements

I. Government will strengthen the exploitation of renewable energy resources

Strategies:

- Integrating inclusive renewable energy utilisation into the Integrated Resource Plan.
- Promulgating and regularly review standards for RET products, especially Solar PV and Pico Solar Products.

I. **Government will promote use of renewable energy technologies and manufacture of renewable energy products such as solar panels**

Strategies:

- Expediting assessment and development of renewable energy resources such as geothermal, solar, wind and biomass.
- Adopting an RE strategy that promotes RE through incentives to new players.
- Establishing fiscal incentives for renewable energy using existing funds such as the Rural Electrification Fund.
- Developing a strategy for public awareness campaigns on renewable energy technologies targeted at rural, urban and peri-urban consumers and focusing on availability, benefits, and suppliers.
- Promoting RET products for vulnerable and marginalized groups.

II. **Government will support small-scale renewable energy initiatives by communities or entrepreneurs.**

Strategies:

- Developing appropriate regulations for specific small-scale technologies under the Renewable Energy Act.
- Reviewing the feed-in tariffs to ensure that all technologies including mini-grids are sustainably accommodated.
- Involving communities in community energy planning and implementation.
- Equipping all stand-alone renewable source powered mini-grids and privately owned installations with Net Metering to ensure their continued use upon connection to the grid.
- Promoting competitive bidding for mini-grid concessions in order to achieve the best value for money.

III. **Government will promote capacity building, in all areas of RET programming, supply and services, as well as in entrepreneurship and management, taking into account gender and social issues.**

Strategies:

- Developing an inclusive and comprehensive RE Capacity Building Plan that ensures that renewable energy interventions/services are suitable to the different needs of women and men and their subgroups.

- Implementing the developed inclusive and comprehensive RE Capacity Building Plan that ensures that renewable energy interventions/services are suitable to the different needs of women and men and their subgroups.
- Devising incentives to increase numbers of well qualified male and female RET artisans, technicians, professional engineers, and entrepreneurs.

IV. **Government will build strong partnerships with the private sector and CSOs (including PPPs) to promote the manufacture, distribution, use and financing of improved renewable energy technologies.**

Strategies:

- Introducing financing schemes and incentives for the private sector to locally manufacture and distribute RE products.
- Expediting accreditation of RE manufacturers and suppliers and the certification of RE products.
- Strengthening the capacity of CSOs and decentralized structures in RET programming and interventions.

3.1.6 Policy Priority Area 1.6: Definition and Measurement of Access to Electricity

The method used for defining and measuring electricity access revolved around grid connections – one either had a grid connection or did not. In view of the fact that off-grid technologies such as PSPs and isolated mini-grids provide fundamental electricity services to users, the Sustainable Energy for All (SE4All) Initiative developed the Global Tracking Framework (GTF) as an improved method of defining and measuring energy access as illustrated in **Annex 2.**

The Government has noted an increase in the use of PSPs and an emerging potential of increasing electricity access through decentralised mini grid systems. These need to be taken into account when measuring access to electricity.

Policy Statement

I. Government will adopt the Global Tracking Framework (GTF) for and measuring access to electricity.

Strategies:

- Adopting (and if necessary adapting) the Global Tracking Framework.
- Conducting annual surveys to determine percentages for all tiers.
- Presenting access levels for each year in the GTF format.

3.2 Policy Priority Area 2: Biomass

This Policy priority area relates to biomass used for purposes other than electricity generation. Malawi's energy balance is dominated by biomass (firewood, charcoal, agricultural and industrial wastes), which account for 80% of the total primary energy supply due to, among other reasons, lack of affordable and reliable alternatives. GoM has recognised that biomass remains an important source of energy for the foreseeable future. To this end, GoM is promoting sustainable production and efficient use of biomass. Therefore, GoM has set a target to roll out 2million efficient cookstoves by 2020 to reduce biomass consumption. A national cookstoves road map has been developed in working towards achieving this target.

The major challenge in biomass sub sector is unsustainable production and inefficient use. Beside this, there are negative health issues associated with wood fuel for cooking. Burning of bricks for construction of houses is also another cause of high biomass consumption. There are technologies now for reduction of biomass required for brick burning, which need to be promoted. There are also new improved technologies for charcoal making, which use less wood than the traditional charcoal making methods.

Policy Statements

I. **Government will build strong partnerships with the private sector and NGOs (including PPPs) to promote the manufacture, supply, use and financing of improved cook stoves, brick kilns, charcoal kilns and biomass briquettes and pellets.**

Strategies:

- Promoting the creation of feasible business models for modern technologies for biomass technologies (e.g. improved cook stoves, charcoal kilns, etc.)
- Promoting incentives to CSOs to increase the uptake of modern biomass technologies.
- Promoting alternative technologies to charcoal in urban and peri-urban areas to reduce the demand for charcoal.
- Introducing incentives for the growth of industries in manufacturing and distribution of improved cook stoves, brick kilns, charcoal kilns and biomass briquettes.
- Introducing customs duty and VAT incentives to promote the wide availability of improved locally made cook stoves.
- Enforcing of banning of illegal charcoal production.
- Promoting growing of commercial trees e.g. bamboos, as an alternative to natural trees for charcoal production.

II. Government will intensify training and nationwide promotional activities for improved cook stoves, brick kilns, charcoal kilns, and biomass briquettes

Strategies:

- Building and strengthening capacity in new biomass technologies.
- Increasing public knowledge and utilization of improved biomass technologies and their economic opportunities.
- Developing and implementing a Biomass Energy Technologies Training Strategy.

III. Government will ensure that low income and marginalized groups have equitable access to, control over and benefit from biomass technologies.

Strategy:

- Strengthening targeted biomass interventions for low income and marginalized groups in urban and rural areas to access and control technologies

IV. Government will entrust and empower local authorities to promote the utilisation of efficient biomass technologies.

Strategies:

- Recruiting District Energy Officers.
- Strengthening district level capacity to implement sustainable programmes and projects related to biomass technologies.
- Include biomass programmes in District Implementation Plans (DIP).

V. Government will promote the certification and labelling of all energy efficient commercial cook stoves that are sold as commercial products on the market

Strategy:

- Developing and enforcing standards on cook stoves sold as commercial products

VI. Government will encourage charcoal making communities to venture into alternative income generating activities.

Strategy:

- Building linkages between the energy sector and economic empowerment initiatives that are implemented by other sectors in charcoal making areas.

3.3 Policy Priority Area 3: Petroleum Fuels

The Petroleum fuels industry in Malawi has two principal parts namely upstream and downstream. Upstream covers exploration, production and refining of crude oil. Supply logistics and marketing petroleum fuel products are downstream. The mandate of the Ministry responsible for energy falls within the downstream activities. Petroleum fuels distributed in the country are petrol (gasoline), diesel, paraffin (kerosene) and heavy fuel oil (HFO). The country is obliged to import refined petroleum fuels since it lacks domestic refining facilities. Importation of petroleum fuels is done through a consortium of oil marketing companies known as Petroleum Importers Limited (PIL) and National Oil Company of Malawi (NOCMA) which also owns, operate and maintain national strategic fuel reserves. Retailing of petroleum fuels is done by OMC's through a franchising system in which they are allowed to own a maximum of two retails outlets and franchise the rest. GoM uses and is committed to maintaining the Automatic Fuel Price Adjustment Mechanism to ensure that the OMCs are able to recover their costs in a timely manner

The Government is implementing bulk procurement system in the importation of fuel into the country. The private sector is being encouraged to participate actively in the downstream activities of the fuels market. Government has also established inland dry ports to hold fuels that would last for 60 days. All licensees are required to hold at least 30 days of fuel holdings not just in tankers but in storage facilities, giving a national total of 90 days' supply. If necessary, the inland ports that have been constructed can be used to host fuel for Oil Marketing Companies (OMCs) at a fee. These should therefore be regarded as common user facilities.

Paraffin has for some time been used for cooking and lighting. Its combustion does, however, release fumes that are hazardous. In order to contribute to a shift away from biomass for cooking, households shall be encouraged to use paraffin for cooking, but using only modern and efficient paraffin cook stoves.

The challenges in the petroleum fuels industry are that some Oil Marketing Companies keep fuels in tankers as they do not have sufficient storage facilities. This is not efficient as it grounds those tankers instead of letting them go and haul more fuel. Further, some OMC's do not comply with the franchised system.

Policy Statements

I. **Government will ensure the country has adequate petroleum fuels, including paraffin, at all times to meet the demand of the country.**

Strategies:

- Maintaining a minimum reserve of 90 days' supply of fuel.

- Promoting cost-effective, efficient and environmentally and socially responsive alternative conveyance methods such as pipelines and water barges to ensure lower landed cost of petroleum products.
- Promoting exploration for petroleum for energy security.
- Providing customs duty and VAT incentives.

II. Government will promote the participation of the private sector in the oil market.

Strategies:

- Reviewing and enforcing legislation to adopt a system of bulk procurement of fuel.
- Utilizing the Government fuel storage facilities as inland dry ports and common-user facilities.
- Developing and implementing guidelines for franchising of liquid fuel outlets to be adhered to by all OMCs.
- Introducing incentives to contribute to economic empowerment of Malawians in the oil market, including ownership, operation and management of filling stations

III. **Government will promote deliberate planning that strengthens the equitable participation of men, women and marginalized groups in the oil market.**

Strategies:

- Introducing and/or strengthening youth and women mentorship and capacity building programmes in the oil market.
- Developing social and gender inclusion strategies for increasing equal opportunities in employment and addressing social and gender issues in the oil market.

IV. **MERA shall maintain the automatic fuel price adjustment system and apply it in a transparent manner.**

Strategy:

- Regulating fuel prices through use of a transparent and verifiable fuel price adjustment system.

3.4 Policy Priority Area 4: Bioethanol And Other Biofuels

Biofuels, in the form of bioethanol and biodiesel, are another important source of fuel that are being exploited in Malawi. Currently Biofuels provide 4% of transport energy coming from locally-produced bio-ethanol and bio-diesel that is blended with petroleum fuels at blending ratios of 20:80 and 9:91 respectively. Currently, there are only two companies producing bio-ethanol in the country, and it is being produced from sugarcane molasses. On the other hand, there is currently one company that is producing biodiesel, and it is being produced from jatropha.

The key challenges in biofuels industry include bioethanol has a lower calorific value making it a less efficient fuel relative to petrol or diesel – a disadvantage that is compensated for by its ability to enhance the octane rating of petrol. It also acts as an oxygenate in petrol engines, thereby contributing to abatement of pollution by eliminating production of carbon monoxide and other harmful gases. A more fundamental problem, however, is reliability of supply because of the current limited national bioethanol production capacity arising from insufficient supply of molasses.

In addition, there is no nation-wide dedicated pump station infrastructure for handling bioethanol grades other than the existing blended petrol. While Malawi does not use staple food crops, notably maize and cassava, for production of bioethanol, it is important for the National Energy Policy to ensure that production of bioethanol does not threaten food security. Equally, that jatropha plants, as opposed to edible oilseeds such as sunflower or groundnuts, are currently being used to produce small quantities of biodiesel does not remove the potential risk that could arise from use of food crops for production of biofuels.

Policy Statements

I. **Government will support, encourage and promote the production of bioethanol and biodiesel for blending or stand-alone use in vehicles, as well as cooking, lighting, etc. provided that such production does not threaten food security**

Strategies:

- Increasing the supply of bio-ethanol and bio-diesel.
- Promoting fiscal incentives for bio-ethanol and bio-diesel production.
- Promoting the use of bio-fuels through appropriate pricing incentives.

- Implementing socially and environmentally responsive large scale bio-ethanol and bio-diesel projects.
- Increasing local capacity to produce bioethanol and biodiesel fuels without threatening food security, especially through the collaboration of farmers' cooperatives, women farmers' coalitions, and other marginalized groups.
- Engaging the National Commission for Science and Technology and academic and research institutions in discussions on biofuel mixtures and their usage in vehicles.
- Promoting socially responsive research and development in the biofuels areas.

II. **Government will promote equal opportunities for the participation of the citizenry in the biofuels industry including in building capacity in biofuel technologies.**

Strategy:

- Developing plans and strategies that facilitate the capacity building of both women and men in biofuel technologies and to increase women's participation in the industry

III. **Government will ensure that the production of biofuels does not threaten food security.**

Strategies:

- Promote the growing and use of non-staple food crops as bio-ethanol and bio-diesel raw materials. Food crops and productive land shall only be used for biofuel production where there is an assurance that food security will not be impacted negatively.
- Intensifying public awareness campaigns to ensure that smallholder farmers' land for the cultivation of food crops is not used to grow biofuel feedstock.

IV. **In addition to continuing with the current 80:20 petrol to bioethanol blending ratio, Government will promote the use of flex vehicles capable of running on 100% bioethanol and any other blending ratio**

Strategies:

- Implementing a phased installation of bioethanol pumps in line with increased production of bioethanol.
- Promoting awareness campaigns on the uptake of new technologies (e.g. flex vehicles).
- Promoting importation of conversion kits for existing petrol powered vehicles.

V. **In addition to continuing with the current 91:9 diesel to straight vegetable oil blending ratio, Government will promote the use of vehicles capable of running on 100% biodiesel and any other blending ratio.**

Strategies:

- Implementing a phased installation of biodiesel pumps in line with increased production of biodiesel.
- Promoting awareness campaigns to ensure that there is uptake of new technologies (e.g. flex vehicles).
- Promoting importation of conversion kits for existing diesel powered vehicles.

3.5 Policy Priority Area 5: Liquefied Petroleum Gas, Biogas And Natural Gas

Liquefied Petroleum Gas (LPG), Natural Gas and Biogas are important alternative energy sources to fuelwood for cooking and heating. Malawi imports LPG for domestic, commercial and industrial use. Importation, distribution, wholesaling and retailing of LPG is done by the private sector and is regulated by MERA. In the country, LPG is mostly, if not entirely, used for cooking and heating on the domestic front.

Natural gas is a source of energy for heating and can also be used for electricity generation. The gas has lesser impact on the environment than that of other fossil fuels such as oil and paraffin. Malawi's neighbouring countries of Mozambique and Tanzania have large deposits of natural gas which they are planning to extract. Malawi can take advantage of this opportunity to tap into the source if it can build appropriate infrastructure such as transmission pipelines and distribution and reticulation systems.

There are no large scale gas networks in Malawi but there is a large potential market for biogas which could help replace fossil fuel based canisters that are used for cooking in homes, as well as lead to a switch from firewood-based fuels in cooking in other areas. There are also many opportunities to establish smaller biogas networks, utilising local waste products in rural and urban areas. There are, however, several challenges that are hindering the uptake of the technology in Malawi. The first challenge is lack of awareness and knowledge on the existence of the technology. Secondly, people are reluctant to use biogas produced from, for example, animal dung for cooking. The third challenge is the inadequate technical expertise in the technology. The technology requires experts for the design and construction of the biogas systems.

However, there are several barriers to increased use of LPG and Biogas, and adoption of Natural Gas in Malawi, one of which is cost. There is need to look at ways of doing away with barriers to lower pricing and increased uptake of LPG, Biogas and Natural Gas, and to identify potential partnerships to promote greater market penetration. Infrastructure for Natural Gas is also relatively expensive, hence the need for partnerships with the private sector.

The second issue is safety. It is perceived by a majority of Malawians that gas is unsafe to use i.e. it can cause fire accidents.

The third barrier is lack of a wide distribution network or system for exchanging cylinders. At present these are concentrated in cities and towns, and they need to be rolled out to rural areas as well.

Policy Statements

I. **Government will ensure availability of LPG, Biogas and Natural Gas in sufficient quantities at affordable prices for industrial (electricity generation, heat) and domestic use**

Strategies:

- Undertaking legal and regulatory reviews to facilitate institutional reforms for investments in and utilization of LPG, biogas and natural gas.
- Promoting tax and other fiscal incentives for large scale investments in LPG, biogas and natural gas.
- Implementing a phased program to accelerate the penetration of LPG and natural gas.
- Providing customs duty and VAT incentives to promote the wide availability of small LPG cylinders and gas cookers, and make them affordable to low income households.
- Promoting use of LPG, Biogas and Natural Gas through fiscal incentives to financially viable companies to construct own storage facilities that meet prescribed minimum stockholding requirements.

II. Government will implement programmes aimed at building the capacity of the LPG, Biogas and Natural Gas Industry

Strategies:

- Promoting socially inclusive and well trained LPG, biogas and natural gas suppliers and users.
- Conducting awareness campaigns on the safe use of LPG, biogas and natural gas.
- Promulgating Regulations and standards on supply and distribution of cylinders for LPG (such as safety regulations, quality of cylinders etc).
- Implementing Regulations and standards on supply and distribution of cylinders for LPG (such as safety regulations, quality of cylinders etc).

III. Government will promote an LPG, Biogas and Natural Gas industry that actively strengthens the participation and economic empowerment of local women, men and the youth in the industry.

Strategies:

- Developing plans and strategies to facilitate the capacity building of local women, men and the youth to be entrepreneurs in the industry.
- Building the knowledge and skills local women, men and the youth in LPG, biogas ad Natural Gas technologies.
- Devising plans, strategies and incentives to increase the employment of local women and the youth in the industry.

IV. Government will establish PPPs for the purpose of exploring and extracting Natural Gas and construction of the associated infrastructure

Strategy:

- Engaging private companies with expertise in the industry that are interested in establishing partnerships.

3.6 Policy Priority Area 6: Coal

Malawi has 1 billion metric tonnes of probable coal reserves. These resources occur in some parts of the Northern Region (Karonga and Rumphi) and the Southern Region (Lengwe and Mwabvi Game Reserves in the Lower Shire Valley). Although coal deposits have been known to exist at several locations in Malawi, coal mining only started as recently as 1985. Main challenges facing the Coal Supply Industry (CSI) include the following:

a) Lack of price competitiveness for Northern Malawian coal compared to imported coal;
b) None existence of competition within the industry (23 years after market liberalisation of 1995, there are still just a few mining companies);
c) Low productivity and high production costs owing to the use of obsolete technologies;
d) None availability of appropriate end-use technologies enabling use of coal in new market niches e.g. household and tobacco curing;
e) A general lack of information on firm coal reserves as a result of limited exploration; and
f) Absence of an appropriate regulatory framework to govern downstream marketing, transportation and utilisation.

Policy Statements

I. Government will promote and encourage the private sector to take a leading role in the coal industry subject to regulatory and licensing requirements.

Strategies:

- Empowering the private sector to intensify exploration for and exploitation of coal reserves.
- Ensuring that pricing for locally mined coal is competitive.

II. Government will ensure that the responsible regulatory institutions regulate the storage, transportation, importation, marketing, usage, and pricing of coal.

Strategies:

- Implementing a systematic programme of inspection of coal storage facilities, combustion processes, and transportation systems,
- Devising mechanisms to monitor pricing and marketing operations,
- Putting in place competitive coal haulage and brokerage arrangements,
- Reviewing and enforcing the relevant legislation and ensuring safe, healthy and environmentally friendly operations in the supply chain,

- Ensuring the coal production, transportation, utilization and waste disposal processes produce minimal pollutants.

III. **Government will put sustainable measures and regulations in place to ensure that the mining, transportation, storage and utilisation of coal have minimal adverse health, social and safety impacts.**

Strategies:

- Putting in place all-inclusive capacity building programmes
- Developing Environmental and Social Impact Management Plans (or equivalent) to address environmental issues affecting the coal industry
- Developing Social and Gender Integration Plans (or equivalent) to address inward looking and outward looking social and gender issues affecting the coal industry.

IV. **Government will promote coal as a fuel for power generation and as an alternative for household, tobacco curing and other applications.**

Strategies:

- Implementing environmentally friendly coal-fired electricity generation projects.
- Conducting ESIAs and developing/implementing comprehensive impact mitigation plans.
- Developing and implementing Gender Sensitive Resettlement Action Plans and/or fair compensation packages.
- Promoting appropriate end-use technologies to facilitate use of coal in household and tobacco curing applications.

V. Government will, through the Environmental Affairs Department and MERA, shall ensure that all coal combustion installations abide by set minimum standards.

Strategies:

- Implementing systematic inspection programmes for coal combustion installations.
- Supporting research into, and the development of, more efficient coal-combustion technologies.
- Promoting the application of clean coal technologies, such as washing, gasification, liquefaction and fume capturing.

VI. Government will, through fiscal incentives, promote coal-dust briquetting programmes.

Strategy:

- Encouraging coal producers and entrepreneurs to engage in coal briquette production

VII. Government will encourage the private sector to deliberately develop the capacity of women, men and the youth to meaningfully participate in the coal industry.

Strategy:

- Developing and implement strategies that promote equal employment and entrepreneurship opportunities for men, women and youth in the industry.

3.7 Policy Priority Area 7: Nuclear Energy

Malawi had proven reserves of about 63,000 tonnes of Uranium at Kayelekera in Karonga District in the northern part of the country until 2009 when mining started, with all the uranium from the mine exported out of the country. Due to the sustained low uranium price on the world market, Kayelekera site was placed on care and maintenance in May 2014. There is also another deposit at Ilomba in Chitipa District. GoM has made a decision to harness the locally available nuclear energy for electricity generation, and the first nuclear power plant is expected to be commissioned by 2035.

Policy Statements

I. **Government will build capacity in generation of electricity from nuclear energy**

Strategies:

- Introducing Nuclear Science and Materials programmes in public universities.
- Building capacity in nuclear energy in Government.
- Promoting Research and Development is Nuclear Science.
- Establishing socially and environmentally responsive uranium processing facility in the country.
- Developing and commissioning the first nuclear power plant.

II. Government will promote nuclear energy programming that prioritises the aversion and mitigation of different potential health risks that the industry poses to workers and ordinary men, women, children and the environment.

Strategy:

- Developing and implementing Social and Gender Integration Plans by nuclear companies/projects to address inward looking and outward looking social and gender issues affecting the nuclear energy.

3.8 Policy Priority Area 8: Demand Side Management

Demand Side Management (DSM) is an important means of improving energy efficiency at the end-use level of the energy supply chain. Currently in Malawi, there is a lot of wastage of electrical energy and biomass in end-use activities such as cooking, water and space heating, and lighting occasioned by use of inefficient appliances and devices. This priority area focuses on savings in electricity and biomass consumption.

3.8.1 Demand Side Management in the Electricity Supply Industry

Most electricity supply utilities, including members of the Southern African Power Pool, have implemented DSM in various forms with a view to minimize consumption of electrical energy. This also translates into a reduction in demand for electrical energy which is a very effective means of controlling peak demand especially in capacity constrained systems.

3.8.1.1Utility Actions in DSM

The utilities' DSM programmes entail a combination of some or all of the following actions:

a) Public information campaigns to raise awareness among consumers;

b) Energy audits to provide energy efficiency advice to consumers;

c) Installation of energy efficient measures in households to help consumers reduce their bills, and reduce stress on overburdened utility systems;

d) Provision of financing in the form of rebates below-market loans for energy efficiency measures, sometimes with the facility of allowing the consumer to repay the loan as part of their utility bill payment. Installation of prepaid meters which, in addition to reducing non-payment problems for utilities, also have the effect of increasing energy-efficiency behaviour by consumers;

e) Implementation of tariffs that encourage efficient use of electricity, such as

   i. **Inverted Block Rates**, whereby a low unit price for the first block of electricity use, followed by higher tariffs for additional blocks of usage;

   ii. **Time of Use (TOU) Tariffs**, which typically charge more for energy consumed during peak periods thereby incentivizing load shifting to off-peak periods; and

   iii. **Dynamic or "Real-time" Pricing-** a tariff structure in which the electricity price continuously fluctuates based on availability and demand.

3.8.1.2.Customer Actions in DSM

The consumer decides what energy-efficiency actions to take. The utility can encourage the consumer and even provide incentives but the decision is up to the consumer. Under demand response programmes, the consumer can still decide whether to participate but the utility can control the amount and timing of electricity usage. Participating consumers typically get very short notice from the utility that it will be exercising the use of these measures at any given moment. The energy-efficient actions include:

a) Entering into Interruptible Contracts - which are agreements between utilities and large energy users in which the latter agree to have their power shut-off for a short period (e.g. 1-3 hours) in exchange for a financial incentive in order to reduce peak demand or relieve strain on an overburdened utility grid;

b) Acceptance of installation of Load Controllers - which are devices installed by the utility on a customer's equipment (usually an air conditioning unit or a geyser) that can be remotely controlled by the utility to cycle-off the equipment for 30-60 minutes during periods of high peak demand. The customer receives an incentive such as a bill credit for participating;

c) Acceptance of the installation of Load limiters in electric meters to prevent consumers from using more than a predetermined amount of electricity during peak periods. Load limiters can in some cases replace meters and the customers are simply charged a flat monthly fee. Customer participation is in most cases involuntary; and

d) Installation of roof-mounted solar water heaters which will serve as an alternative source of energy for water heating thereby reducing the amount of electrical energy used for this purpose.

3.8.1.3 Government Actions

Government actions to promote DSM include the following:

a) Instituting appliance testing, labelling and standards, which will include minimum energy performance standards (MEPS);

b) Enforcing building codes on energy-efficiency requirements in the construction of new buildings;

c) Reducing or eliminating import duty and taxes on energy efficient products;

d) Enforcing Government procurement rules that require procured energy-consuming products such as lighting devices, ballasts, air conditioners, fans to meet or exceed minimum energy performance standards;

e) Instituting mandatory energy audits and energy use reductions by large customers;

f) Training, certification and technical assistance for industries, building owners, bankers, utilities, standards agencies, code-setting organizations, energy auditors such as electrical contractors, performance contractors; and

g) Providing post-installation inspections and programme evaluations.

3.8.1.4 CSOs and Private Sector Actions

Civil Society Organisations and the Private Sector can play a major role in promoting DSM through, respectively:

a) Programme design and management to assist government agencies and utilities with the structuring and implementation of energy efficiency initiatives; and
b) Information dissemination and awareness-raising.

3.8.2 Demand Side Management in Biomass End-use

The country is experiencing severe degradation of its forestry resources. Continued reliance on firewood and charcoal in the light of forest degradation sabotages development and therefore calls for urgent energy efficient solutions. For biomass to be truly renewable, it must be utilised in a sustainable manner, which entails replanting of trees with focus on the fast-growing varieties and, at the end-use level, use of more efficient cook stoves as well as brick and charcoal making kilns.

Policy Statements

I. **Government will promote the use of energy efficient technologies**

Strategies:

- Enforcing a ban on importation, distribution and use of incandescent bulbs and promoting energy saving alternatives.
- Promoting energy saving electrical and biomass-fuelled devices.
- Promulgating regulations and standards for building designs and energy efficient devices.
- Providing duty and VAT waivers for solar water heaters.
- Supporting utility companies in the implementation of tariffs that encourage energy efficient use of electricity.
- Encouraging regular energy audits conducted by certified auditors in public, industrial, and commercial buildings.
- Encouraging research and development in energy efficient equipment, buildings etc.
- Promoting use of multiple sources of energy and energy efficiency in buildings (a limit can be set as to the size of the buildings).

- Sensitising the public on safe utilisation and disposal of energy saving bulbs.
- Promoting the design of buildings to take advantage of natural lighting, conditioning (cooling/ heating).

II. Government will encourage electricity utility companies to implement Demand Side Management programmes

Strategies:

- Conducting public information campaigns to raise awareness among consumers.
- Installing energy efficient measures in electricity connected households to help consumers reduce their bills, but also to reduce stress on overburdened utility systems.
- Installing prepayment meters and implementing tariffs that will reduce non-payment problems and encourage energy-efficient behaviour by consumers.

III. Government will encourage Civil Society Organisations and Private Sector players to promote Demand Side Management

Strategies:

- Structuring and implementing Energy Efficient initiatives.
- Developing DSM awareness materials.
- Conducting Information dissemination and awareness raising campaigns.

IV. Government will ensure that importers, retailers and low-income consumers have targeted information regarding affordable, modern and sustainable energy products

Strategy:

- Developing and implementing a public outreach strategy on sustainable energy products targeting importers, retailers and low-income consumers

4.0 IMPLEMENTATION ARRANGEMENTS

Outlined below is how this Policy will be implemented, and this includes institutional arrangements, implementation plan, monitoring and evaluation .

4.1 Institutional Arrangements

The Government recognises the importance of stakeholders and partnerships in implementation of the National Energy Policy. The stakeholders include ministries, departments, agencies, development partners, academic and research institutions, the private sector, civil society organisations (CSOs), Non-governmental organisations, faith based organisations, and the communities which are described below:

Ministry responsible for Energy Affairs

The Ministry will be responsible for provision of oversight and strategic leadership, policy direction and interpretation, coordination, resource mobilisation, capacity building and monitoring and evaluation of energy programmes, projects and activities.

Ministry responsible for Forestry

The Ministry will be responsible for ensuring that there is enough biomass supply to meet the needs of the population; strictly adhering to the criteria for granting licences for charcoal making; and enforcing the legislation on forestry and forestry products for sustainability of these resources.

Ministry responsible for Lands

The Ministry will be responsible for facilitating acquisition of land, leasing and assessment of compensations for land allocated to energy projects.

Ministry responsible for Mining and Geological Surveys

The Ministry will be responsible for promoting oil, gas, coal, uranium and other energy related minerals.

Ministry responsible for Environmental Affairs

The Ministry will be responsible for ensuring every project requiring environment and social impact assessment including energy projects have such assessment and strictly adhere to any impact mitigation measures,

Ministry responsible for Finance

The ministry will be responsible for mobilisation of financial resources from government, development partners and international lending institutions for energy interventions.

Ministry responsible for Justice

The ministry will be responsible for drafting legislation that support energy interventions and vetting agreements.

Ministry responsible for Trade

The ministry will be responsible for attracting private sector investments in the energy sector.

Ministry responsible for Local Government and Rural Development

The ministry will be involved in identifying sites for rural electrification and promotion of alternative energy sources in districts and supporting district energy officers.

Ministry responsible for water resources

The ministry will be responsible for regulation of the use of water resources for electricity generation.

Academic and Research institutions

These institutions will be responsible for conducting rigorous energy research, and disseminating findings to inform energy policy and programming.

Civil Society Organisations

CSOs will collaborate with the Government to advocate for and implement energy specific interventions notably on alternative energy and energy efficiency technologies.

Private Sector

Private sector will complement government's effort in implementing energy interventions that will ensure increased electricity generation and supply as well as adoption of clean and efficient energy technologies.

Development Partners

Development partners support the government and other organisations by providing human and financial resources for development interventions. It is expected that they will continue financing and co-financing energy interventions.

4.2 Implementation Plan

To ensure effective implementation of this Policy, a detailed implementation plan has been developed and is attached as **Annex 3**. The Plan provides linkage between the policy goal and objectives on one hand and strategies and institutions responsible for implementing those strategies on the other hand. It also includes a time frame for the implementation of each strategy.

4.3 Monitoring and Evaluation Plan

The implementation of this Policy requires an effective and efficient monitoring and evaluation system to measure progress and provide feedback information on implementation challenges and gaps. A detailed M&E plan of this policy with appropriate performance indicators, outputs and targets is attached as **Annex 4**.

4.4 Policy Review

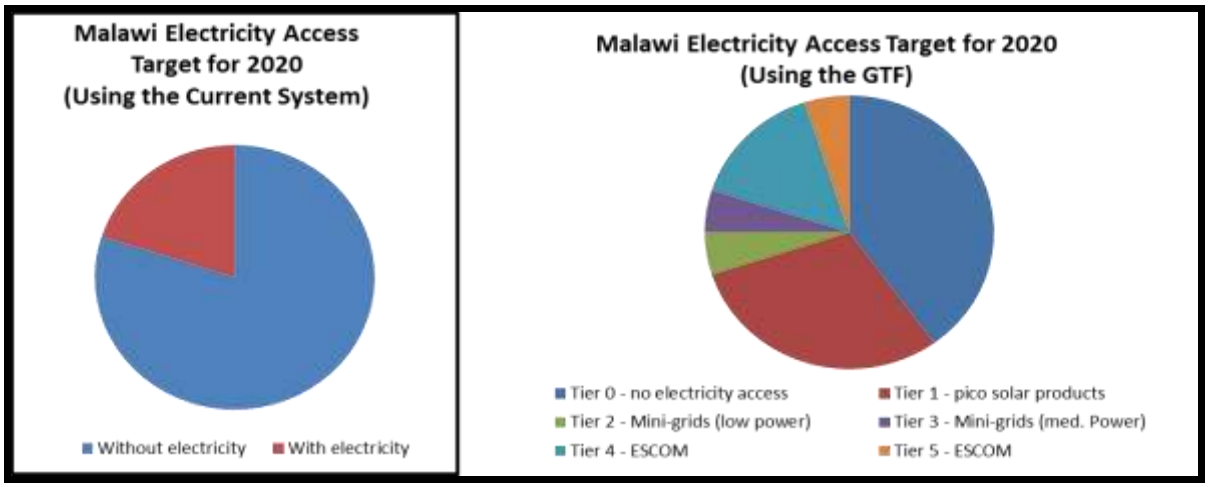
Issues of energy in terms of technology; policy; legislation; and commitments at national, regional and global levels are going through rapid changes. It will therefore be very important to continue reviewing the policy periodically to ensure it remains relevant and keeps pace with those developments at all times. This Policy shall therefore be reviewed every five (5) years. The Department of Energy Affairs will initiate and lead the reviews.

ANNEX 1: DEMAND AND SUPPLY-HISTORICAL AND PROJECTED (2008-2035)

Demand	Units	Year					
Energy Demand Mix							
Sector		**2008**	**2015**	**2020**	**2025**	**2030**	**2035**
Industry	KTOE	346	458	683	1,009	1467	2,12
Transportation	KTOE	216	385	540	737	989	1,312
Household	KTOE	3,446	3,616	3,673	3,741	3,741	3,821
Service	KTOE	130	104	218	218	266	355
Total		**4,138**	**4,514**	**5,637**	**5,637**	**6,463**	**7,608**
Supply							
Energy Supply Mix							
Energy Source		**2008**	**2015**	**2020**	**2025**	**2030**	**2035**
Biomass	%	88.2	80.5	70.3	57.6	44.8	33.5
Liquid Fuels and Biofuels	%	6.4	9.9	11.6	13.0	14.2	14.8
LPG, Biogas and Natural Gas	%	0.0	0.1	2.0	3.7	6.0	9.0
Electricity from Renewable Sources	%	2.6	6.9	10.7	16.0	23.0	28.9
Electricity from Non-Renewable Sources	%	0.0	0.3	1.8	5.7	7.5	8.0
Coal	%	2.8	2.3	3.6	4.1	4.5	4.9
Electricity from Nuclear Energy	%	0	0	0	0	0	1
Total		**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

ANNEX 2: SE4ALL FRAMEWORK FOR DEFINING AND MEASURING ACCESS TO ELECTRICITY

			Tier-0	Tier-1	Tier-2	Tier-3	Tier-4	Tier-5
Attributes	1. Peak capacity	Power	No Electricity	V. Low Power Min 1 W	Low Power Min 50 W	Medium Power Min 200 W	High Power Min 2 kW	
		Daily capacity		Min 4 Wh	Min 200 Wh	Min 1.6 KWh	Min 4 KWh	
	2. Duration	Hours per day	< 4 hrs	Min 4 hrs		Min 8 hrs	Min 16 hrs	Min 23 hrs
		Hours per evening	< 2 hrs	Min 2 hrs		Min 2 hrs	Min 4 hrs	Min 4 hrs
	3. Reliability					Max 3 disruptions **per day**	Max 7 disruptions per week	Max 3 disruptions **per week** of total duration < 2 hours
	4. Quality					Voltage problems do not prevent the use of desired appliances		
	5. Affordability				Cost of a standard consumption package of 365 kWh per annum is less than 10% of household income			
	6. Legality					Bill is paid to the utility / pre-paid card seller / authorized representative		
	7. Health and Safety					Absence of past accidents and perception of high risk in the future		



ANNEX 3: IMPLEMENTATION PLAN FOR THE NATIONAL ENERGY POLICY 2018

POLICY PRIORITY AREA 1.1: ELECTRICITY GENERATION			
Broad Policy Objective: To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading			
Policy Statement 1.1.1: Government will create an enabling environment in order to diversify power generation sources for security of supply and expand generation capacity to meet the demand for electricity in the country			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To harness other potential sources of power generation and expedite expansion of generating capacity	Reviewing the 2017-2035 Integrated Resource Plan every five years	MNREM	By December 2022 and every 5 years thereafter
	Creating an enabling environment for private sector investment in power generation	MNREM MoJ MoF MCCCI MERA MoITT MITC	By December 2019

	Conducting feasibility studies on sites for power generation from hydro, coal, geothermal, natural gas, solar, wind, agricultural waste, forestry waste, and biogas resources.	MNREM EGENCO IPPs	By December 2019
	Developing the sites for power generation from Hydro, Coal, Geothermal, Natural Gas , Solar, Wind, agricultural waste, forestry waste, and biogas resources, up to commissioning	MNREM EGENCO IPPs	2019 - 2023
Policy Statement 1.1.2: Government will support all the necessary processes relating to the full operationalization of the Electricity Generation Company (EGENCO) and the Transmission and Distribution Company (ESCOM).			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To enact and implement enabling legislation for improved ESI governance and for attracting private sector	Implementing power sector reforms in accordance with the Electricity Amendment Act of 2016	MNREM	2018-2022

investment in electricity generation.			
Policy Statement 1.1.3: Government will interconnect its power system with the regional grids of SAPP and EAPP to ensure availability of additional generation capacity.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure increased security of power supply and benefit from regional power trading	Interconnecting the Malawi power system with those of Mozambique, Zambia and Tanzania	MNREM ESCOM	By December 2023
Policy Statement 1.1.4: GoM shall promote plans, programmes and strategies that deliberately advance the development of equal opportunities for marginalized and vulnerable groups in the electricity generation value chain.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To create an enabling environment for the promotion of equal opportunities in generation functions and for robustly preventing and mitigating negative social impacts of electricity generation projects.	Developing Social and Gender Integration Plans (or equivalent) by the electricity generation company (EGENCO) and IPPs to address inward looking and outward looking social and gender issues across all generation functions.	MNREM EGENCO IPPs	By December 2019 (social and gender integration plan by EGENCO)
	Developing robust socially	MNREM	2019-2023

	responsive Environmental and Social Impact Assessment (ESIAs) for generation projects.	EGENCO IPPs	
	Developing and implementing comprehensive socially responsive Environmental and Social Impact Management Plans for generation projects.	MNREM EGENCO IPPs	2019-2023
	Developing gender sensitive Resettlement Action Plans and/or fair compensation packages.	MNREM EGENCO IPPs	2019-2023
POLICY PRIORITY AREA 1.2: ELECTRICITY TRANSMISSION			
Broad Policy Objective: To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading			
Policy Statement 1.2.1 Government will intensify the expansion and rehabilitation of the transmission system in line with IRP and in a socially and environmentally responsible manner, with a view to catalysing industrialisation, rural transformation, sustainable economic development, inclusive growth and creation of wealth.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure reliable and efficient	Ensuring that the new	MNREM	By December 2018

power transportation from all sources to all customers.	transmission and distribution company is fully operational.	DHRMD	
	Allowing generation companies to build transmission lines and substations to interconnect the power stations with the transmission grid under the Transmission Operator's coordination.	MNREM MERA	2019-2023
Policy Statement 1.2.2: Government will put in place robust power market operation rules and enforce the Grid Code.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure a level playing field in power trading and provide third party access to transmission lines for all generation companies.	Review the Grid Code	MNREM MERA	By December 2019
Policy Statement 1.2.3: Government will interconnect its power system with the regional grids of SAPP and EAPP to facilitate Regional power trading.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To facilitate cross-border imports and exports of power	Interconnecting the Malawi power system with those of	MNREM ESCOM	By December 2023

from/to the Regional grids.	Mozambique, Zambia and Tanzania		
Policy Statement 1.2.4: GoM shall ensure that transmission operations do not perpetuate inequalities amongst marginalized groups and project affected persons.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To maximize positive impacts of transmission projects and promote equal opportunities between men and women in transmission operations.	Developing Social and Gender Integration Plans by ESCOM and contractors to address inward looking and outward looking social and gender issues across all transmission operations.	MNREM ESCOM Infrastructure Development Contractors	By December 2019 (Social and Gender Integration plan by ESCOM
	Developing robust socially responsive Environmental and Social Impact Assessment (ESIAs) for transmission projects.	MNREM ESCOM	2019-2023
	Developing and implementing comprehensive socially responsive Environmental and Social Impact Management Plans for transmission projects.	MNREM ESCOM	2019-2023

	Developing gender sensitive Resettlement Action Plans and/or fair compensation packages.	MNREM EGENCO IPPs	2019-2023
POLICY PRIORITY AREA 1.3: ELECTRICITY DISTRIBUTION			
Broad Policy Objectives: To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading			
Policy Statement 1.3.1: Government will intensify the expansion and rehabilitation of the distribution network in a socially inclusive manner.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure that electricity is available to all customers while preventing and mitigating negative social impacts of distribution projects	Constructing new distribution lines and substations.	MNREM ESCOM	2019-2023
	Developing robust socially responsive ESIAs for new distribution lines and substations projects.	MNREM ESCOM	2019-2023
	Developing and implementing comprehensive socially responsive ESIMPs for new distribution lines and	MNREM ESCOM	2019-2023

	substations projects.		
	Developing gender sensitive Resettlement Action Plans and/or fair compensation packages	MNREM ESCOM	2019-2023
To make the distribution system more reliable and capable of delivering quality electricity.	Rehabilitating existing distribution lines and substations.	MNREM ESCOM	2019-2023
Policy Statement 1.3.2: Government will incentivise distribution licensees to devise schemes that will enable consumers connect electricity to their homes, and afford basic energy efficient electrical appliances.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To promote use of electricity in households as a substitute for biomass and other fossil fuels in homes.	Removing duty and VAT on energy efficient domestic electric cooking and water heating appliances.	MNREM MoJ	By July 2019
	Introducing lifeline tariffs to enable low income households access electricity.	MNREM MoF MERA	By July 2019
Policy Statement 1.3.3: Government will encourage distribution licensees to expedite connections to customers' premises.			

Objective	Strategy	Responsibility	Timeframe
To ensure expedient connections to customers premises and increase in access to electricity	Implement a policy whereby the distribution licensees shall allow customers to procure transformers and other materials in the event of procurement bottlenecks, and thereafter take over the assets with appropriate compensation.	MNREM ESCOM	2019-2023
	Implement a policy whereby construction works will be contracted out.	MNREM ESCOM	2019-2023
	Promoting initial connection cost recovery from tariff payments	MERA ESCOM Other Power Utility Companies	2019-2023
Policy Statement 1.3.4: Government will ensure that distribution licensees have plans and strategies for fostering equal access to services and opportunities for low-income consumers and marginalized societal groups.			
Objective	**Strategy**	**Responsibility**	**Timeframe**

To deliberately address inequalities and improve access to services for all in distribution operations.	Developing Social and Gender Integration Plans by ESCOM and distribution licensees to address inward looking and outward looking social and gender issues across all distribution functions.	MNREM ESCOM Distribution Licensees	By December 2019 (social and gender integration plan by ESCOM)
POLICY PRIORITY AREA 1.4: RURAL ELECTRIFICATION			
Broad Policy Objective: To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading			
Policy Statement 1.4.1 Government will restructure Rural Electrification and Renewable Energy management governance			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To improve the management governance for Rural Electrification and Renewable Energy	Establishing a Rural Electrification Agency as a semi-autonomous legal entity to manage the Rural Electrification Fund and Rural Electrification activities (in both grid extension and off-grid options).	OPC MNREM DHRMD MoF EP& D MoITT	2018 - 2019

Policy Statement 1.4.2: Government will, through the Rural Electrification Fund, pay for the cost of a transformer and associated infrastructure where it is intended to serve a minimum prescribed number of customers.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure reduction in cost of connection of electricity for rural households, settlements, villages and peri-urban settlements.	Making a provision for payment of infrastructure costs in the new Rural Electrification Act.	MNREM MoJ	By December 2019
Policy Statement 1.4.3: Government will intensify electrification of rural growth or trading centres as well as rural settlements and villages, and provide funding for off-grid solutions.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure electricity reaches rural settlements and villages, thereby increasing the population's access to electricity.	Committing funds from the Rural Electrification Fund to off-grid rural electrification.	MNREM MoF MoLGRD	2019-2023
Policy Statement 1.4.4: Government will facilitate wiring of public institutional buildings and connection of electricity thereto, and devise schemes for the connection of electricity to low income households within 500-metre radii of distribution substations in rural areas.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure availability of electricity in all public	Electrifying institutional buildings, such as schools and	MNREM	2019-2023

institutions in rural areas and in low income households that are close to distribution substations.	hospitals using the Rural Electrification Fund .	MoLGRD	
	Devising schemes for the Rural Electrification Fund to connect low income households within 500m radii of distribution substations**.**	MNREM MoLGRD	2019-2023
Policy Statement 1.4.5: Government will promote rural electrification programmes that create and strengthen equal opportunities for all segments of society.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure that rural electrification programmes are promoting the equal development of both men and women	Developing Social and Gender Integration Plans by the Rural Electrification Agency, MAREP and contractors to address inward looking and outward looking social and gender issues across rural electrification functions.	MNREM MoLGRD Infrastructure Development Contractors	By December 2019
	Devising rural electrification interventions for low income households that deliberately target male, female, child and elderly headed households.	MNREM MoLGRD	2019-2023

POLICY PRIORITY AREA 1.5: RENEWABLE ENERGY			
Broad Policy Objective: To establish a vibrant, reliable, incentivized and sustainable private sector-driven Renewable Energy Technology industry			
Policy Statement 1.5.1: Government will strengthen the exploitation of Renewable Energy Resources.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To make the Renewable Energy Industry properly regulated and well-coordinated.	Promulgating and regularly reviewing standards for RET products, especially Solar PV and Pico Solar Products.	MNREM MoJ MBS MERA	By December 2019
Policy Statement 1.5.2: Government will promote use of Renewable Energy and local manufacture of appropriate RE products.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To increase access to modern, clean, affordable and reliable energy.	Expediting assessment and development of renewable energy resources such as geothermal, solar, wind and biomass.	MNREM Academic and research institutions	2018-2020
	Establishing fiscal incentives for renewable energy using	MNREM MoF	By December 2019

	existing funds such as the Rural Electrification Fund.	MRA	
	Developing a strategy for public awareness campaigns on renewable energy technologies targeted at rural, urban and peri-urban consumers and focusing on availability, benefits, and suppliers.	MNREM MoE MoLGRD CSOs	By July 2019
	Promoting RET products for vulnerable and marginalized groups.	MNREM DoE	2019-2023
Policy Statement 1.5.3: Government will support small-scale renewable energy initiatives by communities or entrepreneurs			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure the active involvement of communities or entrepreneurs in small scale renewable energy activities.	Developing appropriate regulations for specific small-scale technologies under the Renewable Energy Act.	MNREM MERA ESCOM MBS Academic and research institutions	By December 2019

	Reviewing the feed-in tariffs to ensure that all technologies including mini-grids are sustainably accommodated.	MNREM MERA ESCOM	By December 2019
	Involving communities in community energy planning and implementation.	MNREM MoLGRD	2019-2023
	Equipping all stand-alone renewable source powered mini-grids and privately owned installations with Net Metering to ensure their continued use upon connection to the grid.	MNREM ESCOM Private Sector	2019-2023
	Promoting competitive bidding for mini-grid concessions in order to achieve the best value for money.	MNREM	2019-2023
Policy Statement 1.5.4: Government will promote capacity building in all areas of RET programming, supply and services, as well as in entrepreneurship and management, taking into account gender and social issues.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To enhance RE capacity building and the quality of	Developing and implement an inclusive and comprehensive	MNREM Academic and research	By December 2019

RET products and services	RE Capacity Building Plan that ensures that renewable energy interventions/services are suitable to the different needs of women and men and their subgroups.	institutions RE suppliers and service providers CSOs/INGOs	
	Devising incentives to increase numbers of well qualified male and female RET artisans, technicians, professional engineers, and entrepreneurs.	MNREM Academic and research institutions	By December 2019
Policy Statement 1.5.5 Government will build strong partnerships with the private sector and CSOs (including PPPs) in the development of improved RE technologies.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To promote the manufacture, distribution, use and financing of improved RE technologies.	Introducing financing schemes and incentives for the private sector to locally manufacture and distribute RE products.	MNREM MoF MoITT	2020 -2023
	Expediting accreditation of RE manufacturers and suppliers and the certification of RE	MBS MERA	2020-2023

	products.		
	Strengthening the capacity of CSOs and decentralized structures in RET programming and interventions.	MNREM DoE MoLGRD CSOs/INGOs	2019-2023
PRIORITY AREA 1.6: DEFINITION AND MEASUREMENT OF ACCESS TO ELECTRICITY			
Broad Policy Objective: To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading			
Policy Statement 1.6.1: Government will adopt the Global Tracking Framework (GTF) for defining and measuring access to electricity.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure that statistics on access to electricity take into account all sources (including off-grid generation and PSPs).	Adopting (and if necessary adapting) the Global Tracking Framework.	MNREM ESCOM NSO	By December 2018
	Conducting surveys to determine percentages for all tiers	MNREM ESCOM NSO	2020 and 2022

	Presenting access levels for each year in the GTF format	MNREM ESCOM NSO	2020 and 2022
PRIORITY AREA 2: BIOMASS			
Broad Policy Objective: To ensure biomass is sustainably used and carbon emissions are reduced through the use of energy efficient technologies			
Policy Statement 2.1: Government will build strong partnerships with the private sector and CSOs (including PPPs) to promote the manufacture, supply, use and financing of improved cook stoves, brick kilns, charcoal kilns and biomass briquettes and pellets.			
Objectives	**Strategy**	**Responsibility**	**Timeframe**
To reduce consumption of firewood and charcoal and reduce carbon emissions	Promoting the creation of feasible business models for modern technologies for biomass technologies (e.g. improved cook stoves, charcoal kilns, etc.)	MNREM	2019-2023
	Promoting incentives to CSOs to increase the uptake of modern biomass technologies.	MNREM MoF EPD	2019-2023

	Promoting alternative technologies to charcoal in urban and peri-urban areas to reduce the demand for charcoal.	MNREM CSOs MoLGRD MOF DoF	2019-2023
	Introducing incentives for the growth of industries in manufacturing and distribution of improved cook stoves, brick kilns, charcoal kilns and biomass briquettes.	MNREM MoF EPD MoITT	By December 2019
	Introducing customs duty and VAT incentives to promote the wide availability of improved locally made cook stoves.	MNREM MoF MRA	By December 2019
	Enforcing of Banning of illegal charcoal production.	Forestry Department MNREM	2019-2023
To reduce reliance on natural trees as the main source of charcoal.	Promoting growing of commercial trees e.g. bamboos, as an alternative to natural trees for charcoal	MNREM Forestry Department	2019-2023

	production.		
Policy Statement 2.2: Government will intensify training and nationwide promotional activities for improved cook stoves, brick kilns, charcoal kilns, and biomass briquettes.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
Increase uptake of improved cook stoves, brick kilns, charcoal kilns and biomass briquettes.	Building and strengthening capacity in new biomass technologies.	MNREM CSOs INGOs	2019-2023
	Increasing public knowledge and utilization of improved biomass technologies and their economic opportunities.	MNREM CSOs INGOs	2019-2023
	Developing and implementing a Biomass Energy Technologies Training Strategy.	MNREM CSOs INGOs	2019-2023
Policy statement 2.3: Government will ensure that low income and marginalized groups have equitable access to, control over and benefit from biomass technologies.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To empower low income and marginalized groups to sustainably use and benefit from biomass technologies in	Strengthening targeted biomass interventions for low income and marginalized groups in urban and rural areas	MNREM MoLGRD Town Assemblies	2019-2023

order to decrease the demand for charcoal.	to access and control technologies	CSOs Ministry of Gender	
Policy statement 2.4: Government will entrust and empower local authorities to promote the utilisation of efficient biomass technologies.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To strengthen the role of decentralized structures in promoting the use of biomass technologies	Recruiting District Energy Officers.	MNREM	By 2023
	Strengthening district level capacity to implement sustainable programmes and projects related to biomass technologies.	MNREM MoLGRD CSOs	2019-2023
	Include biomass programmes in District Implementation Plans (DIP).	MNREM MoLGRD EP&D CSOs	2019-2023
Policy Statement 2.5: Government will promote the certification and labelling of all energy efficient commercial cook stoves that are sold as commercial products on the market.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure that consumers are	Developing and enforcing	MBS	By December 2019 for

using energy efficient cook stoves of high standard.	standards on cook stoves sold as commercial products.	MNREM	Standards; 2019-2023for Enforcement and monitoring
Policy Statement 2.6: Government will encourage charcoal making communities to venture into alternative income generating activities.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure such communities move away from charcoal making in order to save trees.	Building linkages between the energy sector and economic empowerment initiatives that are implemented by other sectors in charcoal making areas.	MNREM MoITT DSW CSOs Ministry of Gender	2019-2023
PRIORITY AREA 3: PETROLEUM FUELS			
Broad Policy Objective: To ensure adequate production and supply of petroleum and biofuels at affordable prices			
Policy Statement 3.1: Government will ensure that the country has adequate petroleum fuels, including paraffin, at all times to meet the demand of the country.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure security of liquid fuel supply and lower landed	Maintaining a minimum reserve of 90 days' supply of	MNREM	2020-2023

cost of petroleum products for the country.	fuel	MoF NOCMA OMCs MERA	
	Promoting cost-effective, efficient and environmentally and socially responsive alternative conveyance methods such as pipelines and water barges to ensure lower landed cost of petroleum products	MNREM MoT&PI MITC Department of Mines	2019-2023
	Promoting exploration for petroleum for energy security	MNREM Department of Mines	2019-2020
To ensure the uptake of improved paraffin-fuelled cooking and heating appliances that are affordable to low income households.	Providing customs duty and VAT incentives.	MNREM MoITT MoFEPD MRA	2020-2023
Policy Statement: 3.2: Government will promote the participation of the private sector in the oil market.			
Objective	**Strategy**	**Responsibility**	**Timeframe**

To ensure efficiency in the downstream oil market.	Reviewing and enforcing legislation to adopt a system of bulk procurement of fuel.	MNREM MoF NOCMA OMCs MERA	By December 2019 for reviewing legislation 2020-2023 for enforcing legislation
	Utilizing the Government fuel storage facilities as inland dry ports and common-user facilities.	MERA NOCMA Developers	2019-2023
To ensure the effective participation of Malawian nationals in the petroleum products market.	Developing and implementing guidelines for franchising of liquid fuel outlets to be adhered to by all OMCs.	MERA MoF OMCs	By December 2019 for developing guidelines 2020-2023 for implementing the guidelines
	Introducing incentives to contribute to economic empowerment of Malawians in the oil market, including ownership, operation and management of filling stations	MERA MoF OMCs	2020-2023
Policy Statement: 3.3: Government will promote deliberate planning that strengthens the equitable participation of men, women and marginalized groups in the oil market.			

Objective	Strategy	Responsibility	Timeframe
Promoting planning that strengthens the equitable participation of men, women and marginalized groups in the oil market.	Introducing and/or strengthening youth and women mentorship and capacity building programmes in the oil market.	NOCMA OMCs	2020-2023
	Developing social and gender inclusion strategies for increasing equal opportunities in employment and addressing social and gender issues in the oil market.	NOCMA OMCs	By December 2019
Policy Statement 3.4: MERA shall maintain the automatic fuel price adjustment system and apply it in a transparent manner.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure NOCMA, OMCs and dealers recover their cost for the sustainability and integrity of the industry.	Regulating fuel prices through use of a transparent and verifiable fuel price adjustment system.	MERA MNREM MoF CAMA	2019-2023
PRIORITY AREA 4: BIOETHANOL AND OTHER BIOFUELS			

Broad Policy Objective: To ensure adequate production and supply of petroleum and biofuels at affordable prices			
Policy Statement 4.1: Government will support, encourage and promote the production of bioethanol and biodiesel for blending or stand-alone use in vehicles, as well as cooking, lighting etc provided that such production does not threaten food security.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure sustainable adequate supplies of bio-ethanol and bio-diesel fuels in the country.	Increasing the supply of bio-ethanol and bio-diesel.	MNREM MERA Biofuel producers	2019-2023
	Promoting fiscal incentives for bio-ethanol and bio-diesel production.	MNREM MoF MRA	2019-2023
	Promoting the use of bio-fuels through appropriate pricing incentives	MNREM MoF MERA Biofuel producers	2019-2023
	Implementing socially and environmentally responsive large scale bio-ethanol and	MNREM Biofuel producers	2019-2023

	bio-diesel projects.		
To build adequate capacity and skills to sustainably produce bio-ethanol and other biofuels in a manner that promotes inclusive development.	Increasing local capacity to produce bioethanol and biodiesel fuels without threatening food security, especially through the collaboration of farmers' cooperatives, women farmers' coalitions, and other marginalized groups.	MNREM MoA Biofuel producers Farmers' cooperatives Women farmers' coalitions	2019-2023
	Engaging the National Commission for Science and Technology and academic and research institutions in discussions on biofuel mixtures and their usage in vehicles.	MNREM MoA Biofuel producers	By December 2019
	Promoting socially responsive research and development in the biofuels areas	MNREM MOA Biofuel producers Academic and Research Institutions	2019-2023

Policy Statement 4.2: Government will promote equal opportunities for the participation of the citizenry in the biofuels industry including in building capacity in biofuel technologies.			
Objective	**Strategy**	**Responsibility**	Timeframe
To increase the pool of Malawian men and women that are involved in and knowledgeable about biofuel technologies.	Developing plans and strategies that facilitate the capacity building of both women and men in biofuel technologies and to increase women's participation in the industry.	MNREM Ministry of Gender Biofuel producers Academic and Research Institutions	By December 2019
Policy statement 4.3: GoM shall ensure that the production of biofuels does not threaten food security.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To sustain the production of biofuels without compromising food security interests.	Promoting the growing and use of non-staple food crops as bio-ethanol and bio-diesel raw materials. Food crops and productive land shall only be used for biofuel production where there is an assurance that food security will not be impacted negatively.	MNREM Biofuel producers	2019-2023
	Intensifying public awareness	MNREM	2019-2023

	campaigns to ensure that smallholder farmers' land for the cultivation of food crops is not used to grow biofuel feedstock.	MoAI&WD Farmers' associations	
Policy Statement 4.4: In addition to continuing with the current 80:20 petrol: bioethanol blending ratio, Government will promote the use of flex vehicles capable of running on 100% bioethanol and any other blending ratio.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To sustain petrol: bioethanol blending and reduce use of fossil fuels in motor vehicles.	Implementing a phased installation of bioethanol pumps in line with increased production of bioethanol.	MNREM Filling station operators	2019-2023
	Promoting awareness campaigns on the uptake of new technologies (e.g. flex vehicles).	MNREM MoT&PI	2019-2021
	Promoting importation of conversion kits for existing petrol powered vehicles.	MNREM Vehicle Dealers Bio-fuel producers	2019-2021
Policy Statement 4.5: In addition to continuing with the current 91:9 diesel to straight vegetable oil blending ratio, Government will promote the use of flex vehicles capable of running on 100% biodiesel and any other blending ratio.			

Objective	Strategy	Responsibility	Timeframe
To sustain diesel vegetable oil blending and reduce use of fossil fuels in motor vehicles.	Implementing a phased installation of biodiesel pumps in line with increased production of biodiesel.	MNREM Filling station operators	2020-2023
	Promoting awareness campaigns to ensure that there is uptake of new technologies (e.g. flex vehicles)	MNREM MoT&PI	2020-2023
	Promoting importation of conversion kits for existing diesel powered vehicles.	MNREM Vehicle Dealers Bio-fuel producers	2020-2023
PRIORITY AREA 5: LIQUEFIED PETROLEUM GAS, BIOGAS AND NATURAL GAS			
Broad Policy Objective: To ensure availability of LPG, biogas and natural gas in sufficient quantities at affordable prices for industrial and domestic use			
Policy Statement 5.1: Government will ensure availability of LPG, Biogas and Natural Gas in sufficient quantities at affordable prices for industrial (electricity generation, heat) and domestic use.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure availability of LPG,	Undertaking legal and	MNREM	By December 2019

biogas and natural gas in sufficient quantities at affordable prices for industrial and domestic purposes.	regulatory reviews to facilitate institutional reforms for investments in and utilization of LPG, biogas and natural gas.	MERA NOCMA MBS	
	Promoting tax and other fiscal incentives for large scale investments in LPG, biogas and natural gas.	MNREM MoF MRA	2020-2023
	Implementing a phased program to accelerate the penetration of LPG and natural gas.	MNREM MoF MRA Afrox	2020-2023
	Providing customs duty and VAT incentives to promote the wide availability of small LPG cylinders and gas cookers, and make them affordable to low income households.	MNREM MoF MRA	2020-2023
	Promoting use of LPG, Biogas and Natural Gas through fiscal	MoF NOCMA	2020-2023

	incentives to financially viable companies to construct own storage facilities that meet prescribed minimum stockholding requirements.	MERA	
Policy Statement 5.2: Government will implement programmes aimed at building the capacity of the LPG, Biogas and Natural Gas Industry			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To build expertise and ensure safety in the handling and utilization of LPG, biogas and natural gas.	Promoting socially inclusive and well trained LPG, biogas and natural gas suppliers and users.	MNREM MERA LPG Dealers Industry	2020-2023
	Conducting awareness on the safe use of LPG, biogas and natural gas.	MNREM MERA Min of Gender MoI&CE, MoEST CSOs	2020-2023

	Promulgating Regulations and standards on supply and distribution of cylinders for LPG (such as safety regulations, quality of cylinders etc.).	MBS MoJ MERA LPG Dealers	2020-2023
	Implementing Regulations and standards on supply and distribution of cylinders for LPG (such as safety regulations, quality of cylinders etc.).		
Policy statement 5.3 Government will promote an LPG, Biogas and Natural Gas industry that actively strengthens the participation and economic empowerment of local women, men and the youth in the industry.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To build expertise and increase the involvement of marginalized groups in the gas industry both as employees and entrepreneurs.	Developing plans and strategies to facilitate the capacity building of local women, men and the youth to be entrepreneurs in the industry.	MNREM DoE Ministry of Gender LPG, Biogas and Natural Gas companies	By December 2019
	Building the knowledge and	MNREM	2020-2023

	skills local women, men and the youth in LPG, biogas ad Natural Gas technologies.	DoE Academic and Research Institutions	
	Devising plans, strategies and incentives to increase the employment of local women and the youth in the industry.	MNREM MoITT Ministry of Gender LPG, Biogas and Natural Gas companies	By December 2019
Policy statement 5.4: Government will establish PPPs for the purpose of exploring and extracting Natural Gas and construction of the associated infrastructure			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To build expertise in local extraction, transmission, storage and distribution of Natural Gas.	Engaging private companies with expertise in the industry that are interested in establishing partnerships.	MNREM Dept. of Mines PPPC	2020-2023
PRIORITY AREA 6: COAL			
Broad Policy Objective: To ensure availability of LPG, biogas and natural gas in sufficient quantities at affordable prices for industrial and domestic use			
Policy Statement 6.1: Government will promote and encourage the private sector to take a leading role in the coal industry			

subject to regulatory and licensing requirements.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure the availability of coal in sufficient quantities and at affordable prices for both industrial and domestic uses.	Empowering the private sector to intensify exploration for and exploitation of coal reserves.	MNREM DoE Dept. of Mines	2019-2023
	Ensuring that pricing for locally mined coal is competitive.	MNREM Dept. of Mines Coal producers	2019-2023
Policy Statement 6.2: Government will ensure that the responsible regulatory institutions regulate the storage, transportation, importation, marketing, usage, and pricing of coal.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure that coal is stored, transported, imported, priced and marketed in line with set minimum standards.	Implement a systematic programme of inspection of coal storage facilities, combustion processes, and transportation systems	MNREM MERA MBS	December 2019 for putting in place the programme 2020-2023 for implementing the programme
	Devising mechanisms to monitor pricing and marketing operations	MERA	December 2019

To eliminate monopoly in coal haulage and brokerage	Putting in place competitive coal haulage and brokerage arrangements	MNREM MERA CFTC	December 2019
To ensure the coal supply chain does not impact negatively on the environment and the health of people.	Reviewing and enforcing the relevant legislation and ensuring safe, healthy and environmentally friendly operations in the supply chain	MNREM/EAD MoJ DoI&WD	December 2019 for reviewing legislation 2019-2023 for enforcing the legislation
	Ensuring the coal production, transportation, utilization and waste disposal processes produce minimal pollutants	MBS MoJ EAD CFTC	2019-2023
Policy Statement 6.3: Government will put sustainable measures and regulations in place to ensure that the mining, transportation, storage and utilisation of coal have minimal adverse environmental, health, social and safety impacts.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To create a competent mechanism/machinery for reducing the negative impacts of coal mining, storage, haulage and utilization on the environment, and on the health	Putting in place all-inclusive capacity building programmes	MNREM MoITT MoLMD	2019-2023
	Developing Environmental and Social Impact Management	MNREM	2019-2023

and safety of its handlers, users and communities	Plans (or equivalent) to address environmental issues affecting the coal industry	Coal mining companies Coal transporters Coal users	
	Developing Social and Gender Integration Plans (or equivalent) to address inward looking and outward looking social and gender issues affecting the coal industry.	MNREM Coal companies	2019-2023
Policy Statement 6.4: Government will promote coal as a fuel for power generation and as an alternative for household, tobacco curing and other applications			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure security of electricity supply through environmentally friendly coal-fired base-load generation.	Implementing environmentally friendly coal-fired electricity generation projects.	MNREM/EAD MoJ MoF Lands Dept. ESCOM	2019-2023
	Conducting ESIAs and developing/implementing comprehensive impact	MNREM/EAD Lands Dept. ESCOM	2019-2023

	mitigation plans.	Coal companies	
	Developing and implementing Gender sensitive Resettlement Action Plans and/or fair compensation packages.	MNREM/EAD Lands Dept. ESCOM Coal companies	2019-2023
To reduce reliance on fuel wood for household, tobacco curing and other applications	Promoting appropriate end-use technologies to facilitate use of coal in household and tobacco curing applications	MNREM MoAI&WD	2019-2023
Policy Statement 6.5: Government will, through the Environmental Affairs Department and MERA, ensure that all coal combustion installations abide by set minimum standards.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To minimise the adverse impacts of coal combustion on the environment and on the health and safety of coal handlers and users.	Implementing systematic inspection programmes for coal combustion installations.	MNREM EAD MERA	2019-2023
	Supporting research into, and the development of, more efficient coal-combustion technologies.	MNREM Academic and Research Institutions	2019-2023

	Promoting the application of clean coal technologies, such as washing, gasification, liquefaction and fume capturing.	MNREM EAD Coal Producers Coal Users	2019-2023
Policy Statement 6.6: Government will, through fiscal incentives, promote coal-dust briquetting programmes.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To minimise the adverse impacts of coal dust released to the environment.	Encouraging coal producers and entrepreneurs to engage in coal briquette production.	MNREM MoF MRA	2019-2023
Policy statement 6.7: Government will encourage the private sector to deliberately develop the capacity of the youth and women to meaningfully participate in the coal industry.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To increase the involvement of marginalized groups in the coal industry both as employees and entrepreneurs.	Developing and implementing strategies that promote equal employment and entrepreneurship opportunities for men, women and youth in the industry.	MNREM MoITT Ministry of Gender Coal companies MoLMD Academic institutions	By December 2019 for developing the strategy 2020-2023 for implementing the strategy

POLICY PRIORITY AREA 7: NUCLEAR ENERGY			
Broad Policy Objective: To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading			
Policy Statement 7.1: Government will build capacity in generation of electricity from nuclear energy			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To increase the energy source options available for generation of electricity by utilizing locally mined uranium.	Introducing Nuclear Science and Materials in programmes in public universities.	MNREM MoEST NCHE	By December 2020
	Building capacity in nuclear energy in Government.	MNREM DHRMD	2019-2023
	Promoting Research and Development in Nuclear Science.	Tertiary education institutions NCST	2019-2023
	Establishing a socially and environmentally responsive uranium processing facility in the country.	MNREM NCST	By 2030
	Developing and	MNREM	By 2035

	commissioning the first nuclear power plant.	Private sector	
Policy Statement 7.2 Government will promote nuclear energy programming that prioritises the aversion and mitigation of different potential health risks that the industry poses to workers and ordinary men, women, children and the environment.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To reduce the negative environment, health and social impacts of nuclear energy.	Developing and implementing Social and Gender Integration Plans by nuclear companies/projects to address inward looking and outward looking social and gender issues affecting the nuclear energy.	MNREM Nuclear companies	By 2030
POLICY PRIORITY AREA 8: DEMAND SIDE MANAGEMENT			
Broad Policy Objectives (i): To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading **Broad Policy Objectives (ii): To ensure biomass is sustainably used and carbon emissions are reduced through the use of energy efficient technologies**			
Policy Statement 8.1: Government will promote the use of energy efficient technologies			
Objective	**Strategy**	**Responsibility**	**Timeframe**

To save energy and reduce Greenhouse Gas emissions.	Enforcing a ban on importation, distribution and use of incandescent bulbs and promoting energy saving alternatives.	MNREM MoJ MoITT	2019-2023
	Promoting energy saving electrical and biomass-fuelled devices.	MNREM	2019-2023
	Promulgating regulations and standards for building designs and energy efficient devices.	MNREM MoJ NCIC Dept. of Buildings Local Councils	December 2019
	Providing duty and VAT waivers for solar water heaters.	MNREM MoF MRA	By December 2019
	Supporting utility companies in the implementation of tariffs that encourage energy efficient use of electricity.	MNREM MERA	2019-2023
	Encouraging regular energy	MNREM	2019-2023

	audits conducted by certified auditors in public, industrial, and commercial buildings.	MERA	
	Encouraging research and development in energy efficient equipment, buildings etc.	MNREM MoT&PI NCIC Academic and Research institutions	2019-2023
	Promoting use of multiple sources of energy and energy efficiency in buildings (a limit can be set as to the size of the buildings).	MoT&PI NCIC	2019-2023
	Sensitising the public on safe utilisation and disposal of energy saving bulbs.	CAMA MERA MoI&CE EAD ESCOM	2019-2023
	Promoting the design of buildings to take advantage of natural lighting, conditioning	MoT&PI NCIC	2019-2023

	(cooling/ heating).		
Policy Statement 8.2: Government will encourage electricity utility companies to implement Demand Side Management programmes.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To ensure efficiency in their service delivery to customers	Conducting public information campaigns to raise awareness among consumers.	MNREM Utility Companies	2019-2023
	Installing energy efficient measures in electricity connected households to help consumers reduce their bills, but also to reduce stress on overburdened utility systems.	MNREM Utility Companies	2019-2023
	Installing prepayment meters and implementing tariffs that will reduce non-payment problems and encourage energy-efficient behaviour by consumers.	MNREM Utility Companies	2019-2023
Policy Statement 8.3: Government will encourage Civil Society Organisations and Private Sector players to promote Demand Side Management.			
Objective	**Strategy**	**Responsibility**	**Timeframe**

To ensure users of electricity and biomass are aware of the benefits and disadvantages of the various sources of energy.	Structuring and implementing Energy Efficient initiatives.	MNREM CSOs	2019-2023
	Developing DSM awareness materials.	MNREM CSOs Electricity Suppliers	2019-2023
	Conducting Information dissemination and awareness raising campaigns.	MNREM CSOs Electricity Suppliers	2019-2023
Policy Statement 8.4: Government will ensure that importers, retailers and low-income consumers have targeted information regarding affordable, modern and sustainable energy products.			
Objective	**Strategy**	**Responsibility**	**Timeframe**
To develop information packages regarding affordable, modern and sustainable energy products that suit and reach different audiences.	Developing and implementing a public outreach strategy on sustainable energy products targeting importers, retailers and low-income consumers.	MNREM DoE CSOs Utility Companies	December 2019 for developing the strategy 2020-2023for implementing the strategy

ANNEX 4: MONITORING AND EVALUATION PLAN FOR THE NATIONAL ENERGY POLICY 2018

POLICY PRIORITY AREA 1.1: ELECTRICITY GENERATION						
Broad Policy Objective: To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading						
Outcome 1: A well developed and efficiently managed energy sector. **Outcome 2: An energy sector that is based on diversified energy sources.**						
Objective	**Output**	**Performance Indicator**	**Target**	**Baseline**	**Source of Verification**	**Assumptions/ Risks**
1.1.1 To harness other potential sources of power generation and expedite expansion of generating capacity.	All candidate generation projects identified and documented.	An Updated Integrated Resource Plan (IRP)	1	1	Approved updated IRP document	-
	Enabling environment for private sector investment in power generation in place.	An IPP framework reviewed	1 IPP framework reviewed after five years	1	Approved Reviewed IPP framework	-
	Feasibility study reports for IRP candidate projects.	Number of feasibility study reports produced	2 additional feasibility study reports by 2018: Kammwamba; Mpatamanga;	4	Approved feasibility study reports	Funds are available
	Environmental and	Number of	4 ESIA reports for	2 (ICF-CORE	Approved ESIA	-

	Social Impact Assessment conducted	ESIA reports approved	above projects by 2018	ESIA reports for Weed and Sediment Management, and MCC-funded Generation projects, November 2010)	reports	
	Comprehensive Environmental and Social Impact Management Plans implemented	Number of approved and implemented ESMIPs	4 ESIMPs for above projects by 2019	1 (MCA-M ESIMP for Weed and Sediment Management Nov. 2014)	Approved ESIMPs M&E reports	-
	Gender sensitive Resettlement Action Plans and/or fair compensation packages developed	Number of approved RAPs	4 RAPs for above projects by 2019	1 ((MCA-M RAP for Weed and Sediment Management Nov. 2014)	Approved RAPs	-
		Number of project affected persons fairly	100% timely resettlement and/or disbursement of compensation	-	Project reports M&E reports	-

		compensated, disaggregated by sex				
	Power Purchase Agreements executed	Number of PPAs executed	3 PPAs by 2019: Kam'mwamba; Northern Coal; Project Pamodzi	0	Executed PPAs	-
	Implementation Agreements executed	Number of Implementation Agreements executed	3 IAs for above projects by 2019	0	Executed IAs	-
	New diesel power plants commissioned	Number of Diesel PPs and MW of capacity added	3DPPs (53MW) by 2018: • Lilongwe at Kanengo (10MW) • BT Mapanga (20MW) • Kasungu (23MW)	37.05 MW	Project commissioning reports	-
	New hydropower stations developed	Number of new hydropower stations developed and	8 new hydropower stations totaling 1092MW by 2023: • Lower Fufu, (261MW);	EGENCO's 8 HEPPs with total installed capacity of 350MW	Project progress reports	

		commissioned; MW of generation capacity added	• Mpatamanga, (309MW). • Kholombidzo, (213MW); • Songwe, (150MW); • Mbongozi, (41MW); • Tedzani (18MW) • Chizuma (50MW); • Chasombo and (50MW);			

	Potential Coal, Geothermal, Natural Gas, Solar, Wind, biogas and agricultural waste (Co-generation) projects developed.	Number of projects developed, disaggregated by resource.	3 CFPPs by 2023, total capacity 520MW: • Kam'mwamba (300MW) • Northern Coal (200MW) • Pamodzi Power Station (120MW) At least 1 Geothermal PP 1 Natural Gas FPP At least 6 Solar PV PPs by 2023(160MW): • GoM (3x5MW) • Atlas (40MW) • Global Power (45MW) • Eagle Strategies (60MW) 3 Wind PPs 2 Bagasse Cogen PPs: • Illovo Dwangwa	0 0 0 0.85MW • 7MW • 11MW • 0.125MW	Project progress reports Project commissioning reports	Project planning and agreements reached, pending launch; Financial support secured. Availability of Financial support

			(20MW) • Illovo Nchalo (20MW) • Biogas(0,75 MW) • Agricultural wastes(10 MW)	• 0MW		

1.1.2 To enact and implement enabling legislation for improved ESI governance and for attracting private sector investment in electricity generation	New Electricity Act fully enforced	Unbundling of ESCOM fully operationalized	2 operational entities (EGENCO & ESCOM) 2018	0	ESCOM and EGENCO reports	-
1.1.3 To ensure increased security of power supply and benefit from regional power trading	Malawi interconnected with Zambia, Mozambique and Tanzania	MW added to generation capacity	Two interconnections by 2023 with initial imports totaling 80MW: • ZAM-MAL from Lundazi (30MW) • MOZ-MAL from Matambo (50MW)	0 0	Project progress reports	-
			Songwe Power Station operational	0	Project progress reports	-

			by 2023, with 150MW of capacity for Malawi			
1.1.4 To create an enabling environment for the promotion of equal opportunities in generation functions and for robustly preventing and mitigating negative social impacts of electricity generation projects.	Social and Gender Integration Plans (SGIPs) or equivalent adopted by EGENCO and IPPs	Number of generation projects/operations with SGIPs or equivalent	I SGIP for EGENCO, reviewed at least every two years 1 SGIP for each IPP, reviewed at least every two years	1 (EGENCO)	Approved SGIPs or equivalent SGIP reports	Assuming the SGIP is approved by EGENCO Board
	ESIAs for all emerging projects developed	Number of ESIA reports for each resource	1 ESIA report for each commissioned project	1	Approved ESIA reports	Funding and the ESIAs on the ground.
	Comprehensive socially responsive ESIMPs developed & implemented	Number of ESIMPs for each resource	1 ESIMP report for each commissioned project	1	Approved ESIMPs Project reports	-
	Gender sensitive Resettlement Action Plans and/or fair compensation packages developed	Number of approved RAPs addressing gender	1 RAP for each commissioned project involving resettlement	1	Approved RAPs Project reports	-

	and implemented	dynamics and concerns relating to project affected persons (PAPs)				
		Number of PAPs timely resettled/ compensated, disaggregated by sex	100% timely resettlement/disbursement of compensation	0	Project/ Compensation reports Project reports	-
		Number of PAPs fairly compensated, disaggregated by sex	100% PAPs satisfied with compensation	0	Project/ Compensation reports	-
POLICY PRIORITY AREA 1.2: ELECTRICITY TRANSMISSION						
Broad Policy Objective: To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading						
Outcome: An Energy sector that promotes and supplies sustainable energy services for driving the country's economic growth						
Objective	**Output**	**Performance indicator**	**Target**	**Baseline**	**Source of verification**	**Assumptions/ Risks**

1.2.1 To ensure reliable and efficient power transportation from all sources to all customers.	All candidate transmission projects identified and documented	An updated Integrated Resource Plan (IRP)	1	1	Approved updated IRP document	-
	One company (ESCOM) to own all existing transmission assets and assume the roles of Single Buyer, System Operator, and Market Operator functional.	ESCOM fully operational	1	0	Incorporation documents	-
	New transmission lines constructed and operational	Cct-km of transmission line added	3 transmission lines, total circuit length 370km by 2018: • 400kV Phombeya – New Nkula – Nkhoma (228km) • 132kV Chintheche – Luwinga – Bwengu (122km) • 132 double cct	2395km	MCC Compact progress reports	-

			Nkhoma – Bunda Turn Off (2x15km)			
	New grid substations constructed and operational (MCC funding - Compact)	MVA of transformer capacity added	3 grid substations totaling 450MVA by 2018: • Phombeya 400/132 kV (200 MVA) • Nkhoma 400/132 kV (200 MVA) • Bunda Turn Off 132/66kV (50 MVA)	745.5MVA	MCC Compact progress reports	
	New grid substations constructed and operational (WB funding - ESSP)	MVA of transformer capacity added	7 grid substations totaling 195MVA by 2018: • Dwangwa 132/33/11kV (30MVA) • Nkhotakota 132/33/11kV (30MVA) • Golomoti 132/33kV			

			(30MVA) • Nkula 66/33kV (30MVA) • Fundi's Cross 66/33kV (20MVA) • Chingeni 66/33kV (20MVA) • Kauma 66/11kV (20MVA) • Kang'oma 66/11kV (15MVA)			
	Existing lines upgraded	Cct-km of lines upgraded	3 lines totaling 30.5km upgraded (Lilongwe 66kV Ring): • Kanengo – Area 48 66kV (6.7km) • Area 48 – Lilongwe A 66kV (13.2km) • Kanengo – Barracks 66kV	0	MCC Compact progress reports	-

			(10.6km)			
	Existing substations rehabilitated	Number of grid substations rehabilitated	5 substations by 2018: • Bwengu 66/33kV • Chintheche 66/33/11kV • Karonga 66/33/11kV • Bunda Turn Off 66/11kV • Liwonde 66/33kV	0	ESCOM reports	-
	Transmission lines and substations to interconnect new IPP power stations with the transmission grid constructed in line with the IRP	Cct-km of transmission lines added	To be indicated once the distances from the IPP power plants are known	0	Project progress reports	-
1.2.2 To ensure a level playing field in power trading and	Grid Code, Market Rules, and Tariff Methodology promulgated	Number of documents in force	1 Grid Code, 1 set of Market Rules and a Tariff Methodology in force by June 2018	0	Approved Grid Code, Market Rules and Tariff Methodology documents	-

provide third party access to transmission lines for all generation companies.						
1.2.3 To maximize positive impacts of transmission projects and promote equal opportunities between men and women in transmission operations	Social and Gender Integration Plans (or equivalent) to address social and gender issues across all transmission functions developed and implemented by ESCOM and contractors.	No of SGIPs or equivalent	I SGIP for ESCOM, reviewed at least every two years 1 SGIP for each Infrastructure Development Contractor, reviewed at least every two years	1	Approved SGIP or equivalent SGIP progress reports	-
	ESIAs for all new transmission lines and substations developed	No of ESIA reports approved for each project	13 (3 transmission lines and 10 grid substations)- i.e. 1 ESIA report for each commissioned project	1 (ICF-CORE ESIA Report for MCC-funded T & D lines, Nov. 2010)	Approved ESIA reports	-
	Comprehensive Environmental and Social Impact	No of ESIMPs approved for each project	13 (3 transmission lines and 10 grid substations)- i.e.	1 (MCA-M ESIMP for transmission	Approved ESIMPs Project M&E	-

	Management Plans developed & implemented		1 ESIMP for each commissioned project	and distribution lines and associated substations, Nov. 2014)	reports	
	Gender sensitive Resettlement Action Plans and/or fair compensation packages developed and implemented	Number of approved RAPs addressing gender dynamics and concerns relating to PAPs	1 RAP for each commissioned project involving resettlement	1 (MCA-M RAP for transmission and distribution lines and associated substations, Nov. 2014)	Approved RAPs Project M&E reports	-
		Number of PAPs fairly compensated, disaggregated by sex	100% timely resettlement/disbursement of compensation	-	Project/ Compensation reports Resettlement/compensation work plans	-
		Number of PAPs fairly compensated, disaggregated	100% PAPs satisfied with compensation	-	Project/ Compensation reports	-

		by sex				

PRIORITY AREA 1.3: ELECTRICITY DISTRIBUTION						
Broad Policy Objective: To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading						
Outcome 1: An Energy sector that promotes and supplies sustainable energy services for driving the country's economic growth. **Outcome 2: An Energy sector that promotes and results in a high standard of living for all people in Malawi.**						
Objective	**Output**	**Performance indicator**	**Target**	**Baseline**	**Source of verification**	**Assumptions/ Risks**
1.3.1 To ensure that electricity is available to all customers while preventing and mitigating negative social impacts of distribution projects	New primary distribution lines and cables constructed and installed (MCC funding)	Cct-km of new lines and cables commissioned at 33kV and 11kV	Northern Region, by 2018: • 29.2km of 33kV OHL • 0.12km of 33kV UGC • 0.78km of 11kV UGC Central Region, by 2018: • 35.45km of 33kV OHL Southern Region, by 2018:	12,260km	Project progress and commissioning reports	-

			• 2.50km of 11kV UGC			
	New primary distribution substations erected (Compact)	No. of new substations erected under MCC Compact	4 primary distribution transformers (35MVA) by 2018: • 1x 33/11kV in Northern Region (Chintheche, 5MVA) • 2x33/11kV in Central Region) (Area 25, 10MVA and City Centre, 10MVA) • 1x33/11kV in Southern Region (Ntonda, BT, 10MVA)	-	Project progress and commissioning reports	All contractors shall complete their projects within the Compact duration. i.e. by September, 2018
	New primary distribution substations erected (ESSP)	Number of new substations erected under ESSP	1 primary distribution substation in Northern Region by 2018: Katoto 33/11kV (15MVA)	0	Project commissioning reports	Project and Funds on the ground

			2 primary distribution substations (30MVA) in Southern Region by 2018: • Balaka 33/11kV (15MVA) • Bangwe 33/11kV (15MVA)	0	Project commissioning reports	Project and Funds on the ground
	Robust socially responsive ESIAs for new distribution lines and substations projects developed	Number of ESIA reports approved for each project	1 ESIA report for each commissioned project	1 (ICF-CORE ESIA report for MCC-funded T & D lines, Nov. 2010)	Approved ESIA reports	Project and Funds on the ground
	Comprehensive Environmental and Social Impact Management Plans for new distribution lines and substations projects developed & implemented	Number of ESIMPs approved for each project	1 ESIMP for each commissioned project	1 (MCA-M ESIMP for T and D lines and associated substations, Nov. 2014)	Approved ESIMPs; Project reports	Project and Funds on the ground

	Gender sensitive Resettlement Action Plans and/or fair compensation packages developed and implemented	Number of approved RAPs addressing gender dynamics and concerns relating to PAPs	1 RAP for each project involving resettlement	1 (MCA-M RAP for T and D lines and associated substations, Nov. 2014)	Approved RAPs; Project reports	Project and Funds on the ground
		Number of PAPs fairly compensated, disaggregated by sex	100% timely resettlement/disbursement of compensation	0	Project reports	-
		Number of PAPs fairly compensated, disaggregated by sex	100% PAPs satisfied with compensation	0	Project/ Compensation reports	-
1.3.2 To make the distribution system more reliable and capable of	Distribution substations rehabilitated	Number of substations rehabilitated under MCC Compact	9 x 33/11kV substations rehabilitated by 2018: • 1x33/11kV in the Northern	0	Project progress reports	-

delivering quality electricity			Region (Chintheche) • 1x33/11kV in the Central Region (Area 33) • 7x33/11kV in the Southern Region (David Whiteheads, Limbe A, Limbe B, Thyolo A, Thyolo B. Zomba, Maldeco)			
1.3.3 To promote use of electricity in households as a substitute for biomass and other fossil fuels in homes	Duty and VAT on domestic electric cooking and water heating appliances removed	% duty and VAT-free domestic electric cooking and water heating appliances	100% of appliances duty and VAT free by June 2018	0%	MRA reports Energy survey reports	-
	Lifeline tariffs enabling low income households access electricity introduced	Percentage of utility companies implementing	100%	0%	MERA and Utility reports	-

		lifeline tariffs				
		Percentage of connected low income households enjoying lifeline tariffs	50% of households by 2023	0%	MERA and Utility reports Energy survey reports	-
1.3.4 To ensure expedient connections to customers premises and increase in access to electricity	Policies facilitating expedient customer connections while allowing customers to procure transformers and other materials under a special arrangement with distribution licensees in place and implemented	Number of policies adopted and implemented	2 policies by 2019	1	Policy document	Capacity Development of contractors
		Number of customers procuring transformers and other materials, disaggregated by head of household where applicable	95,000 of applicants for new connections by 2019 95,000 of applicants for new connections by 2019	73,500	Procurement reports; Stores and construction records; Energy survey reports	Low network penetration

		Percentage of customers getting connected within 30 days from the purchase of materials, disaggregated by head of household where applicable	75% of applicants by 30days by 2019 100% of applicants by >30days by 2021	75% 100%	Monthly reports Energy survey reports	Availability of transport and labour
	Policies facilitating the outsourcing of construction works by distribution licensees adopted and implemented	Number of policies adopted and implemented	2 policies by 2019	1	Policy documents	Capacity Development of contractors
		Percentage of construction works outsourced	15% by 2021	0	Procurement and construction reports	Capacity Development of contractors
		Percentage of Maintenance works outsourced	10% by 2021	0	Procurement and construction reports	Capacity Development of contractors

1.3.5 To deliberately address inequalities and improve access to services for all in distribution operations	Social and Gender Integration Plans to address social and gender issues across all distribution functions developed and implemented by ESCOM and distribution licensees.	Number of SGIPs or equivalent	1 SGIP for ESCOM reviewed at least every two years I SGIP for each distribution licensee, reviewed at least every two years	1	Approved SGIP or equivalent SGIP implementation monitoring reports	-
PRIORITY AREA 1.4: RURAL ELECTRIFICATION						
Broad Policy Objective: To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading						
Outcome: An Energy sector that promotes and results in a high standard of living for all men and women in Malawi.						
Objective	**Output**	**Performance indicator**	**Target**	**Baseline**	**Source of verification**	**Assumptions/ Risks**
1.4.1 To improve the management governance for Rural Electrification	Rural Electrification legislation reviewed	Number of Acts reviewed	1 Act by 2019	1	Gazette Rural Electrification Act	-

1.4.2 To ensure reduction in cost of connection of electricity for rural and peri-urban settlements unable to meet the connection cost	Provision of funding for infrastructure extensions targeting settlements with prescribed minimum populations made in the Rural Electrification legislation.	Percentage of connected rural and peri-urban households that were previously unable to meet the connection cost in targeted settlements, disaggregated by household head	50% of households by 2023	26,200	MAREP reports	Availability of funds
1.4.3 To ensure electricity reaches all rural settlements and villages, thereby increasing the population's access to electricity.	Off-grid rural electrification financed from the Rural Electrification Fund	Funds committed to off-grid rural electrification	30% of Rural Electrification Fund by 2023	0	MAREP reports	Availability of funds
		No. of rural settlements and villages with access to off grid electricity, disaggregated by implementing	336,800 by 2019 673,600 by 2023	68,000	MAREP reports Energy survey reports	MAREP funding on the ground; and assuming that Scaling up of Rural Access to Electricity in Malawi

		partner of off grid projects				(SuRAEM) project rolls out
1.4.4. To ensure availability of electricity in all public institutions in rural areas and in low income households that are close to distribution substations.	Rural public institutional buildings wired and connected with electricity using the Rural Electrification Fund	Percentage of rural public institutional buildings wired and supplied with electricity, disaggregated by type of service	100% of existing buildings by 2023	To be determined through surveys	MAREP reports	-
	Rural Electrification Fund Schemes to connect low-income households within 500m radii of distribution substations developed and implemented**.**	Percentage of eligible households connected, disaggregated by household head	40% of eligible households by 2023	2%	MAREP reports Energy survey reports	Availability of Funds
1.4.5 To ensure that rural electrification	Social and Gender Integration Plans to address social and gender issues across	Number of SGIPs or equivalent	2 SGIPs (for Rural Electrification Agency and MAREP	0	Approved SGIP or equivalent SGIP implementation	-

programmes are promoting the equal development of both men and women	rural electrification functions developed and implemented.		respectively), reviewed at least every two years 1 SGIP per Infrastructure Development Contractor, reviewed at least every two years		monitoring reports	
	Rural electrification interventions deliberately targeting low income households developed and implemented	Percentage of low income households connected, disaggregated by type of household head	50% of qualified households by 2023	2%	MAREP reports Energy survey reports	Availability of funds
PRIORITY AREA 1.5: RENEWABLE ENERGY						
Broad Policy Objective: To establish a vibrant, reliable, incentivized and sustainable private sector-driven Renewable Energy Technology industry						
Outcome: Access to clean and sustainable energy for all people.						
Objective	**Output**	**Performance indicator**	**Target**	**Baseline**	**Source of verification**	**Assumptions/ Risks**

1.5.1 To make the Renewable Energy Industry, properly regulated and well-coordinated	Renewable Energy legislation enacted	Number of Acts promulgated	1 Act by end 2019	0	Gazette	-
	Inclusive renewable energy utilization incorporated into the Integrated Resource Plan (IRP).	Number of IRPs with inclusive renewable energy utilization component	2017-2035 Integrated Resource Plan 2018 reviewed every five years	0	Approved reviewed Integrated Resource Plan	-
	Standards for RET products, especially Solar PV and Pico Solar Products in force and regularly reviewed.	No. of standards promulgated	1 set of standards by December 2019, reviewed every 5 years	0	Gazette	Availability of funds
		Number of reviews of standards	1 review every 5 years from 2019	0	Revised standards	Availability of funds
1.5.2 To increase access to modern, clean, affordable and reliable	Assessment and development of RE resources such as geothermal, solar, wind, biomass co-generation, and	Number of renewable energy resources developed through	5 by 2020	1	Research reports RE reports	Availability of Funds on government side; and showing up of IPPs.

energy.	hybrid systems expedited	research, disaggregated by resource				
	Fiscal incentives for renewable energy using existing funds such as the Malawi Rural Electrification Programme Fund in force	Number of renewable energy players benefiting from approved fiscal incentives disaggregated by location, type, size and ownership.	3	0	List of approved incentives MRA reports RE reports	-
	Strategy for public awareness campaigns on renewable energy technologies targeted at both rural, urban and peri urban consumers developed and implemented	Number of Strategy documents produced	1 document by July 2019	0	Approved Strategy document	-
		Number of outreach campaigns implemented, disaggregated by target audience	28 campaigns per target audience per year	1	Public outreach reports	Availability of Funding

		Percentage of energy consumers aware of different RE technologies, disaggregated by locality and sex where applicable	50% by 2021 100% by 2023	5%	Energy survey reports	Availability of Funds,
1.5.3 To ensure the active involvement of communities or entrepreneurs in small scale renewable energy activities.	Appropriate regulations for specific small-scale technologies developed under the Renewable Energy Act	Number of Regulations promulgated	1 set of regulations by 2019	0	Gazette	-
	Communities involved in community energy planning and implementation	Number of community awareness campaigns/trainings, disaggregated by location and level of	56 campaigns per year from 2019 to 2023	14	Project progress reports and Evaluation reports	-

		participation by women and men				
		Number of community operated mini/micro grids operational, disaggregated by location and level of participation by women and men	15 mini/micro-grids by 2021	7	Project progress reports	-
	All stand-alone renewable source powered mini-grids and installations equipped with Net Metering	Percentage of stand-alone mini-grids equipped with Net Metering	40% by 2021	0%	Survey reports	-
	A system of competitive bidding for mini-grid concessions in place.	Criteria for awarding concessions established	1 guideline document by July 2019	0	Guideline document	-

		Number of mini-grid concessions awarded through competitive bidding, disaggregated by location, type, size and ownership.	6 by 2021	0	Procurement documents	-
1.5.4 To enhance RE capacity building and the quality of RET products and services	Renewable Energy Capacity Building Plan developed and implemented	Renewable Energy Capacity Building Plan that ensures that renewable energy interventions/services are suitable to the different needs of women and men and their subgroups	1 plan by 2019, to be reviewed every 4 years	0	Renewable Energy Capacity Building Plan	-

		made operational.				
		Number of training institutions implementing RET courses in accordance with Capacity Building Plan, disaggregated by type of technology and qualification level.	4 by 2021	0	Capacity Building Plan implementation reports	-
		Number of renewable energy stakeholders implementing Renewable Energy Capacity Building Plan.	At least 4 by 2021	1	Capacity Building Plan implementation reports	-

		Percentage of RE consumers satisfied with RE products and services disaggregated by location, sex and technology.	75% by 2021		Subsector reports Energy surveys	
	Incentives for increasing numbers of well qualified male and female (including those with disabilities) RET artisans, technicians, professional, and entrepreneurs introduced	Number of RET scholarships and bursaries to promote the participation of skilled women and people with disabilities in renewable energy, disaggregated by training institution	TBD	0	Sub-sector reports and training institution records	-
		Number of	120 graduates per	30	Sub-sector	-

		RET graduates, disaggregated by sex, training institution and technology type	year		reports and training institution records	
		Number of RET technicians disaggregated by sex, and technology type	100 per year, assessed annually from 2019	20	Sub-sector reports, training institution data and energy survey reports	-
		Number of RET artisans, disaggregated by sex, institution/industry and technology type	150 per year, assessed annually from 2019	20	Sub-sector reports and energy survey reports	-
		Number of trained RET entrepreneurs, disaggregated	100 per year	0	Sub-sector reports and energy survey reports	-

		by sex, institution, technology type and training type				
		Number of male and female staff funded for training in various RET courses, disaggregated by sex	4 per year from 2019	1	Training data	-
1.5.5 To promote the manufacture, distribution, use and financing of improved RE technologies.	Introducing financing schemes and incentives for the private sector to locally manufacture and distribute RE products.	Number of RE manufacturers supported by financial schemes & incentives, disaggregated by technology type	4	0	List of approved schemes and incentives Sub-sector reports	-
		Percentage of accredited	100% by 2021	80%	MERA reports	-

		manufacturers & suppliers satisfied with accreditation process			Energy survey reports	
		Number of certified RE products per year	100	0	MBS reports Sub-sector reports	Enforcement of the available RE standards
		Percentage of consumers satisfied with quality of certified RE products, disaggregated by sex where applicable	100% by 2023	5%	Energy survey reports CAMA reports	Effective enforcement of Renewable Energy Technology standards
	Strengthening the capacity of CSOs and decentralized structures in RET programming and interventions	Percentage of district councils implementing RET programmes as part of their	50% by 2023	32%	Sub-sector reports; DIPs	With technical support from DoE under UNDP supported projects.

		District Implementation Plans				
		Number of CSOs supporting the implementation of policy RE priorities, disaggregated by geographical location	500 by 2023	140	Sub-sector reports	With technical support from DoE and MERA
PRIORITY AREA 1.6: DEFINITION AND MEASUREMENT OF ACCESS TO ELECTRICITY						
Broad Policy Objective: To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading						
Outcome: Access to clean, sustainable and affordable energy for all people						
Objectives	**Output**	**Performance indicator**	**Target**	**Baseline**	**Source of verification**	**Assumptions/ Risks**
1.6.1 To ensure that statistics on access to electricity take	Guidelines for measuring access to electricity using the GTF promulgated	Number of guideline documents	1 guideline document by June 2019	0	Gazette	-
	Surveys to establish	Number of	1 survey by	0	Annual survey	-

into account all sources (including off-grid generation and PSPs).	tier percentages for each year conducted	surveys conducted	December 2019 and ongoing		reports	
	Statistics on access to electricity monitored using the GTF format	% of population in each tier of the GTF	80.0% by 2035, disaggregated by GTF tiers • 35% Tiers 4 & 5 • 45% %Tiers 1,2 & 3	9%	Annual NSO reports	Special strategies in order to meet the targets as outlined in this policy are implemented.
PRIORITY AREA 2: BIOMASS						
Broad Policy Objective: To ensure biomass is sustainably used and carbon emissions are reduced through the use of energy efficient technologies						
Outcome: An energy sector that promotes and results in a high standard of living for all men and women in Malawi						
Objectives	**Output**	**Performance indicator**	**Target**	**Baseline**	**Source of verification**	**Assumptions/ Risks**
2.1 To reduce consumption of firewood and charcoal and reduce carbon emissions	Development of feasible business models for modern technologies for biomass (e.g. improved cook stoves, charcoal kilns) promoted.	Number of effective business models being implemented, disaggregated by type of technology, financing	3 by 2019, 10% by 2021 15% by 2023	2	Subsector reports	Continued government and donor support on the promotion of improved/efficient biomass utilisation

		institution, location and implementer				
	Incentives for CSOs to increase the uptake of modern biomass technologies promoted.	Number of CSOs/INGOs benefiting from incentives and assisting communities in modern biomass technologies.	30 by 2021	20	List of approved incentives Sub-sector reports	-
	Incentives for the growth of industries in manufacturing and distribution of improved cook stoves, brick kilns, charcoal kilns and biomass briquettes introduced.	Number of entrepreneurs benefiting from incentives and involved in the manufacturing and distribution of modern biomass technologies	100 by 2019, 300 by 2023	70	List of approved incentives Sub-sector reports	-

		disaggregated by type of technology, location and sex.				
		Number of community groups and entrepreneurs linked to viable markets through trade fairs and other marketing opportunities, disaggregated by sex/sex composition, location and type of technology.	100 by 2019, 300 by 2023	70	Sub-sector reports Energy survey reports	-
	Customs duty and VAT incentives to promote the wide availability of	% of enterprises accessing VAT incentives for	100% by 2021	0	List of approved incentives Sub-sector reports	Assuming the incentives are approved by the

	improved locally made cook stoves introduced & implemented.	improved locally made cook stoves				Government
	Illegal charcoal production banned.	Number of legislations banning illegal charcoal production	2 by end 2019	1	Sub-sector and Energy survey reports	-
2.2 To reduce reliance natural trees as the main source of charcoal	Growing of commercial trees for charcoal making strengthened	Number of legal charcoal makers that are using alternatives to natural trees	50% by 2020 75% by 2023	1%	Sub-sector and Energy survey reports	Related legislation and strategies implemented.
2.3 To increase uptake of improved cook stoves, brick kilns, charcoal kilns and biomass briquettes.	Capacity in new biomass technologies developed and strengthened	Biomass Energy Technologies Training Strategy	1 by December 2019	0	Approved Strategy document	-
		Number of people trained using Biomass Energy Technologies	5000 by end 2019 and 55,000 per year up to 2023	0	Training reports	-

		Training Strategy, disaggregated by sex and type of technology.				
		Number of CSO community initiatives training rural men and women to make improved cook stoves using locally available materials, disaggregated by location and project beneficiaries.	5,000 by 2019 55,000 per year up to 2023	20	Sector reports Energy survey reports	-
	Utilization of improved biomass	Number of people/househ	a. Distribute 2,000,000	300,000	Sector reports Energy survey	-

	technologies increased.	olds using improved cook stoves, brick kilns, charcoal kilns and biomass briquettes per year, disaggregated by household head, and location.	improved cook stoves by 2020 and 2 million by 2023 b. brick kiln projects implemented by 2023 c. 100 charcoal kiln projects implemented by 2023 d. 50 biomass briquette projects implemented by 2023		reports	
2.4 To empower low income and marginalized groups to sustainably use and benefit from biomass technologies	Targeted biomass interventions for low income and marginalized groups in urban and rural areas to access and control biomass technologies implemented.	Percentage of low income and marginalized groups that have access to information on biomass technologies, disaggregated	At least 80% of beneficiaries of biomass projects by 2019	10%	Sub-sector and Energy survey reports	-

in order to decrease the demand for charcoal.		by location, sex, household head and type of technology				
		Percentage of marginalized groups that are able to make decisions on the type of technology to use, disaggregated by location, sex and household head	At least 70% of beneficiaries of biomass projects by 2019	10%	Sub-sector and Energy survey reports	-
2.5 To strengthen the role of decentralized structures in promoting the use of biomass technologies	District level coordination and implementation of energy activities, including sustainable programmes and projects related to biomass technologies,	Number of District Energy Officers, disaggregated by sex.	28 Energy Officers between 2019 to 2023 (At least 40% and 60% women & men respectively)	0	District reports Sub-sector reports	-
		Number of biomass interventions	50% of interventions by 2019 75% by 2021	32%	District reports Sub-sector reports	-

	strengthened.	that are systematically coordinated and/or implemented at district council level	100% by 2023			
		Percentage of district councils with biomass interventions in their DIPs	100% by 2023	32%	Sub-sector reports DIPs	Scaling up of mainstreaming projects
2.6 To ensure that consumers are using energy efficient cook stoves of high standard	MBS standards on cook stoves that are sold as commercial products on the market promulgated.	Percentage of commercial cook stove manufacturers complying with Standards	100% compliance, assessed yearly	0	Compliance reports	-
		Percentage of male and female cook stove enforcement officers	By 2020, not less than 40% and not more than 60% of either sex	0	Recruitment data	-

		recruited				
2.7 To ensure communities move away from unsustainable charcoal production in order to save trees	Increased linkages between the energy sector and economic empowerment initiatives implemented by other sectors in charcoal making areas	Number of CSOs/sectors promoting alternative businesses for male and female charcoal merchants, disaggregated by business type and sex of beneficiaries	15 by 2019 50 by 2023	0	Sector reports Energy survey reports	-
		Number of male and female charcoal merchants who have abandoned charcoal for other businesses	200 by 2023	1,000	Energy survey reports	-

PRIORITY AREA 3: PETROLEUM FUELS (PETROL, DIESEL, PARAFFIN)						
Broad Policy Objective: To ensure adequate production and supply of petroleum and biofuels at affordable prices						
Outcome: A well developed and efficiently managed energy sector						
Objective	**Output**	**Performance indicator**	**Target**	**Baseline**	**Source of verification**	**Assumption/ Risk**
3.1 To ensure security of liquid fuel supply and lower landed cost of petroleum products for the country	Minimum of days fuel supply held at all times.	Number of days of fuel cover for the country	NOCMA: 60 days' supply from 2019 to 2023	30 days	Monthly stock reports	-
			Oil Marketing Companies: 30 days' supply from 2019 to 2023	15	Monthly stock reports	-
	Cost-effective, efficient and environmentally and socially responsive alternative conveyance methods, such as pipelines and water barges implemented	Number of new fuel conveyance methods introduced, disaggregated by technology	1 pipeline by 2035 Barging system by 2035	0 0	Feasibility study and Project commissioning reports	-
		Number of ESIAs conducted for fuel	1 ESIA for each project	0	Approved ESIA report	-

		transportation technology				
		Number of comprehensive ESIMPs developed and implemented to mitigate and prevent negative environmental and social impacts	1 ESIMPs for each project	0	Approved ESIMP	-
		Number of Gender sensitive Resettlement Action Plans	1 RAP per project involving resettlement	0	Project reports M&E reports	-
		Percentage of project affected persons fairly compensated, disaggregated by sex	100% timely disbursement of compensation	0	Project reports M&E reports	-
			100% PAPs satisfied with compensation	0	Project/ Compensation reports	-

3.2 To ensure efficiency in the downstream oil market	Legislation to adopt a system of bulk procurement of fuel reviewed and enforced	Number of Acts promulgated	1 by June 2019	0	Gazette	-
		Number of fuel cover days	90 days fuel cover	45 days fuel cover	Procurement reports; Fuel Stock reports	• Review of Energy Laws regarding importation of fuel, • Assuming current demand of 1 million litres per day
	In land dry ports established and operational.	Number of functional in-land dry ports established and operational	3 by 2019	0	Project progress reports	-
3.3 To ensure the effective participation of Malawian nationals in the petroleum	Guidelines for franchising of liquid fuel outlets developed for adherence by all OMCs developed and implemented.	Number of Guidelines developed	1 by end 2019	0	Approved Guidelines	-
		Percentage of OMCs	100% compliance by end 2019	0	Compliance reports	-

products market		adhering to guidelines.				
	Incentives to contribute to economic empowerment of Malawians in the oil market, including the ownership, operation and management of filling stations introduced	Percentage of Malawians, including the youth, accessing fiscal and other incentives to participate in the oil market as filling station operators, transporters, contractors etc., disaggregated by type of enterprise (and sex of business operator where applicable).	10% participation of Malawians by 2023 At least 40% participation of women and youth by 2023	0%	List of approved incentives Sub-sector reports Energy survey reports	Incentives developed and approved by MoF
		Percentage of Malawians,	At least 40% participation of	*No data*	Sub-sector reports	-

		including the youth, employed in the oil market, disaggregated by sex and position.	women and youth in management positions by 2023		Energy survey reports	
3.4 To promote planning that strengthens the equitable participation of men, women and marginalized groups in the oil market	Youth and women mentorship and capacity building programmes in the oil market strengthened	Number of youth and women participating in mentorship capacity building programmes	20 annually, beginning 2019	*data not available*	Sub-sector reports Energy survey reports	-
	Social and gender inclusion strategies for increasing equal opportunities in employment and addressing social and gender issues in the oil market developed and implemented	Percentage of OMCs with operational social and gender inclusion strategies	50% of OMCs by end 2019 75% by 2021 100% by 2023	*data not available*	Sub-sector reports Company documents	-
3.5 To ensure	Fuel prices regulated	Legislation in	1 Act by end 2019	0	Gazette	-

NOCMA, OMCs and dealers recover their cost for the sustainability and integrity of the industry.	through use of the fuel price adjustment system.	place				
		A transparent and verifiable mechanism for calculating the price using the prescribed formula established.	1	0	MERA reports	-
3.6 To increase the uptake of improved paraffin cooking and heating technologies	Duty and VAT on improved and safe paraffin stoves removed	% duty and VAT-free improved and safe paraffin stoves	100% of appliances duty and VAT free by 2021	0	MRA reports Energy survey reports	-
	Awareness campaigns on improved paraffin cooking and heating technologies conducted	Percentage of household energy consumers aware of improved paraffin cooking and heating technologies, disaggregated	50% by 2019 100% by 2021	0%	Energy survey reports	Availability of Funds

		by locality and sex.				
PRIORITY AREA 4: BIO-ETHANOL AND OTHER BIOFUELS						
Broad Policy Objective: To ensure adequate production and supply of petroleum and biofuels at affordable prices						
Outcome: An Energy sector that promotes and supplies modern and sustainable energy services for driving the country's economic growth						
Objective	**Output**	**Performance indicator**	**Target**	**Baseline**	**Source of verification**	**Assumptions/ Risks**
4.1 To ensure sustainable adequate supplies of bio-ethanol and bio-diesel fuels in the country	Increased supply of bio-ethanol and bio-diesel	Number of litres of biodiesel and bio-ethanol produced annually	20 million litres by 2019; 460 million litres by 2035	18.5 million litres	Production reports from MERA	-
	Fiscal incentives for production of bio-ethanol and bio-diesel raw materials established	Percentage of companies benefiting from the incentives	100% compliance by MRA by 2019, assessed yearly	0	List of incentives Energy survey reports	-
	Favourable pricing mechanism for the bio-fuels raw materials that protects farmers and not	Average price of feedstock for biofuels production	1	0	MERA Reports, Subsector Reports	-

	disadvantage the bio-fuel producing companies established					
	Socially and environmentally responsive large scale bio-ethanol and bio-diesel projects implemented	Number of ESIA reports approved and implemented	1 ESIA per large scale project	2	Approved ESIA reports	-
		Number of Comprehensive socially responsive Environmental and Social Impact Management Plans approved and implemented	1 ESIMP per large scale project	2	Approved ESIMPs Project M&E reports	-
		Number of Gender sensitive Resettlement Action Plans and/or fair	1 RAP for each project involving resettlement	2	Approved RAPs Project M&E reports	-

		compensation packages implemented				
		Percentage of eligible project affected persons (PAPs) fairly compensated, disaggregated by sex	100% timely resettlement/ disbursement of compensation	0	Project reports	-
			100% PAPs satisfied with compensation	0	Project/ Compensation reports	-
4.2 To build adequate capacity and skills to sustainably produce ethanol and biofuels in a manner that promotes inclusive development	Local capacity to sustainably produce bio-ethanol and bio-diesel fuels (especially through the collaboration of farmers cooperatives, women farmers coalitions and other marginalized groups) increased.	Number of companies, farmers' cooperatives, women farmers' coalitions and individuals producing bio-fuel raw materials	1500 by 2023	300	Sub-sector reports	-
		Number of women, people	200 by 2019; 500 by 2023	100	Energy survey reports	-

		with disabilities and youth directly economically benefiting from biofuels projects as farmers or entrepreneurs				
	Engagement with National Commission for Science and Technology and academic and research institutions on bio-fuel mixtures and their usage in vehicles	Number of engagement forums with NCST and research institutions per year	3	1	Meeting reports; Subsector reports	-
	Socially responsive research and development in the biofuels and bioethanol areas promoted	Percentage of R&D initiatives that apply both economic and social development	75% by 2019 100% by 2021	1	Research reports	-

		perspectives				
		Number of R&D initiatives undertaken per year	2	2	R&D reports; Subsector reports	-
4.3 To increase the pool of Malawian men and women that are involved in and knowledgeable about biofuels technologies and the biofuels industry	Biofuels training plan/strategy to enhance the skills of both women and men in biofuels technologies and to increase the participation of skilled women, people with disability and youth in the biofuels industry developed	Number of plans/strategies	1 by December 2019	0	Approved training plan	-
		Number of vocational and tertiary institutions offering biofuel industry related trainings from both economic and social development perspectives	4 by 2019; 10 by 2023	2	Tertiary / vocational institution data Energy survey reports	-
		Number of women enrolled and graduating in	40 by 2019; 100 by 2023	0	Academic institution data Energy survey reports	-

		biofuels courses				
		Number of women employed in the biofuels industry, disaggregated by position/grade	20 by 2019; 100 by 2023	10	Recruitment data Energy survey reports	-
		Number of training institutions and projects with deliberate incentives for the participation of women people with disabilities and youth, disaggregated by type of institution or	4 by 2018; 10 by 2023	0	Tertiary/ vocational institutions data Project reports Energy survey reports	-

		project and type of incentive				
		Percentage of bio-fuel companies implementing Social and Gender Integration Plans to address social and gender issues in the industry	SGIPs formulated by 50% of biofuel companies by 2020, 75% by 2023	0	SGIP monitoring reports Annual budgets	-
4.4 To sustain the current petrol: bioethanol blending and reduce use of fossil fuels in motor vehicles	A phased installation of ethanol pumps in line with increased production of ethanol implemented.	Number of filling stations with ethanol fuel tanks	200 by 2020	0	MERA reports	-
		Number of vehicles running on 100% ethanol	7,000 by 2019; 10,000 by 2023	5	MERA reports	-
	Awareness campaigns to	Number of campaigns	30 per year, starting in 2019	7 per year	Subsector reports Transport reports	-

	promote uptake of new technologies intensified.	promoting uptake of new technologies (e.g. flex vehicles)				
4.5 To sustain diesel vegetable oil blending and reduce use of fossil fuels in motor vehicles	A phased installation of bio-diesel pumps in line with increased production of bio-diesel implemented.	Number of vehicles running on 100% bio-diesel	100 by 2019; 200 by 2023	0	MERA reports	-
		Number of campaigns promoting uptake of new technologies	10 per year, starting in 2019	2 per year	Subsector reports Transport reports	-
PRIORITY AREA 5: LIQUEFIED PETROLEUM GAS, BIOGAS AND NATURAL GAS						
Broad Policy Objective: To ensure availability of LPG, biogas and natural gas in sufficient quantities at affordable prices for industrial and domestic use						
Outcome: An Energy sector that promotes and result in a high standard of living for all men and women in Malawi						
Objective	**Output**	**Performance indicator**	**Target**	**Baseline**	**Source of verification**	**Assumptions/ Risks**
5.1 To ensure availability of	Legal and regulatory reviews to facilitate	Legislation in place	1 Act by June 2019	0	Gazette	-

LPG, biogas and natural gas in sufficient quantities at affordable prices for industrial and domestic purposes	institutional reforms for investments in and utilization of LPG, biogas and natural gas implemented.	Number of companies registered in LPG, biogas and natural gas	10 by 2019 20 by 2023	3	Gazette	-
	Tax and fiscal incentives for large scale LPG, biogas and natural gas investments introduced and implemented	Percentage of companies benefiting from tax and other fiscal incentives for supporting the initial stages of introducing and promoting LPG, biogas and natural gas	100% compliance by MRA by June 2019	0	List of incentives Energy survey reports Subsector reports	-
	Socially and environmentally responsive large scale LPG, biogas and natural gas projects implemented	Number of ESIA reports approved and implemented	1 ESIA per large scale project	3	Approved ESIA reports	-
		Number of comprehensive Environmental	1 ESIMP per large scale project	3	Approved ESIMPs; Project M&E	-

		and Social Impact Management Plans approved and implemented			reports	
		Number of gender sensitive Resettlement Action Plans and/or fair compensation packages implemented	1 RAP for each project involving resettlement	3	Approved RAPs; Project M&E reports	-
		Percentage of PAPs timely resettled/ compensated, disaggregated by sex for infrastructure projects	100% timely disbursement of compensation	0%	Project reports	-
			100% PAPs satisfied with compensation	0%	Project/ Compensation reports	-
		Number of Social and	1 per large scale project, reviewed at	0	SGIP implementation	-

		gender integration plans (or equivalent) to address inward and outward looking social and gender issues related to imports, storage and distribution developed	least every 2 years		reports	
	Phased program to accelerate the penetration of LPG, biogas and gas implemented.	Number of infrastructure facilities for LPG and Natural Gas imports, storage and distribution	10 by 2021	3	Project progress reports	-
		Number of pilot projects being implemented	4 districts piloted for 3 years, and scaling up with 2 peri-urban (town assemblies)	1	1 evaluation report for pilot phase 1 evaluation	-

		in areas where biomass has diminished and/or where the cost of biomass for cooking is high	districts per year		report for every other phase	
		Number of users of LPG, biogas and natural gas, disaggregated by location, type of household head, type of industry/business	1,500,000 by 2021	100	Energy survey reports	-
	Customs duty and VAT incentives to promote the wide availability of small LPG canisters and gas cookers that are affordable to low	Number of households buying and using small LPG cylinders of up to 5 kgs, and small gas	200,000 by 2021,	1,000	Energy survey reports	-

	income households adopted.	cookers disaggregated by location and household head				
		Percentage of companies benefiting from tax/fiscal incentives for distributing small LPG canisters and gas cookers	100% compliance by MRA by end 2019	0	Subsector reports Energy survey reports	-
	Shortages of LPG and natural gas minimized through fiscal incentives to financially viable companies	Number of companies that have own storage facilities that satisfy prescribed minimum stockholding requirements	3 by end 2019; 10 by 2023	1	Subsector reports Energy survey reports	-

5.2 To ensure safety in the handling and utilization of LPG, biogas and natural gas.	Socially inclusive and well-trained LPG, biogas and natural gas industry established.	Number of industry players trained in safety, disaggregated by sex and type of institution/business.	30 by 2019; 100 by 2023	3	Safety training reports	-
		Number of LPG, biogas and natural gas related accidents, disaggregated by type of industry/business, location and sex of casualties.	0 per year	10	Occupational Health and Safety reports	-
	Raising awareness on the safe use of LPG, biogas and natural gas	Percentage of households sensitized, disaggregated by household	50% by 2020, 100% by 2023	0	Subsector reports	-

		head and location.				
		Number of LPG/gas related accidents, disaggregated by household head and location and sex of casualties.	0 per year	0	Subsector reports Energy survey reports	-
	Regulations and standards on supply and distribution of cylinders for LPG (such as safety regulations, quality of cylinders etc.) promulgated and implemented	Number of regulations and standards	1 set of regulations and standards	0	Gazette	-
		Percentage of suppliers and distributors knowledgeable about regulations and standards	100% by 2023	0	Subsector reports Energy survey reports	-
5.3 To build expertise and	Capacity building plan for LPG, biogas	Number of capacity	1 by end 2019	0	Capacity Building Plan	-

increase the involvement of marginalized groups in the gas industry both as employees and entrepreneurs	and natural gas developed	building plans				
	Knowledge and skills local women, men and the youth in LPG, biogas ad Natural Gas technologies developed	Number of initiatives to build entrepreneurial capacity of local women, men and the youth in the industry, disaggregated by technology type	4 per year, commencing 2019	0	Capacity Building Plan implementation reports	Capacity building plan and Manual put in place; Availability of Funds
		Number of local women, men and the youth entrepreneurs in the industry, disaggregated by technology type	10,000 by 2023	200	Subsector reports Energy status reports	-
		Number of skilled local	2000 by 2023	20	Subsector reports Energy status	-

		women, men and the youth in LPG, biogas ad Natural Gas technologies employed in the industry, disaggregated by technology type			reports	
	Incentives to increase the employment of local women and the youth in the industry developed	Number of scholarships/ bursaries for promoting women's and youth's participation in the industry, disaggregated by beneficiary and technology type	10 per year, commencing 2020	0	Subsector reports	-
5.4 To build expertise in local	Public-Private Partnerships for the exploration,	Number of partnerships established	1 partnership by June 2019; 2 by December 2020	0	PPP reports Partnership	-

extraction, transmission, storage and distribution of Natural Gas	extraction and transportation of natural gas established				agreements	
PRIORITY AREA 6: COAL						
Broad Policy Objective: To promote a coal supply industry that is more efficient and competitive, and harnesses clean technologies that eliminate or greatly reduce harmful emissions						
Outcome: An energy sector that is based on diversified energy sources						
Objective	**Output**	**Performance indicator**	**Target**	**Baseline**	**Source of verification**	**Assumptions/ Risks**
6.1 To ensure the availability of coal in sufficient quantities and at affordable prices for both industrial and domestic uses.	Exploration of and exploitation of coal reserves intensified	Number of coal prospecting and mining licenses	5 by 2020	2	Licenses	-
		Tonnes of coal mined per year	120, 000 by 2023	70,552.07	Production reports	-
	Local coal for industrial and household use readily available and affordable	Price of local coal compared to imported coal	Cheaper local coal from 2019, assessed yearly	*data not available*	-	-
		Number of	5 by 2020	2	Sector reports	-

		robust local coal suppliers			Energy survey reports	
6.2 To ensure that coal is combusted, stored, transported, imported, priced and marketed in line with set minimum standards.	Regulations setting minimum standards for coal storage, transportation, importation, usage, marketing and pricing promulgated	Number of regulations implemented/enforced	1 set of regulations by end 2019	0	Gazette	-
	Systematic program of inspection of coal storage facilities, combustion processes, and transportation systems rolled out.	Number of periodic inspections and audits conducted, disaggregated by type	2 per year from 2019	0	Sector reports Occupational Health and Safety Monitoring reports Energy survey reports	-
		Number of industry players complying with set minimum standards disaggregated	3 by 2020	0	OHS Monitoring reports	-

		by type				
	Mechanisms for monitoring coal pricing and marketing established.	Percentage of coal importers, wholesalers and retailers compliant with established pricing and marketing system	100% compliance, assessed yearly	0	Sector reports Compliance reports	-
6.3 To eliminate monopoly in coal haulage and brokerage contract arrangements	Competitive coal haulage and brokerage contract arrangements established	Number of players involved in coal haulage and brokerage contract arrangements	3 by 2020; 5 by 2023	1	Sector reports	-
6.4 To ensure the coal supply chain does not impact negatively on the environment	Environment Management Act and Mines & Minerals Act reviewed, promulgated and enforced	Number of industry players compliant with minimum environmental and health standards	2 Acts reviewed by December 2019: a. EMA b. MMA	0	Gazette	-
			100% compliance by 2019	0	Sector reports Energy survey reports	

and the health of people.		under the Environmental Management Act and Mines & Minerals Act				
	Minimum carbon dioxide emitted through coal production and combustion	Number of periodic, safety health and environmental audits on all coal processes.	1 per year, from 2019	0	Audit reports Energy survey reports	-
		Number of power plants equipped with carbon capture technologies	5 by 2035	0	Carbon report by EAD	-
		Percentage of industry players using modern coal technologies that have minimum carbon	60% by 2020; 100% by 2035	0	Periodic Technical reports Energy survey reports	-

		emissions disaggregated by combustion, storage and transportation				
6.5 To create a competent mechanism/machinery for reducing the negative impacts of coal mining, storage, haulage and utilization on the environment, and on the health and safety of its handlers and users	Comprehensive capacity building program for the coal industry	Percentage of coal industry players implementing capacity building plan, disaggregated by type of sub-industry and sex of trainees	60% by 2020; 100% by 2035	0	Capacity building programme monitoring – reports	-
	Human resources recruited	Percentage of male and female officers recruited to manage all aspects of the coal industry, disaggregated by position and institution	By 2020, not less than 40% and not more than 60% of either sex	10	Recruitment data	-

	Environmental and Social Impact Management Plans (ESIMPs), or equivalent developed	Number of ESIMPs developed	One ESIMP for each production, storage, haulage and utilization project or operation	0	ESIMP documents	-
	Social and gender inclusion plans (SGIPs) promoted in order to consistently promote the socio-economic development of marginalized groups within the coal industry	Percentage of coal companies developing and implementing Social and Gender Inclusion Plans	SGIP formulated by 50% of coal companies by 2019; 75% by 2020 and 100% by 2023, reviewed at least every two years	0	SGIP implementation/ monitoring reports	-
6.6 To ensure security of electricity supply through environmentally friendly coal-fired base-load generation	Bankable documents and investors available following a streamlined and transparent process	Number of bankable documents for coal power generation investments	3 by 2020; 5 by 2023	0	Feasibility study reports	-
		Number of executed Power Purchase	3 by 2023;	0	PPAs	-

		Agreements				
	ESIAs conducted and comprehensive impact mitigation plans in place and implemented	Number of approved ESIA reports	3 by 2023;	-	Official ESIA reports	-
		No. of comprehensive ESIMPs implemented	3 by 2023	1	Official ESIMPs	-
	Gender sensitive Resettlement Action Plans and/or fair compensation packages approved and implemented	No. of Resettlement Action Plans and/or compensation mechanisms implemented.	1 comprehensive RAP for each new project	0	RAPs Financial payment records	-
		Percentage of project affected people timely resettled and/or compensated, disaggregated by sex	100% timely resettlement and/or compensated	0	Compensation data	-
6.7 To reduce reliance on	Appropriate end-use technologies	Number of technologies	3	0	Documentation on adopted	-

fuel wood for household, tobacco curing and other applications	facilitating use coal in household and tobacco curing applications adopted	adopted for household and tobacco curing applications			technologies	
6.8 To minimise the adverse impacts of coal combustion on the environment and on the health and safety of coal handlers and users	Systematic inspection programmes for coal combustion installations developed and implemented	Number of inspection programmes implemented	1 for each coal-burning installation or operation	0	Inspection programmes and reports	-
	Research into, and the development of, more efficient coal-combustion technologies supported.	Number of R & D programmes formulated and implemented	3	0	R & D reports	-
	Application of clean coal technologies, such as washing, gasification, liquefaction and fume capturing, promoted	Number of clean coal technologies adopted	3 by 2023	0	Documentation on applied technologies	-
6.9 To minimise the	Coal briquetting operations initiated	Number of companies and	10 by 2023	1	Availability of coal briquettes	-

adverse impacts of coal dust released to the environment	on a commercial scale	entrepreneurs engaging in commercial coal briquette production			on the market	
6.10 To increase the involvement of marginalized groups in the coal industry both as employees and entrepreneurs	Strategies for promoting equal employment opportunities for men, women and youth in the industry implemented	Percentage of employees in the coal industry, disaggregated by sex, age and position	At least 40% participation of women and youth by 2023	0%	Subsector data	-
	Strategies for promoting equal entrepreneurship opportunities for men, women and youth implemented	Percentage of local entrepreneurs in the coal industry, disaggregated by sex, age, and type of enterprise	At least 40% participation of women and youth by 2023	*No data*	Subsector data	-
PRIORITY AREA 7: NUCLEAR ENERGY						
Broad Policy Objective: To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading						
Outcome: An energy sector that is based on diversified energy sources						

Objective	Output	Performance indicator	Target	Baseline	Source of verification	Assumptions/ Risks
7.1 To increase the energy source options available for generation of electricity by utilizing locally mined Uranium	Nuclear Science and Materials Undergraduate Program introduced and enhanced in some public universities	Number of programmes introduced	1 programme by 2019, and 3 programmes by 2035	0	Programmes in place in public universities	IAEA will technically and financially support the capacity building programmes
	Capacity in nuclear energy built in Government	Capacity building plan in place	1 plan by end 2019	0	Approved capacity building plan	-
		Number of officers trained in nuclear energy, disaggregated by sex	5 by 2019 20 by 2025 30 by 2030 50 by 2035	0	Capacity building plan implementation reports	-
	A socially and environmentally responsive Uranium processing facility established in the	Bankable documents and investors available	Number of bankable documents for nuclear power generation investments	1 by 2020	0	Feasibility study reports
			Number of executed	2 by 2027;	0	PPAs

	country		Power Purchase Agreements	3 by 2035		
		ESIAs conducted and comprehensive impact mitigation plans in place and implemented	Number of approved ESIA reports	1 for each project	1 (Kayelekera)	Official ESIA reports
			No. of comprehensive ESIMPs implemented	1 for each project	1	Official ESIMPs
		Gender sensitive Resettlement Action Plans and/or fair compensation packages approved and implemented	Number of RAPs and/or compensation mechanisms implemented.	1 comprehensive RAP for each new project	0	RAPs Financial payment records
			Percentage of project affected people timely resettled and/or compensated, disaggregated by sex	100% timely resettlement and/or compensation	0	Compensation data
				100% PAPs satisfied with compensation	0	Project/ Compensation reports
		Number of Uranium processing	1 by 2027	0	Project progress reports	A Uranium processing facility established in

		plants				the country
	The first nuclear power plant commissioned and running	MW of generation capacity from nuclear plant	100 by 2035	0	Project progress reports	IAEA authorization granted
7.2 To reduce the negative environment, health and social impacts of nuclear energy	Integration Plans by nuclear companies/projects s to addressing inward and outward looking social and gender issues affecting the nuclear energy developed and implemented	Number of coal companies developing and implementing Social and Gender Inclusion Plans	SGIP formulated for each company/project, reviewed at least every two years	0	SGIP implementation/ monitoring reports	-
PRIORITY AREA 8: DEMAND SIDE MANAGEMENT						
Broad Policy Objective (i): To strengthen the Electricity Supply Industry (ESI) and make it more efficient to support industrialization, rural transformation, sustainable economic development and wealth creation, as well as regional electricity trading **Broad Policy Objective (ii):** To ensure biomass is sustainably used and carbon emissions are reduced through the use of energy efficient technologies						
Outcome: A well developed and efficiently managed energy sector						

Objective	Output	Performance indicator	Target	Baseline	Source of verification	Assumptions/ Risks
8.1 To save energy and reduce Greenhouse Gas emissions	Legislation amended to include banning importation, distribution and use of incandescent bulbs in place and enforced	Number of Acts amended	1 Act by December 2019	0	Gazette	-
		Disappearance of incandescent bulbs from the market	0% by 2019, assessed yearly	100% existence (no ban)	Energy survey reports	-
		Number of targeted campaigns to reach retailers, importers and low income electricity consumers	3 campaigns per target group per year (up to 2020)	0	Sub-sector reports	-
	Energy saving devices promoted	Number of targeted campaigns to reach users of energy consuming	3 campaigns per target group per year (up to 2020)	0	Sub-sector reports	-

		electrical and biomass fuelled devices				
	Regulations and standards for building designs and energy efficient devices promulgated	Number of Regulations promulgated	1 set of Regulations by end 2019	0	Gazette	-
		Number of standards promulgated	1 set of Standards by end 2019	0	Gazette	-
	Energy efficiency assessment facilities established and operational	% of imported devices assessed for energy efficiency	100% of all imported devices by 2019 and ongoing	0%	MBS assessment reports	-
	Duty and VAT waived on electrical and solar water heaters	% of devices imported duty and VAT-free	100% of all imported devices by end 2019 and ongoing	0%	MRA reports	-
	Utility companies supported in the implementation of tariffs that encourage energy efficient use of electricity	Number of utility companies implementing energy efficient tariffs	All of Distribution companies, from 2019 and ongoing	1	MERA and Utility reports	-
	Regular energy audits	Number of	Once a year for each	1	Certified	-

	conducted by certified auditors in public, industrial, and commercial buildings promoted	energy audits conducted per year	public, industrial, and commercial building, commencing in 2019		Auditors' reports	
	Research and development in energy efficient equipment, buildings, etc promoted.	Number of institutions conducting energy efficiency research programmes	3 institutions by 2019; 5 by 2021	2	Institutional reports	-
8.2 To ensure efficiency in their service delivery to customers	Public information campaigns to raise awareness among consumers conducted	Number of public awareness campaigns conducted, disaggregated by target group	56 in 2018, reviewed every year thereafter	0	Sector reports	-
	Energy efficient measures installed in households to help consumers reduce their bills, as well as reduce stress on	% of electricity connected households with energy efficient measures	50% by 2020 75% by 2023	298,109	Utility reports	Customers will sustain or manage to replace the efficient bulbs

	overburdened utility systems	installed				Govt will ban IBs The local market will stock affordable, durable and high quality efficient bulbs
	Installing prepayment meters and implementing tariffs that will reduce non-payment problems and encourage energy-efficient behaviour by consumers.	Number of prepayment meters installed at customers' premises	All by 2023	313,279	Utility reports	Meters will be readily available in stock Customers will not tamper with the meters Custom will adjust consumption behavior accordingly
		No. of	All by 2023	11	Utility reports	Time of use

		industrial users on Time of Use tariffs				tariffs will remain attractive to Industrial customers. ESCOM will sustain Time of use tariffs
8.3 To ensure users of electricity and biomass are aware of and benefit from DSM	Energy Efficiency initiatives structured and implemented	Number of Energy Efficiency initiatives	2 initiatives by 2019, reviewed every year thereafter	1	NGO reports; Sector reports	-
	Information dissemination and awareness raising campaigns conducted	Number of Information dissemination and awareness raising campaigns conducted, disaggregated by target group	2 campaigns per region by 2019, reviewed annually thereafter	0	NGO reports; Sector reports	-
8.4 To develop information	A public outreach strategy on affordable, modern	Public outreach strategy on	1 strategy	0	Approved Strategy document	-

packages regarding affordable, modern and sustainable energy products that suit and reach different audiences.	and sustainable energy products targeting importers, retailers and low-income consumers developed implemented	affordable, modern and sustainable energy products developed.				
		% of importers knowledgeable about and importing affordable, modern and sustainable energy products	70% by 2020 100% by 2023	20%	Energy status reports	Public outreach strategy on the affordable, modern and sustainable energy products are rolled out.
		% of retailers knowledgeable about and selling affordable, modern and sustainable energy products	70% by 2020 100% by 2023	20%	Energy status reports	Public outreach strategy on the affordable, modern and sustainable energy products are rolled out.
		% of low	70% by 2020	*No data*	Energy status	-

		income consumers knowledgeable about and purchasing affordable, modern and sustainable energy products, disaggregated by household head or sex and age where applicable	100% by 2023		reports	

ANNEX 5: ENERGY MEASUREMENT AND CONVERSION TABLES

1. Prefixes for SI Units

PREFIX	SYMBOL	POWER (10^n)	PREFIX	SYMBOL	POWER (10^n)
Yetta	Y	24	deci	d	-1
Zeta	Z	21	centi	c	-2
Exa	E	18	milli	m	-3
Peta	P	15	micro	µ	-6
Tera	T	12	nano	n	-9
Giga	G	9	pico	p	-12
Mega	M	6	femto	f	-15
Kilo	K	3	atto	a	-18
Hecto	H	2	zepto	z	-21
Deca	D	1	yepto	y	-24

2. Conversion Factors for Different Energy Sources

FUEL TYPE	NATURAL UNIT	DENSITY (TONNES/M^3)	CONVERSION FACTORS (HEATING VALUES)
Malawi Coal	Tonne	n/a	24.9 GJ/T
LPG	Tonne	0.54	45.5 GJ/T
Gasoline	Tonne	0.74	44.0 GJ/T
Jet Fuel	Tonne	0.83	43.2 GJ/T
Paraffin	Tonne	0.83	43.2 GJ/T/ 35 MJ/Litre
Diesel	Tonne	0.87	42.5 GJ/T
Ethanol	Tonne	0.78	16.54 GJ/T
Electricity	GWh	n/a	3600 GJ/GWh
Wood	m^3	0.71	11.4 GJ/ m^3
Charcoal	Tonne	n/a	33.1 GJ/T
Biomass	Tonne	n/a	13.3 GJ/T
Bagasse	Tonne	N/A	7.8 MJ/kg

3. Derived SI Units of Measurement

DIMENSION	UNIT	SYMBOL
Area	Square metre	m^2
Volume	Cubic metre	m^3
Speed	Metre per second	m/s
Acceleration	Metre per second squared	m/s^2
Frequency	Hertz (Cycle per second)	Hz
Pressure	Pascal	Pa (= N/m^2)
Volume Flow	Cubic metre per second	m^3/s
Mass Flow	Kilogram per second	kg/s
Density	Kilogram per cubic metre	kg/m^3
Force	Newton*	N (= $kg.m/s^2$)
Energy	Joule**	J (=N.m)
Power	Watt	W (= J/s)
Energy Flux	Watt per square metre	W/m^2
Calorific Value	Joule per kilogram	J/kg
Specific Heat	Joule per kilogram Kelvin	J/kg.K
Voltage	Volt	V (=W/A)

Notes:

***** **The force exerted by a mass of 1 kg free-falling under gravity (accelerating at 9.8 m/s^2) equals 9.8 N (approximately 10 N)**

****** **1 J = 1 Ws**

4. Conversion of Non-SI Units for Energy

NON-SI UNITS FOR ENERGY	SYMBOL	EQUIVALENT IN SI UNITS
Erg	Erg	10^{-7} J
Foot pound force	Ft.lbf	1.356 J
Calorie	Cal	4.187 J
Kilogram-force metre	Kgf.m	9.8 J
British Thermal Unit	Btu	1.055×10^{3} J
Horse power hour (metric)	hp.hr	$2.646\ 10^{6}$ J
Horsepower hour (British)	Hp.hr	2.686×10^{6} J
Kilowatt hour	KWh	3.60×10^{6} J
Barrel of oil equivalent	B.O.E.	6.119×10^{9} J
Tonne of wood equivalent	T.W.E	9.83×10^{9} J
Tonne of coal equivalent	T.C.E.	29.31×10^{9} J
Tonne of oil equivalent	T.O.E.	41.87×10^{9} J
Quad (Pbtu)	-	1.055×10^{18} J
Terawatt-year	TWy	31.5×10^{18} J