



REPUBLIC OF ZAMBIA

NATIONAL ENERGY POLICY 2019



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FOREWORD

Energy is a critical input in the socio-economic development of the country. Every productive sector in the economy relies on the provision of energy. It is therefore imperative that the energy sector is efficiently managed through a policy framework that meets the ever-rising challenges not only in this sector but in the economy as a whole.

The National Energy Policy 2019 (NEP 2019) builds on previous policies of 1994 and 2008 and is anchored on the Seventh National Development Plan (7NDP) and Vision 2030. While the essence of the previous policy objectives remain valid, the social, political, environmental and economic situation has undergone significant changes. This has prompted the review of the 2008 Energy Policy and the formulation of the NEP 2019 which incorporates current developments not only in the energy sector and the entire economy but also the regional and international environment. Zambia is aspiring to become a middle-income economy by 2030. This entails formulating and implementing robust enabling policy measures that meet the energy demand of the future.

The NEP 2019 therefore, is aimed at guiding the energy sector in the development of the electricity generation, transmission and distribution capacity. Further, it will enhance cost-effectiveness and efficiency in the supply of petroleum products. It will also facilitate the development and deployment of renewable and alternative energy. Furthermore, the Policy will promote security of energy supply through diversification of energy sources at cost reflective pricing which will promote new investment in the sector, consequently scaling up access to energy services in rural and urban areas. The NEP 2019 also considers climate change mitigation and adaptation while advancing sustainable development of the sector. In addition, the Policy mainstreams gender and disability aspects aimed at increasing access to clean and efficient energy thereby reducing poverty among vulnerable groups especially women and children.

I am, therefore, confident that the National Energy Policy 2019 will be instrumental in developing and accelerating economic activities.



Matthew Nkhuwa, MP.

MINISTER OF ENERGY

ACKNOWLEDGEMENTS

The provision of energy services is an essential ingredient of socio-economic development worldwide. Energy is required in meeting the basic human needs such as food, shelter, health, transport and education.

The development of the NEP 2019 is the result of an intensive and extensive consultative process, involving a variety of stakeholders in the country. While it is not possible to mention everyone who contributed to the development of the Policy, we would like to acknowledge the contributions from the following institutions:

1. Cabinet Office;
2. Government Ministries/Institutions;
3. Cooperating Partners;
4. Non-Governmental Organisations;
5. Professional Bodies;
6. Energy Consumers;
7. Energy and Power Utilities;
8. Private Sector; and
9. Civil Society.

The development and publication of the National Energy Policy 2019 would not have been possible without the generous financial and technical assistance of the European Union (EU). The Ministry of Energy is therefore, greatly indebted to EU for their vital assistance.



Trevor K. Kaunda
Permanent Secretary
MINISTRY OF ENERGY

WORKING DEFINITIONS

- Biofuel:** A wide range of liquid and gaseous fuels derived from biomass including liquid fuel ethanol and biodiesel, as well as biogas which can be combusted in vehicle engines as transport fuels and in stationary engines for motive power, heat and electricity generation.
- Biogas:** A gaseous mixture consisting mainly of methane and carbon dioxide produced by the anaerobic decomposition of organic matter.
- Biomass:** An organic matter such as wood fuel (firewood and charcoal), agricultural wastes, forestry wastes, industrial/municipal organic waste, energy crops and products and animal waste that is available for conversion into energy.
- Coal:** A combustible black or dark brown rock consisting chiefly of carbonized plant matter, found mainly in underground seams and used as fuel.
- Cost reflective tariffs:** Tariffs set to recover all the allowable costs of each regulated and licensed activity. “Allowable costs” in this case means all operating costs reasonably incurred, all capital costs prudently invested, and a fair rate of return on used and useful utility assets.
- Distribution:** Transportation of electricity on a distribution system for delivery to a consumer.
- Electricity:** Electrical energy produced by physical sources of energy such as hydro-power, wind power, solar power, petroleum, coal, biomass, nuclear energy or any other source.
- Energy Conservation:** The sustainable management and use of energy resources for their inherent value and for the benefit of society, bearing in mind that future generation have as much a right to these resources as our own.

Energy Efficiency:	Measures (practices, efficient devices & appliances, regulatory e.g. labelling and codes) undertaken to reduce the losses in generation, transmission and distribution networks on the supply side and to reduce the consumption of energy in demand sectors that include household, industry and commerce.
Energy:	Any source of electrical, mechanical, thermal, nuclear or chemical power for any use.
Gel Fuel:	An energy source obtained from ethanol.
Generation:	The process of converting energy into electricity and or useful heat from a primary energy source such as wind, solar radiation, natural gas and biomass.
Geothermal Energy:	Energy available as heat emitted from within the earth's crust, usually in form of hot water steam.
Grid:	A system of high-tension cables by which electrical power is distributed through a region.
Hydropower:	Electricity generated from the potential energy of water captured when moving from higher to lower elevations.
Installed capacity:	The maximum aggregate capacity of the plant that generate, transmit or distribute electricity.
Large Hydropower	Any hydropower station with a minimum output above 20MW.

Open Access Regime:	The possibility for any party selling or buying electricity to use transmission and distribution systems without discrimination, subject to transparently formulated security system constraints.
Petroleum:	A liquid mixture of hydrocarbons (crude oil) which is present in suitable rock strata and can be extracted and refined to produce fuels including petrol, paraffin and diesel.
Power:	The rate at which energy is converted per unit of time, expressed in watts.
Renewable Energy:	Non-fossil sources of energy capable of use for the generation of electricity including wind, solar, hydro, bio-mass and geothermal.
Small Hydropower	Any hydropower station with the maximum output up to 20MW.
Solar Energy:	Energy irradiated from the sun to the earth for thermal applications and electricity generation.
Transaction Documents	Legal documents relevant to facilitate investment in the energy sector which may include: Implementation Agreements, Power Purchase Agreements, Connection Agreements and Supply Contracts.
Transmission:	Transportation of electricity from the source of electricity production on a transmission system for delivery to distribution network service providers and final consumers.
Uranium:	Chemical element of atomic number 92, a dense grey radioactive metal used as a fuel in nuclear reactors.
Wind Energy:	Kinetic Energy of wind exploited for electricity generation in wind turbines.

ACRONYMS

EE	Energy Efficiency
ERB	Energy Regulation Board
ESCO	Energy Service Companies
GJ	Gigajoules (10^9 Joules) unit of energy
GW	Gigawatt (10^9 Watts) unit of electric power
kWh	kilowatt hour
M ²	Square Meter
MOE	Ministry of Energy
MT	Metric Tonne
MTOE	Million Tonnes Oil Equivalent
MW	Megawatt (10^6 Watts) unit of electric power
NDC	Nationally Determined Contributions
NDP	National Development Plan
NEP	National Energy Policy
OPPI	Office for Promoting Private Power Investment
PPP	Public Private Partnership
RE	Renewable Energy
REEESAP	Renewable Energy and Energy Efficiency Strategy and Action Plan
SADC	Southern African Development Community
TAZAMA	Tanzania Zambia Mafuta
ZABS	Zambia Bureau of Standards

CHAPTER ONE

INTRODUCTION

Energy is the largest commodity market in the world and it is increasingly important that it is sustainably managed. A robust National Energy Policy is key in facilitating increased access to energy services. Zambia aspires to be a prosperous middle-income country by 2030. This will require the supply of energy services to Zambians as an input to their productive activities. The NEP 2008 while well-conceived, is no longer adequate for the changing circumstances in the energy sector in Zambia. Therefore, responding to different development needs will require a sound energy policy that will build on the lessons learnt during the implementation and utilization of the NEP 2008.

The opportunities in the management of the supply and utilisation of energy in Zambia at present and into the future are abundant. The NEP 2019 will guide Ministries and Institutions in the Zambian economy to meet the challenges of achieving access to reliable, sustainable and affordable energy services. The Policy provides guidance for the continued development of the energy sector essentially on the security, affordability, supply and utilisation of energy. The NEP 2019 is in line with the political, economic, social, technological and environmental changes that have occurred in the past decade.

The NEP 2019 is divided into six chapters. Chapter One covers the introduction, while Chapter Two provides a critical Situation Analysis. The Third Chapter outlines the vision, rationale for the Policy and underlying guiding principles. Chapter Four provides strategic objectives and an outline of the measures for achieving the set objectives. Lastly, Chapter Five provides the implementation framework based on institutional and legal frameworks, resource mobilisation and financing and the Monitoring and Evaluation of the implementation of the policy and assessment of its impacts.

CHAPTER TWO

SITUATION ANALYSIS

2.1 Institutional Arrangements

According to Gazette Notice No. 6526 of 2016, the Ministry of Energy is responsible for the development and management of the energy sector. However, several Government Ministries play a major role in the sector as follows:

- (a) The Ministry of Finance is responsible for mobilisation and allocation of financial resources for energy projects;
- (b) Ministries of Water Development, Sanitation and Environmental Protection, Lands and Natural Resources are responsible for allocation of water permits for hydro power and environmental impact assessments, provision of land rights for energy projects, wood fuel regulations and ensure that climate change is mainstreamed in energy programmes;
- (c) Ministry of Local Government is responsible for the management of waste;
- (d) Ministry of Mines and Mineral Development is responsible for exploration and extraction of hydrocarbons and geothermal;
- (e) Ministry of Agriculture is responsible for crop production which is used for biofuels;
- (f) Ministry of Transport and Communication is responsible for providing Metrological data which is used in the development of energy projects especially wind and solar projects. In addition, the Ministry also regulates transportation of petroleum products and energy equipment;
- (g) Ministry of Higher Education is responsible for scientific research;
- (h) Ministry of Commerce, Trade and Industry is responsible for facilitating investment and incentives through the Zambia Development Agency and standards setting; and
- (i) Ministry of Housing and Infrastructure Development is responsible for building codes and the construction of energy infrastructure such as fuel depots and oil pipelines.

Considering the multiplicity of players in the sector, coordination of programmes is achieved through the 7NDP clusters on Economic Diversification and Job Creation and Reducing Development Inequalities. Further, in the recent past, Government has created ad-hoc Inter-Ministerial Committees to deal with specific challenges and emerging issues that have arisen in the sector. In view of the numerous actors in the sector, coordination has remained a challenge and has affected service delivery and efficiency levels.

The Energy sector comprises both public and private actors. The Ministry of Energy supervises the following statutory bodies: Energy Regulation Board (ERB); Zambezi River Authority (ZRA); and Rural Electrification Authority (REA). The Ministry also provides guidance to the following State-owned enterprises: Indeni Petroleum Refinery Company Limited; Tanzania Zambia Mafuta pipelines Limited (TAZAMA); and ZESCO Limited. However, Indeni Petroleum Refinery Company Limited and ZESCO Limited now fall under the Industrial Development Corporation (IDC), a share-holding arm of the Government. This set-up poses overlapping mandates between the Ministry of Energy and IDC in supervision of INDENI and ZESCO. Apart from this supervisory role, the Ministry coordinates all other actors in the sector.

Further, in order to promote private sector participation, the Office for Promoting Private Power Investment (OPPI) has been established under the Ministry. The following section presents the narrative of the statutory bodies and State-owned enterprises related to the energy sector.

2.1.1 Energy Regulation Board

The Government established the Energy Regulation Board through the Energy Regulation Act CAP 436 of the Laws of Zambia as amended in 2003. The Board's mandate is to regulate the energy sector through: issuance of licenses to undertakings; monitoring the efficiency and performance of undertakings; receiving and investigating complaints; approval of location and construction of energy infrastructure; price adjustments of energy services and products; and development of standards codes, guidelines and other regulatory interventions.

As stated above, the ERB has the mandate of ensuring effective regulation of the sector. However, its legal framework does not adequately enable the effective regulation of the sector. It is also unable to balance the interests of consumers and licensees, thus, failing to adequately offer protection of consumers. In addition, the legal framework has no provision for the Board to create a holistic Energy Fund to enable it respond to current challenges in the sector.

The ERB licensing functions significantly depend on other prior regulatory approvals from other statutory bodies and agencies such as Water Resource Management Authority (WARMA), National Heritage Conservation Commission (NHCC), Zambia Environmental Management Agency (ZEMA), Zambia Development Agency (ZDA) and Department of Lands. However, there is limited collaboration among institutions in the sector. This has

contributed to lengthy licensing processes and increased cost of doing business for the private sector.

2.1.2 Zambezi River Authority

The Zambezi River Authority is jointly owned by Zambia and Zimbabwe on a 50-50 basis and was established through the Zambezi River Authority Act No. 17 of 1987 which was simultaneously enacted in both countries. The main function of ZRA is to manage the water in the Kariba Dam. The Authority is responsible for the operation and maintenance of Kariba Dam Complex, investigation and development of new dam sites on the Zambezi River and analyzing and disseminating hydrological and environmental information pertaining to the Zambezi River and Lake Kariba.

2.1.3 Rural Electrification Authority

In order to accelerate electricity access in rural areas, Government established the Rural Electrification Authority (REA) through the enactment of the Rural Electrification Act No. 20 of 2003. The mandate of REA is to provide electricity infrastructure to rural areas of Zambia using appropriate technologies.

The access rate for grid connected households stands at 4.4 percent while an additional 7.4 percent are connected to solar home systems. There is limited participation of the private sector in the provision of electricity in rural areas, where 60 percent of the populace reside. In addition, there is no mechanism to coordinate players in rural electrification especially in the off-grid space. Further, the Authority is faced with the challenge of inadequate funding to fulfil its mandate.

2.1.4 ZESCO Limited

ZESCO Limited is a vertically integrated power utility and is responsible for generation, transmission, distribution and supply of electricity in the country. The company is the dominant participant in the electricity market in Zambia. Its generation capacity stands at 2,348 Mega Watts (MW) with customer base of 1,000,000 as at the end of the third quarter of 2019. In 2000, Government embarked on a commercialization program for ZESCO with the aim of making the company financially viable. However, the commercialization of ZESCO has not been fully attained largely due to non-cost reflective tariffs.

In addition, the Single Buyer Model has contributed to ZESCO's challenges as it compels the company to purchase all power produced by Independent Power Producers (IPPs). In order to address the challenges that the company is encountering, the Government has embarked on electricity sector reforms.

2.1.5 INDENI Petroleum Refinery Ltd

The INDENI Petroleum Refinery is wholly owned by the Zambian Government through the Industrial Development Corporation (IDC) and has a design capacity to refine 1.1 million Metric Tonnes (MT) per annum. However, the current average operating capacity is 720, 000 MT. This is insufficient to meet national petroleum demand as it accounts for 40 percent of the country's petroleum requirements with the rest being imported as finished petroleum products. Further, the refinery is unable to refine pure crude oil and instead processes commingled feedstock consisting of a crude base, diesel and naphtha. In addition, due to its current configuration, the refinery is unable to produce cleaner fuels such as low sulphur content diesel.

2.1.6 TAZAMA Pipelines Limited

TAZAMA is jointly owned by Zambia and Tanzania through a shareholding structure of 67 percent for Zambia and 33 percent for Tanzania. The Company is responsible for transporting commingled crude oil through the 1,710-Km pipeline from Dar-es-Salaam in Tanzania to Ndola in Zambia. The company is also responsible for storage and marketing of finished petroleum products. However, TAZAMA faces challenges of limited output to meet the national demand of petroleum products as well as inadequate funding to rehabilitate and upgrade the ageing infrastructure.

2.1.7 Office for Promoting Private Power Investment

The Office for Promoting Private Power Investment (OPPPI) was established in 1998 by Government in order to promote private sector participation in the development of power in the country. Its mandate is to coordinate the development and implementation of projects by the private sector. The OPPPI coordinated the implementation of projects such as the 300 MW Maamba Coal Fired Power Plant, 120 MW Itezhi-Tezhi Hydroelectric Power plant, 750 MW Kafue Gorge Lower Hydroelectric Power Project and the Zambia-Tanzania-Kenya Power

Interconnector Project. Currently the OPPPI is coordinating feasibility studies for a combined capacity in excess of 2000 MW, with some of the projects currently at the stage of Power Purchase Agreement negotiations.

Despite the various measures and interventions by Government, most of the projects being undertaken have stalled and failed to reach financial close mainly due to the low tariffs that have been found inadequate and unsustainable to guarantee return on investment by the respective developers. Other factors that have contributed to low investment in power developments are bureaucratic processes that govern the issuance of licenses, permits and approvals administered by various Government agencies.

2.2 Legal Framework

The energy sector is currently governed by four (4) major statutes namely: The Energy Regulation Act; the Electricity Act; the Petroleum Act; and the Rural Electrification Act. The Energy Regulation Act established the Energy Regulation Board, as a body corporate, whose primary role is to license entities that intend to produce energy. The Electricity Act provides for the regulation of generation, transmission, distribution and supply of electricity. The Petroleum Act provides for the importation, conveyancing and storage of petroleum and other inflammable oils. The Rural Electrification Act established the Rural Electrification Authority whose primary role is to provide electricity to rural areas of Zambia.

Notwithstanding the foregoing, the legal framework has inherent deficiencies such as the following:

- (a) There is no provision for the Multi-Year tariff regime which is meant to provide a cost reflective and yet predictable and consistent tariff framework;
- (b) The regulator lacks powers to set, determine, approve and review non-retail tariffs;
- (c) It has no powers to regulate Power Purchase Agreements and Power Supply Agreements including applicable tariffs by the regulator;
- (d) The regulator has no powers to establish and maintain a sector Fund in which resources are contributed by energy market actors;
- (e) The legal framework for the regulator is solely focused on licensing at the expense of effective enforcement of regulations;

- (f) There is no legal framework for importation and sale of power in emergency situations and the incidental determination of what amounts to emergency situations;
- (g) There is no provision to empower REA to coordinate and approve all rural electrification programmes by the private sector, civil society and other development partners;
- (h) There are no provisions enable the REA to engage in income generating activities; and
- (i) There is no provision to enable the Ministry through the OPPPI coordinate the undertaking of feasibility studies by the private sector.

2.3 Energy Sources

The primary sources of energy in Zambia are hydro, biomass, coal, wind, geo-thermal, solar, uranium, waste (including municipal solid and agricultural waste) and petroleum. Zambia is confronted with an increasing energy demand, resulting from demographic and socio-economic factors, at an average of 6 percent or 150-200 MW per annum.

2.3.1 Large Hydropower

Zambia has a hydropower potential in excess of 6,000MW out of which about 2,354MW has been developed. Hydropower dominates the electricity supply industry with up-to 80.8 percent. The large hydropower projects under feasibility studies are in excess of 2,800MW situated on the major rivers of Zambia. The major effect of hydropower generation is climate change.

2.3.2 Renewable Sources of Energy

The sources of renewable energy include solar, wind, geothermal, small hydro and biomass.

(a) Solar

Zambia has an average solar irradiation of 5.5kWh/m²/day with approximately 3,000 sunshine hours annually providing good potential for photovoltaic and solar thermal applications (including electricity generation, solar home systems, solar water pumping and solar water heating).

Solar power generation accounts for 3 percent of the total installed generation capacity. The level of investment in solar energy electricity generation has been low due to, *inter alia*, the

high cost of capital and inadequate regulatory frameworks for renewable energy systems that have caused uncertainties for investments.

(b) Wind

The wind resource regime in Zambia has an average wind speed of 6 meters per second measured at eighty metres (80m) above the ground. The available wind resource is sufficient for electricity production, water pumping for household use and irrigation. However, there is no power generation from wind energy at the moment because its development has been largely impeded by inadequate mechanisms to create an enabling environment and leverage private investment. Resource mapping has been undertaken to identify suitable sites and some developers are currently undertaking feasibility studies on selected sites.

(c) Geothermal

There are more than eighty (80) hot springs spread out in different parts of the country which indicate potential for geothermal for both power generation and direct applications such as agriculture (greenhouses), dairy industry, aquaculture and in the promotion of tourism products. However, there has been inadequate exploitation of this resource for electricity due to the high costs of exploration. Currently, one developer is exploring the development of geothermal in Lochinvar in Southern Province.

(d) Small hydropower

The contribution of small hydropower to the total installed electricity generation capacity is 1.5 percent. Government has recognized the important role small hydropower plays in rural electrification and the off-grid space where large hydropower and grid extension may not be economically and financially viable. The major factors that have impeded the development of small hydropower are economies of scale and long distances to load centres. However, many developers are undertaking feasibility studies for a number of sites located in many parts of the country.

(e) Biomass

Biomass is the predominant source of energy in Zambia accounting for more than 70 percent of total primary energy supply. The main forms and products of biomass include wood fuel (charcoal and firewood), biogas, pellets, briquettes, biofuels and gel fuel mainly used as a household fuel for cooking and heating.

Wood fuel is the most widely used fuel for cooking. Its utilisation is considered unsustainable because the harvest exceeds re-growth of biomass contributing to climate change and negative health effects. The high dependence on wood fuel is due to low access and also unreliable electricity supply, high cost of efficient alternatives, inadequate enforcement of legislation and coordination among key sector institutions.

(f) Waste to Energy

Zambia has potential to utilize waste to produce energy, electricity and other by-products. The forms of waste to be targeted may include but not limited to municipal solid waste, sewerage wastewater, agricultural crop residues, livestock manure or waste, wood chips or biomass and industrial waste. This potential has been identified and several private developers have expressed interest to undertake feasibility studies for Waste-To-Energy project in Zambia. The institutions responsible for the management of waste is the Ministry of Local Government through the local authorities.

2.3.3 Coal

The proven reserves of coal in Zambia are estimated to be over 30 million tonnes, mainly consumed by electricity, mining and commercial industries. The generation capacity from coal accounts for 10 percent of the total installed capacity. More exploration work is required to ascertain the quality and extent of the coal deposits for electricity generation. Production of electricity from coal is considered unclean and this poses a challenge in the mobilisation of financing for the projects. This resource has the potential to provide sustainable power and improve security of electricity supply.

2.3.4 Uranium

Zambia has large deposits of uranium which can be utilized for energy production. However, the utilization of uranium in Zambia has been limited to research, education, industrial and medical applications. There is no electricity generation from Uranium resource. Other than the high initial investment cost for development of nuclear power plants, investment in this sector has also been deterred by inadequate policy, legal and institutional frameworks governing the electricity sub-sector to implement the nuclear power programme.

2.3.5 Petroleum

Petroleum products contribute 9.4% to the total national energy demand. Zambia imports all its petroleum products i.e. petroleum feedstock and finished products. The imported feedstock is in the form of comingled crude oil which is pumped through the TAZAMA pipeline and refined at INDENI Petroleum Refinery in Ndola. The refined petroleum products are imported to supplement the INDENI production by road, and rail through private suppliers. The petroleum products are then distributed to various Government owned depots where Oil Marketing Companies uplift the finished products, distribute them to their own depots, service stations and commercial customers.

Established infrastructure for petroleum import and processing include the 1,710-kilometre TAZAMA pipeline, jointly owned by Zambia (as major shareholder) and Tanzania which runs from Dar es Salaam in Tanzania to Ndola and INDENI Petroleum Refinery with a design capacity of 1.1 million tonnes per annum. Other facilities are Bulk Fuel Depots as shown in Table 1 below:

No.	Description	Capacity (Million Litres)
1.	Ndola Fuel Terminal	110
2.	Lusaka Fuel Depot	25
3.	Solwezi Fuel Depot	15.5
4.	Mpika Fuel Depot	6.5
5.	Mongu Fuel Depot	6.5
6.	Mansa Fuel Depot	6.5
Total		170

Table 1: Provincial Bulk Fuel Depot capacities

In order to augment the petroleum supply, Government is promoting the use of Biofuels in the transport sector. Biofuel production is considerably lower with one commercial producer registered to date. Mandatory blending ratios versus demonstrated capacity to produce, delays in agreeing producer prices, industry incentives across the value chain as well as lack of blending facilities are factors delaying increased investment in biofuels.

The Petroleum sub-sector is faced with the challenges relating to fluctuations in the international oil prices; fluctuations in the exchange rate of the Zambian kwacha against major

trading currencies; overdependence on imported petroleum products and inadequate petroleum storage and transportation infrastructure.

2.4 Energy Scenario in Zambia

Zambia’s total population is expected to grow from 17.9 million in 2019 to 26.9 million by 2035 leading to an increase in the demand for energy services. The energy sector therefore needs to put in place measures and interventions to meet the future demand.

2.4.1 Electricity

The installed generation capacity in Zambia is 2,976.3 MW. The installed capacity comprises of 80.8 percent of hydro, 10 percent of coal, 3.5 percent of heavy fuel oil, 2.7 percent of diesel and 3 percent solar PV as of September 2019 as shown in Figure 1 below.

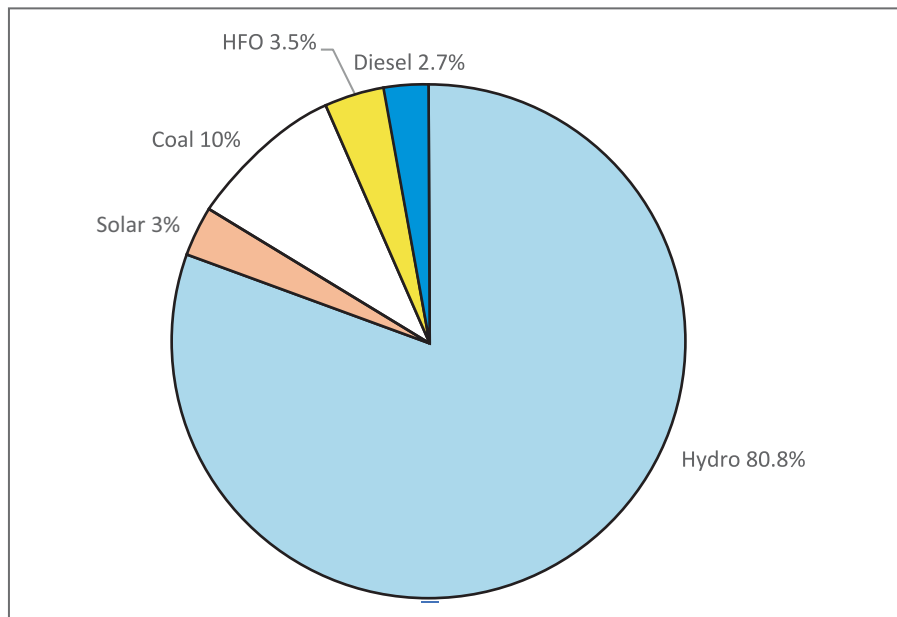


Figure 1: Electricity Generation

The Mining Sector is the largest consumer of electricity with an estimated 51.1 percent while the consumption for the domestic sector stands at 33.2 percent. Figure 2 shows the consumption of electricity by sector.

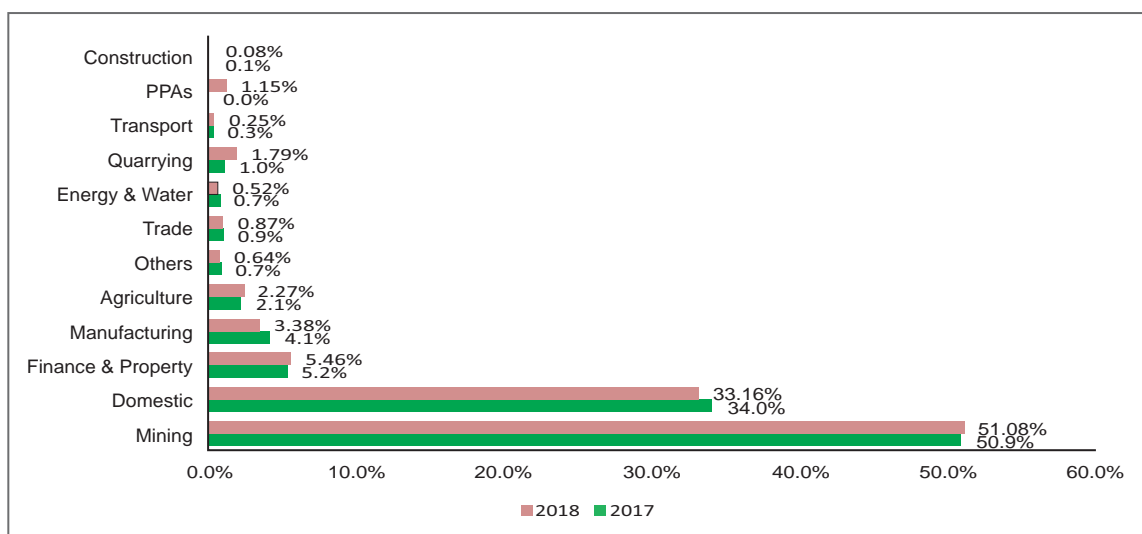


Figure 2: Electricity Consumption by Economic Sub-Sector, ERB Statistical Bulletin 2018.

At household level, an estimated 67.3 percent of households in urban areas and about 4.4 percent of households in rural areas have access to electricity, translating into 31.4 percent at national level. Measuring access has been a challenge due to the absence of an agreed framework for measuring energy access. In addition, the government recognises that the current electrification approach faces several challenges and needs to be reviewed to make it more sustainable if the country is to achieve the desired electrification goals. A planned, systematic approach is necessary for effective implementation of access for all.

With regards to biomass, 84.5 percent of rural households use firewood for cooking, followed by charcoal at 13.2 percent of households. In urban areas, most households use charcoal for cooking at 59.1 percent, and firewood at 6 percent.

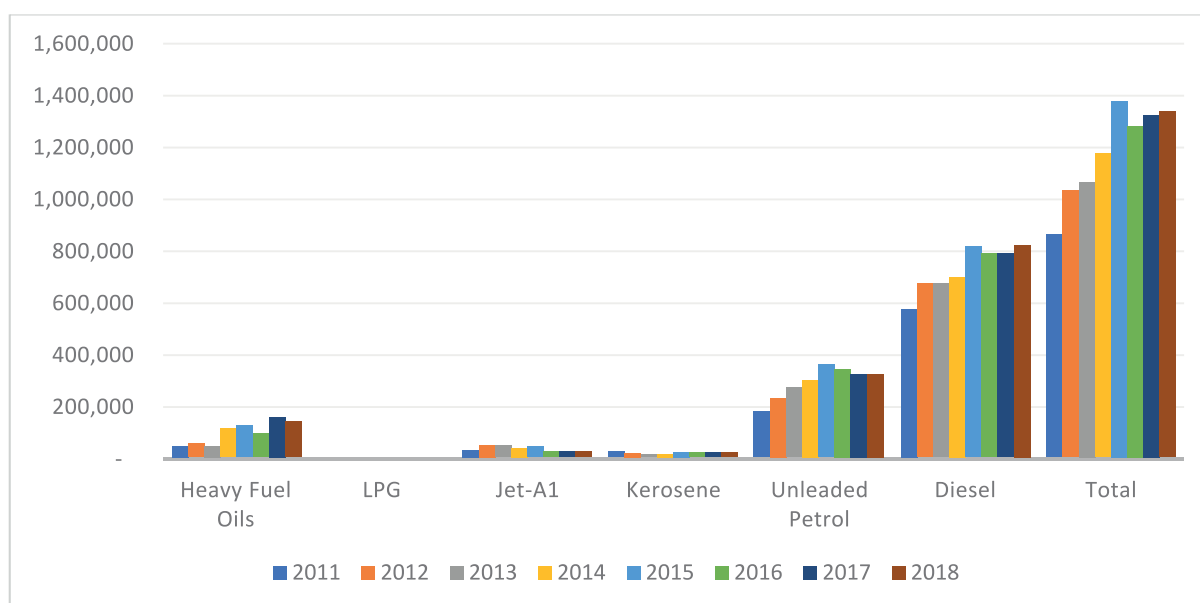
2.4.2 Petroleum

The national consumption of petroleum consists of heavy fuel oils, liquified petroleum gas, jet-A1, kerosene, unleaded petrol and diesel.

In 2018, the consumption of diesel increased by 3.7 percent from 794,485 MT (945,816 m³) in 2017 to 823,822 MT (980,740 m³). Diesel being a major input in the production of copper, this growth was in line with the recorded increase in mining output. According to the Zambian Chamber of Mines, copper production increased by 7.8 percent from 799,329 MT in 2017 to 861,946 MT in 2018.

The second most consumed product in the hierarchy was petrol at 327,029 MT (436,039 m³) from 325,940 MT (434,587 m³) in 2017. The consumption in 2018 reflected a marginal increase of 0.33 percentage points compared to 2017. The consumption of LPG increased from 4,719 MT in 2017 to 7,006 MT in 2018 representing 48.5 percent. The increase in LPG was triggered by the increase in local demand due to most consumers using it as an alternative source of energy. Similarly, the consumption of Jet A-1 increased by 4.0 percent from 26,070 MT (32,792 m³) in 2017 to 27,106 MT (34,095 m³) in 2018.

Meanwhile, the consumption of HFO decreased by 10.6 percent from 161,766 MT in 2017 to 144,610 MT in 2018. The reduction was mainly as a result of the supply constraint of HFO from INDENI. Similarly, there was a 5.6 percent reduction in the consumption of kerosene from 16,242 MT (20,430 m³) in 2017 to 15,355 MT (19,289 m³) in 2018.



	Heavy Fuel Oils	LP	Jet-A1	Kerosene	Unleaded Petrol	Diesel	Total
2011	49,461	2,424	32,593	19,898	182,123	577,836	864,335
2012	60,222	658	49,477	14,669	234,224	675,756	1,035,006
2013	50,793	3,021	49,613	12,315	275,604	676,078	1,067,424
2014	116,821	3,680	38,049	13,776	304,562	700,577	1,177,465
2015	129,149	3,230	44,160	18,300	366,524	818,418	1,379,781
2016	97,881	2,742	27,237	16,045	347,266	791,277	1,282,448
2017	161,766	4,719	26,070	16,242	325,940	794,485	1,329,222
2018	144,610	7,006	27,106	15,355	327,029	823,822	1,344,908

Figure 3: Trend in national consumption by fuel type, 2011-2018

2.5 Energy Efficiency (EE) and Conservation

Zambia is implementing energy efficiency initiatives which include promotion of efficient utilisation of energy services and switching to other alternative types of energy sources and technologies. Specific efforts have been on the development of energy performance standards developed for lighting, lamps, electric motors, and solar water heaters. However, these efforts need to be well coordinated and extended to other energy services. The absence of dedicated instruments such as building codes, and Minimum Energy Performance Standards has affected adoption of EE and conservation.

2.6 Energy Financing

The sector has four (4) funding mechanisms namely: Rural Electrification Fund (REF); Strategic Reserves Fund (SRF); Uniform Petroleum Pricing (UPP); and Electricity Fund (EF).

The REF was established in 1994, by committing the sales tax on electricity where a levy of 3.45 percent on electricity consumption was introduced. The fund was created to supplement the national budget on capital expenditure for rural electrification. The SRF was introduced to stabilize the price of fuel, manage, rehabilitate and construct petroleum storage facilities as well as emergencies in the petroleum sub-sector. The UPP mechanism was introduced in 2010, in order to equalise the prices of petroleum products throughout the country. It is a self-financing mechanism where Oil Marketing Companies (OMCs) contribute and claim from the Fund depending on their distance from the Bulk Fuel Depots. The EF was created to finance power purchases, infrastructure development and emergencies in the electricity sector. Given the foregoing, it could be noted that the utilisation of financial resources from each fund is restricted to the objective for setting it up, and as such does not provide for financing of other activities even in emergency situations.

2.7 Energy Pricing

Historically, Zambia has had one of the lowest electricity tariffs in the region and efforts to migrate towards cost reflective tariffs have achieved less success. Bulk trade of electricity is determined by bilateral contracts negotiated between the parties involved and is subject to approval by the ERB. There has been low participation of private players in the energy sector due to low tariffs that are not cost reflective. This situation inhibits developers from signing Power Purchase Agreements with ZESCO Limited, who is the preferred off-taker. In order to meet the growing electricity demand, ZESCO has in the recent past procured power from

independent power producers at a higher tariff than the average selling tariff. This tariff gap has generated unsustainable annual losses for ZESCO.

With respect to petroleum products, the pricing uses the Cost-Plus Model (CPM) which takes into account all the costs that go into the entire petroleum supply chain. The pricing formula includes the refinery, Gate Cost, government taxes, ERB fees, fuel levy, transport and Oil Marketing Company (OMC) dealer margins.

2.8 Research and Development

The existing policy framework and environment enables the energy sector research initiatives to be conducted by various institutions and individuals. Energy sector research in Zambia is mostly influenced by international and local trends. There are several institutions undertaking energy sector research and development. However, the institutions face several challenges which include among others inadequate funding, inadequate coordination mechanisms and limited capacity for technical or specialised research.

2.9 Mainstreaming Issues

The impacts of climate change are adversely affecting Zambia where rainfall patterns are no longer predictable and the power generation from hydropower has been compromised. As a result, the Government is undertaking various initiatives aimed at mitigating the impact of climate change which include but not limited to: diversification of electricity sources; efficient management of forests; and promotion of climate smart agricultural practices.

In respect to gender, the majority of citizens depend on wood and charcoal for basic energy needs such as cooking and heating. Most households rely on locally sourced biomass for their daily energy needs. Hence, they are increasingly vulnerable to biomass and energy scarcities. In addition, energy is very sensitive to gender in that most women, especially in rural communities, devote most of their productive time collecting firewood to prepare a meal for their family.

Health and wellness matters are correlated to the developments in the energy sector. If inadequate measures are put in place, negative impacts including the following may manifest:

- (a) electrocutions arising from vandalism of electricity infrastructure and lack of adequate personal protection equipment;

- (b) respiratory illnesses as a result of exposure to smoke from traditional cook stoves and open fires and illegal fuel vending;
- (c) fire hazards from illegal storage of fuel; and
- (d) Back aches in women in collection of wood fuel.

It is envisaged that the NEP 2019 will provide comprehensive guidance to all stakeholders in the effective development and management of the energy sector for the benefit of the citizens.

CHAPTER THREE

VISION, RATIONALE AND GUIDING PRINCIPLES

3.1 Vision

“Universal access to clean, reliable and affordable energy at the lowest total economic, financial, social and environmental cost consistent with national development goals by 2030”.

3.2 Rationale

Government has been implementing the NEP 2008 which expired in 2018. The Policy played an important role in providing guidance in the energy sector. The Policy endeavoured to attain overall macro-economic policy objectives of sustainable energy development and the creation of a market environment promoting increased private sector participation.

Over the years, dynamics and emerging issues in the energy sector, effects of climate change and advances in technology have necessitated the development of the NEP 2019. The Policy therefore,

- (a) responds to emerging market dynamics in the energy sector;
- (b) promotes the provision of reliable, accessible and affordable energy as a building block to reduce poverty and facilitate expansion of businesses;
- (c) promotes the implementation of cost reflective tariff mechanisms in the pricing of energy services in order to promote investment;
- (d) re-aligns the various institutional mandates to enable the institutions respond to the changes that have occurred in the energy sector;
- (e) streamlines the various regulatory instruments in the energy sector to enhance service delivery and access to quality energy;
- (f) encourages the multiplicity of players in the energy market through appropriate institutional and legal frameworks;

- (g) reaffirms the mainstreaming of gender as a critical tool for promoting efficient allocation of resources and promoting equity;
- (h) reaffirms the commitment for the establishment of adequate measures aimed at promoting sustainable energy development in an environmentally friendly manner.
- (i) promotes alternative energy sources and technologies for increased provision of clean and efficient energy services; and
- (j) enhances consumer rights in order to protect the consumer from exploitation.

3.3 Guiding Principles

The NEP 2019 will be guided by the following national values and principles:

Morality and Ethics:	In implementing the Policy, the Government will ensure that the energy resource is exploited and utilised in an ethical manner. It will also ensure that the players in the market uphold morality and ethics in conducting their business.
Patriotism and National Unity:	Patriotism and national unity are a cornerstone for social-economic development. Infrastructure in the energy sector is very key to ensure efficient delivery of services. The sector over the years has seen vandalism of key energy sector infrastructure. The Public will have to exercise patriotism and national unity so as to ensure ownership of infrastructure.
Social Justice:	In implementing the Policy, the Government will ensure that it protects the vulnerable groups in society.
Equality and non-discrimination:	The Government will endeavour not to discriminate in the provision of energy services.
Accountability:	All stakeholders in the energy sector should be able to explain and account for their actions as well as be open to subject themselves to scrutiny. Government will ensure that all actors will provide information on services offered in the sector.

CHAPTER FOUR

POLICY OBJECTIVES AND MEASURES

4.1 Overall Objective

The overall objective of the NEP 2019 is to achieve an optimal energy resources utilization to meet Zambia's domestic and non-domestic needs at the lowest total economic, financial, social, environmental and opportunity cost and establish Zambia as a net exporter of energy.

4.2 Policy Objectives and Measures

The NEP 2019 pursues the following specific objectives and related policy measures:

4.2.1 Institutional Arrangement

Objective 1. To strengthen institutional capacity in the energy sector in order for them to be more responsive to the energy needs of the country.

Policy Measures

- 1.1 Enhance human resource capacity in the energy sector;
- 1.2 Establish coordination mechanisms for institutions in the energy sector.
- 1.3 Facilitate and promote capacity building for private sector institutions;
- 1.4 Decentralize energy institutions; and
- 1.5 Facilitate the establishment and management of the energy fund.

4.2.2 Regulatory Frameworks

Objective 2. To strengthen regulatory frameworks in order to be more responsive to the energy needs of the country.

Policy Measures

- 2.1 Strengthening the mandate of the Energy Regulator;
- 2.2 Establish the regulatory frameworks for off-grid systems;
- 2.3 Strengthen and harmonise standards with regional and international regulations and conventions where appropriate; and
- 2.4 Facilitate the adoption of the Open Access Regime in the country.

4.2.3 Efficient Use of Energy Resources

Objective 3. To promote efficient use of energy resources in order to conserve natural resources for the benefit of future generations.

Policy Measures

- 3.1 Identify, define and promote energy efficient technologies;
- 3.2 Promote the use of energy efficient technologies; and
- 3.3 Develop a framework to regulate the importation and use of energy efficient technologies.

4.2.4 Sustainable Exploitation of Biomass

Objective 4. To promote sustainable exploitation of biomass and alternative energy to wood fuel resources in order to increase socio-economic development.

Policy Measures

- 4.1 Promote efficient and sustainable exploitation of biomass for household utilization;
- 4.2 Promote the use of alternatives to wood fuel;
- 4.3 Promote biofuels in the national fuel mix; and
- 4.4 Ensure that the use of biofuels for the energy market is given priority without compromising food security.

4.2.5 Exploitation of Renewable Energy

Objective 5. To increase exploitation of renewable energy in order to diversify the energy mix.

Policy Measures

- 5.1 Strengthen institutional capacity for research in renewable energy;
- 5.2 Enhance coordination among key stakeholders for effective implementation of renewable energy technologies; and
- 5.3 Promote wider usage of renewable energy technologies.

4.2.6 Access to Electricity

Objective 6. To increase access to electricity in order to improve the livelihoods of citizens.

Policy Measures

- 6.1 Expand generation, transmission and distribution capacity;
- 6.2 Increase access to electricity in rural areas

4.2.7 Petroleum Products

Objective 7 To ensure adequate, reliable and affordable supply of petroleum products and natural gas in order to increase security of supply of petroleum products.

Policy Measures

- 7.1 Enhance mechanisms for the development and effective management of the petroleum sub-sector;
- 7.2 Ensuring full capacity utilization of existing petroleum infrastructure;
- 7.3 Promote investments in the petroleum infrastructure;
- 7.4 Ensure the effective and efficient pricing of petroleum products;
- 7.5 Strengthen mechanisms aimed at ensuring uniform pricing of petroleum products across the Country; and
- 7.6 Petroleum Sub-Sector Infrastructure development.

4.2.8 Private Sector Participation

Objective 8. To promote private sector participation in the Energy Sector in order to ensure sustainable growth of the sector.

Policy Measures

- 8.1 Promote citizen owned entities in the development of the energy sector;
- 8.2 Ensure cost reflective pricing in the energy sector; and
- 8.3 Develop standardised Transaction Documents.

4.2.9 Innovation, Research and Development

Objective 9. To promote innovation, research and development in the energy sector in order to accelerate technological advances.

Policy Measures

- 9.1 Enhance the adaptation of innovation, research and development in all spheres of the energy sector;
- 9.2 Facilitate partnerships between research institutes and all stakeholders in the sector; and
- 9.3 Enhance institutional capacities to enable them conduct scientifically objective studies in the energy sector.

4.2.10 Gender, Climate Change, Health and Safety

Objective 10. To mainstream gender, climate change, and health and safety in the energy sector

Policy Measures:

- 10.1 Increase systematic mainstreaming of gender in the energy sector;
- 10.2 Increase systematic mainstreaming of climate change in the energy sector; and
- 10.3 Increase systematic mainstreaming of health and safety in the energy sector.

CHAPTER FIVE

IMPLEMENTATION FRAMEWORK

The realisation of the Vision, Strategic Objectives and Policy Measures set out in this Policy shall largely depend on the following implementation framework:

5.1 Institutional Arrangements

The effective implementation of the NEP 2019 will be achieved through collaborative efforts by all stakeholders at national, provincial and district levels as follows:

Cabinet Office:	Provide the overall leadership and guidance in the coordination and implementation of this Policy.
Ministry of Energy:	Oversee and ensure the effective implementation of measures stipulated in this policy nationwide
Ministry of Finance:	Ensure sufficient financial resources are allocated in the annual national budgets for the implementation of the policy.;
Ministry of National Development Planning:	Monitoring and Evaluating the overall implementation of the Energy Sector programmes.
Ministry of Justice:	Review and strengthen the legal framework to the energy sector ensuring, and not limited, provisions for emergency situations; open access regime; and establishment of Energy Fund.
Line Ministries	Support the implementation of this policy by ensuring that the activities outlined in this policy are budgeted for by the relevant line ministries in their annual budgets.

The Energy Regulation Board:	Monitor the efficiency and performance of licensees and enterprises in the energy sector as well as establishment and management of the Energy Fund.
Zambia Atomic Energy Agency:	Cause the formulation and implementation of the Nuclear Energy Policy.
Zambia Statistics Agency:	Coordinate the development of a comprehensive energy sector Statistical database.
Implementing Agencies:	These Agencies will develop and maintain energy infrastructure; comply with licence conditions; comply with Energy Infrastructure and quality standards; implement energy efficiency and conservation measures; ensure citizen participation in development initiatives; and utilize M&E findings to inform programme and resource allocation decisions.
• ZESCO Limited,	
• REA, ZRA,	
• TAZAMA,	
• INDENI.	
Local Authorities:	Facilitate provision of necessary facilities for development of energy sector.
Private Sector/Non-State Actors:	Support the implementation of energy sector activities outlined in this Policy.
Traditional Leaders and Local Communities:	Facilitate community consultations in implementation of on energy sector projects.
The Media:	Facilitate and disseminate information on energy plans, programmes and projects

5.2 Legal Framework

In accordance with the institutional arrangements as set up under the NEP 2019, the Government shall facilitate the review of various pieces of legislation, codes, regulations and guidelines relating to energy provision in order to develop an appropriate, broad-based and

comprehensive regulatory framework. The pieces of legislation which require review include but not limited to: the Electricity Act, Chapter 433 of the Laws of Zambia, the Energy Regulation Act, Chapter 436 of the Laws of Zambia, the Rural Electrification Act No. 20 of 2003 and the Petroleum Act Chapter 435 of the Laws of Zambia.

5.3 Resource Mobilisation and Financing

Implementation of the NEP 2019 will require adequate human, financial, material and technical resources. The Government shall have the primary responsibility of committing adequate financial resources for the implementation of the Policy. The Government will also establish the Energy Fund. This Fund will facilitate the development of the entire energy sector.

5.4 Monitoring and Evaluation

The implementation of this Policy shall be closely monitored to ensure that it is adequately institutionalised in line with its objectives. The Ministry of Energy shall develop and implement an Energy Sector Monitoring and Evaluation Plan to ensure effective monitoring and evaluation of the Policy.

The NEP 2019 shall undergo a mid-term review after five years and a final term review after ten years. The mid-term assessment shall focus on progress made in the implementation of the policy and assess the appropriateness of the overall strategic direction. It shall therefore be designed to inform the remaining period of the policy and recommend adjustments where need be. The final evaluation shall be undertaken after ten years and will focus on impact of the NEP 2019 implementation.

ANNEX: IMPLEMENTATION PLAN OF THE NATIONAL ENERGY POLICY 2019

POLICY MEASURES	ACTIVITIES	INDICATORS	IMPLEMENTATION YEARS						RESPONSIBLE UNIT	ESTIMATED COST (ZMW)
			2020	2021	2022	2023	2024	2025		
Objective1: To strengthen institutional capacity in the energy sector in order for them to be more responsive to the energy needs of the country.										
Enhance human resource capacity in the energy sector	Undertake gap analysis	Gap Analysis undertaken	x						MOE, ERB ZESCO, REA INDENI, TAZAMA, MDD	300,000
	Conduct benchmarking study in order to realign institutional mandates	Benchmarking Study undertaken	x						MOE, MDD	200,000
	Recruitment	Staff recruited		x					MOE, PSMD	100,000
	Training	Staff trained		x	x	x	x	x	MOE, PSMD	2,500,000
	Transformation of ERB to an authority	Authority established	x						MOE, ERB, MDD	200,000
	Re-engineering of OPPPI	OPPPI re-engineered	x						MOE, OPPPI, MDD	300,000
	Develop a client service charter	Client service charter developed	x						MOE	500,000
Establish coordination mechanisms for institutions in the energy sector.	conduct stakeholder mapping	Stakeholder Mapping conducted	x						MOE	100,000
	Establish an energy sector advisory committee	Energy sector advisory committee established	x						MOE	100,000
	Signing of MoUs	MOUs signed	x	x	x	x	x	x	MOE, ERB ZESCO, REA INDENI, TAZAMA	500,000
	Develop an integrated plan	Integrated plan developed	x	x	x	x	x	x	MOE, ERB ZESCO, REA INDENI, TAZAMA	200,000
	Develop a Management Information System to enhance coordination among stakeholders	Management Information System developed	x						MOE, SZI, MNDP	2,000,000

	Creating a one stop shop that streamlines processes for investment in the energy sector	One stop shop created		x						MOE, ERB, MLNR, ZEMA, NHCC, WARMA, MLG	1,000,000
	Sensitization on One stop shop	Sensitization conducted		x	x	x	x	x		MOE, MIBS	200,000
Facilitate and promote capacity building for private sector institutions	Conduct Gap Analysis	Report of Gap analysis	x							MOE, ERB ZESCO, REA INDENI, TAZAMA, PSMD, CPs, Private Sector	300,000
	Design and implement training Programs	Training Programs designed		x	x	x	x	x		MOE, ERB ZESCO, REA INDENI, TAZAMA, PSMD, CPs, Private Sector	2,500,000
	Hold Energy Symposiums	Symposiums conducted	x	x	x	x	x	x		MOE, ERB ZESCO, REA INDENI, OMCs, TAZAMA, Financial Institutions	12,000,000
Decentralize energy institutions	Establishing and building of offices in provinces	Offices established and built	x	x	x	x	x	x		MOE, MHID	250,000,000
	Procure operational vehicles	Vehicles procured		x						MOE	10,000,000
	Procure office equipment for provinces	Office equipment procured		x	x	x	x	x		MOE	2,000,000
To facilitate the establishment and management of the energy fund	Review existing energy funds	Energy funds reviewed	x							MOE, ERB ZESCO, REA INDENI, TAZAMA, MOF	100,000
	Harmonise the various funds	Funds Harmonized	x							MOE, ERB ZESCO, REA INDENI, TAZAMA, MOF	Neutral
	Amend all relevant laws	Laws amended	x	x						MOE, ERB ZESCO, REA	2,000,000

									INDENI, TAZAMA, MOJ, MOF, CABINET OFFICE	
	Create the energy fund	Energy Fund Established		x					MOE, ERB ZESCO, REA INDENI, TAZAMA, MOF	1,000,000
	Create a permanent committee for management of Energy Fund	Energy fund committee established	x						MOE, ERB ZESCO, REA INDENI, TAZAMA, MOF	100,000
	Prepare Regulations for management of energy funds	Regulations formulated and adopted	x						MOE, ERB ZESCO, REA INDENI, TAZAMA, MOJ, MOF, CABINET OFFICE	1,500,000

POLICY MEASURES	ACTIVITIES	INDICATORS	IMPLEMENTATION YEARS						RESPONSIBLE UNIT	ESTIMATED COST (ZMW)
			2020	2021	2022	2023	2024	2025		
Objective2: To strengthen the energy sector regulatory frameworks in order to be more responsive to the energy needs of the country.										
Strengthening the mandate of the Energy Regulator	Review and amend the Energy Regulation Act Cap 436 of 2003	Energy Regulation Act of 2003 reviewed and amended	x						MOE, ERB ZESCO, REA	Neutral
	Review and amend the Electricity Act Cap 433 of 2003	Electricity Act of 2003 reviewed and amended	x						MOE, ERB ZESCO, REA	Neutral
	Review and amend the Rural Electrification Act of 2003	Rural Electrification Act of 2003 amended	x	x	x				MOE, ERB ZESCO, REA	2,000,000
	Review and amend the Petroleum Act Cap 435	Petroleum Act reviewed and amended	x	x					MOE, ERB ZESCO, REA	1,000,000
	Prepare a Statutory Instrument to enforce a life-line tariff for electricity to protect low income households	SI enacted	x	x					MOE, ERB ZESCO, MOJ	50,000
	Undertake sensitization on energy sector legislation	Sensitization Undertaken	x	x	x	x	x	x	MOE, ERB ZESCO, REA	2,000,000
Establish the regulatory frameworks for off-grid systems;	Conduct assessments of existing regulations	Resource assessments conducted	x						MOE, ERB, ZESCO, REA, CPs, Private Sectors	500,000
	Develop Regulations	Regulations developed		x					MOE, ERB, ZESCO, REA, CPs, MOJ, Private Sectors	500,000

	Implement and enforce regulations	Regulations implemented and enforced		x	x	x	x	x	ERB	1,000,000
Strengthen and harmonise standards with regional and international regulations and conventions where appropriate	Undertake Comparative studies to benchmark	Benchmark Studies undertaken	x	x	x				MOE, ERB, ZESCO, ZABS, REA	2,000,000
	Adopt relevant standards and conventions	Standards adopted		x	x	x	x	x	MOE, ERB, ZESCO, REA, ZABS	1,600,000
	Prepare a Statutory Instrument for enforcement of standards	SI enacted		x	x	x	x	x	MOE, ERB, ZESCO, REA, ZABS	
	Undertake sensitization and awareness campaigns	Awareness campaigns undertaken		x	x	x	x	x	MOE, ERB, ZESCO, REA, ZABS	5,000,000
	Implement and enforce of standards	Standards implemented and enforced		x	x	x	x	x	ERB, MOE, ZABS, ZCSA	1,000,000
Facilitate the adoption of the open access regime in the country	Review the relevant regulatory framework on open access regime	Regulations drafted	x						ERB, MOE	50,000
	Undertake consultations with stakeholders on open access regime	Consultations Undertaken	x						MOE, ERB, ZESCO, MOJ	200,000
	Amend the Regulations	Regulations amended	x	x					MOE, ERB, MOJ	250,000
	Establishment of a system operator	System Operator established	x						MOE, ERB	NEUTRAL
	Enforce the Regulations	Regulations enforced		x	x	x	x	x	ERB, MOE	1,000,000
	Undertake an awareness campaign on open access regime	Awareness campaign conducted	x	x	x	x	x	x	MOE, ERB, ZESCO	2,000,000

POLICY MEASURES	ACTIVITIES	INDICATORS	IMPLEMENTATION YEARS						RESPONSIBLE UNIT	ESTIMATED COST (KW)	
			2020	2021	2022	2023	2024	2025			
Objective 3. To promote efficient use of energy resources in order to ensure sustainability											
Promote the use of energy efficient technologies.	Undertake consultative meetings to review existing testing facilities and guidelines.	Consultative meetings held	x							MOE, ERB, ZEMA, CPS, ZCSA and ZABS	120,000
	Develop and implement guidelines for testing quality and efficiency of energy technologies	Guidelines developed	x	x	x	x	x	x		MOE, ERB, ZCSA,ZRA and ZABS	1,000,000
	Facilitate acquisition of testing equipment	Equipment procured	x	x						MOE, ERB, ZABS, ACADEMIA, ZCSA AND CPs	5,000,000
	Review existing labelling standards and practices.	Standards and labelling reviewed	x							MOE, ERB, ZABS, Retailer and consumer bodies	30,000
	Design and adopt standards and labels	Standards and labels adopted		x	x					MOE, ERB, ZABS, ZCSA	200,000
	Undertake Sensitisation	Sensitisation undertaken		x	x	x	x	x		MOE, ERB, ZABS and ZCSA, ZRA	2,000,000
	Prepare a Statutory Instrument for enforcement of standards	Standards adopted		x	x	x				MOE, ERB and ZABS	50,000
	Facilitate provision of incentives.	Incentive provided		x	x	x	x	x		MOE, ZRA, MOF, ERB, CPs,	10,000,000
Facilitate the formation of energy efficiency (Energy Service Companies) industry body.	Industry body formally established			x	x				MOE, Energy Efficiency Professionals	500,000	

	Develop building codes	Building codes developed	x	x	x				MOE, MHI, NCC, EIZ	200,000
Promote the adoption of innovative technologies in the management and operation of energy delivery systems	Adopt Smart metering	Smart Metering Adopted		x					ERB, MOE, and ZESCO	250,000
	Adopt net metering	Net Metering Adopted				x			ERB, MOE, CPCC, BRR A and ZESCO	250,000

POLICY MEASURES	ACTIVITIES	INDICATORS	IMPLEMENTATION YEARS						RESPONSIBLE UNIT	ESTIMATED COST (ZMW)
			2020	2021	2022	2023	2024	2025		
Objective4: To promote sustainable exploitation of biomass and alternative energy to wood fuel resources in order to increase socio-economic development.										
Promote efficient and sustainable exploitation of biomass for household utilization.	Develop a Biomass Strategy	Strategy Developed	x	x					MOE, ERB, ZESCO, REA, MLNR, SNV, FAO	1,000,000
	Support private companies to produce more efficient biomass cook stoves	Private companies supported	x	x	x	x	x	x	MOE, ERB, ZESCO, REA, MLNR, SNV, FAO	1,500,000
	Undertake joint operations for the enforcement of biomass regulations	Joint operations Undertaken	x	x	x	x	x	x	MOE, ERB, ZESCO, REA, MLNR, SNV, FAO	5,000,000
	Conduct awareness campaigns on sustainable biomass utilisation	Awareness campaigns conducted	x	x	x	x	x	x	MOE, ERB, ZESCO, REA, MLNR, SNV, FAO	5,000,000
Promote the use of alternatives to wood fuel	Conduct awareness campaigns on the use of efficient biomass alternative technologies	Awareness conducted	x	x	x	x	x	x	MOE, ERB, ZESCO, REA, MLNR, CPs, CSOs	10,000,000
	Conduct awareness campaigns on the use of alternatives to wood fuel energy	Awareness conducted	x	x	x	x	x	x	MOE, ERB, ZESCO, REA, MLNR, CPs, CSOs, MOA	5,000,000
	Design incentive guidelines for utilisation of alternatives to wood fuel	Incentive guidelines designed	x	x					MOE, ERB, ZESCO, REA, ZRA, MOF,	200,000
Promote biofuels in the national fuel mix	Facilitate blending of biofuels (ethanol and biodiesel) with fossil fuels	National Biofuel blending programme operational	x	x	x				MOE, ERB, ZRA, MOF,BAZ, INDENI, TAZAMA	5,000,000

	Facilitate growing of energy crops	Hectarage of Energy crops	x	x	x	x	x	x	MOE, ERB, ZRA, MOF,BAZ, INDENI, TAZAMA, MOA, ZFU	15,000,000
	Design incentives and guidelines to support investment in biofuels	Incentives and guidelines designed	x	x					MOE, ERB, ZESCO, REA, ZRA, MOF,	1,000,000
	Undertake biofuels and food security assessments	Assessment undertaken	x	x					MOE, ERB, ZESCO, REA, ZRA ZFU, MOA,FAO	5,000,000
Ensure that the use of biofuels for the energy market is given priority without compromising food security	Construct facilities for storage of biofuels	Storage facilities constructed				x	x	x	MOE, ERB, ZRA, MOF,BAZ, INDENI, TAZAMA	1,200,000,000
	Construct facilities for blending of biofuels	Blending facilities constructed				x	x	x	MOE, ERB, ZRA, MOF,BAZ, INDENI, TAZAMA	100,000,000
	Develop strategy for utilization of biofuels	Strategy Developed	x	x					MOE, ERB, ZRA, MOF,BAZ, INDENI, TAZAMA, MOA, ZFU, MLNR, FAO, SNV	1,000,000

POLICY MEASURES	ACTIVITIES	INDICATORS	IMPLEMENTATION YEARS						RESPONSIBLE UNIT	ESTIMATED COST (ZMW)
			2020	2021	2022	2023	2024	2025		
Objective5: To increase exploitation of renewable energy in order to diversify the energy mix. (DOE)										
Strengthen institutional capacity for research in renewable energy	Stakeholder mapping of institutions involved in research	Stakeholder mapping for institutions undertaken	x	x					MOE, ERB, ZESCO, REA, ZARENA, SIAZ, ZOGT, CPs	1,000,000
	Train staff in research tools for renewable energy	Staff trained	x	x	x	x	x	x	MOE, ERB, ZESCO, REA, ZARENA, SIAZ, ZOGT, CPs, PRIVATE SECTOR, ACADEMIA, MOHE, CSOs	5,000,000
	Develop a Renewable Energy Strategy and Action Plan	Renewable Energy Strategy developed	x	x					MOE, ERB, ZESCO, REA, ZARENA, SIAZ, ZOGT, CPs, PRIVATE SECTOR	2,000,000
	Conduct resource assessments	Resource assessments conducted	x	x	x	x	x	x	MOE, ERB, ZESCO, REA, CPs, PRIVATE SECTOR	5,000,000
	Conduct research in renewable energy	Research in renewable energy Conducted	x	x	x	x	x	x	MOE, ERB, ZESCO, REA, ZARENA, SIAZ, ZOGT, CPs, PRIVATE SECTOR, ACADEMIA	3,000,000
Enhance coordination among key stakeholders for effective implementation of renewable energy technologies	Sign MoUs with research institutions	MoUs signed	x	x					MOE, ERB, ZESCO, REA, ACADEMIA	250,000
	Hold coordination meetings	Coordination meetings held	x	x	x	x	x	x	MOE, ERB, ZESCO, REA,	500,000

									ZARENA, SIAZ, ZOGT, CPs, PRIVATE SECTOR, ACADEMIA	
	Undertake joint research work with academic institutions	Joint research work with academic institutions undertaken	x	x	x	x	x	x	MOE, ERB, ZESCO, REA, ZARENA, SIAZ, ZOGT, CPs, PRIVATE SECTOR, ACADEMIA, CSOs	5,000,000
	Conduct joint awareness campaigns on renewable energy	Joint awareness campaigns conducted	x	x	x	x	x	x	MOE, ERB, ZESCO, REA, ZARENA, SIAZ, ZOGT, CPs, PRIVATE SECTOR, ACADEMIA, CSOs	5,000,000
	Conduct Networking campaigns on RETS	Networking campaigns on RETS conducted	x	x	x	x	x	x	MOE, ERB, ZESCO, REA, ZARENA, SIAZ, ZOGT, CPs, PRIVATE SECTOR, ACADEMIA, CSOs	100,000
	Launch NEP 2019	NEP 2019 Launched	x						MOE, ERB, ZESCO, REA, ZARENA, SIAZ, ZOGT, CPs, PRIVATE SECTOR, ACADEMIA, CSOs	200,000
	Design the awareness materials	Awareness materials designed	x	x	x	x	x	x	MOE, ERB, ZESCO, REA, ZARENA, SIAZ, ZOGT, CPs,	200,000

									PRIVATE SECTOR, ACADEMIA, CSOs	
Promote wider usage of renewable energy technologies	Conduct awareness campaigns	awareness campaigns conducted	x	x	x	x	x	x	MOE, ERB, ZESCO, REA, ZARENA, SIAZ, ZOGT, CPs, PRIVATE SECTOR, ACADEMIA, CSOs	5,000,000
	Design and implement fiscal incentives	Fiscal incentives designed and implemented	x	x					MOE, ERB, ZRA, MOF, BAZ, CCPC	200,000

POLICY MEASURES	ACTIVITIES	INDICATORS	IMPLEMENTATION YEARS						RESPONSIBLE UNIT	ESTIMATED COST (ZMW)
			2020	2021	2022	2023	2024	2025		
Objective 6: To increase access to electricity in order to improve the livelihoods of citizens										
Expand generation and transmission systems	Develop and implement an Integrated Resource Plan	Integrated Resource Plan developed and implemented	x	x	x	x	x	x	MOE, ERB, REA, ZESCO, CSO, ZOGT, ZARENA, SIAZ, CSOs, CPs, MNDP, MOH, MOA, MHID, MLG, CHAMBER OF MINES	150,000
	Facilitate construction of power generation projects with diverse energy mix	Power generation projects with diverse energy mix constructed	x	x	x	x	x	x	MOE, ERB, REA, ZESCO, ZOGT, ZARENA, SIAZ, CPs, PRIVATE SECTOR	25,000,000,000
	Construct power generation stations	Power Generation station constructed	x	x	x	x	x	x	ZESCO, REA, PRIVATE SECTOR	25,000,000,000
	Construct transmission lines including interconnectors	Transmission lines and interconnectors constructed	x	x	x	x	x	x	ZESCO, MOE, ERB, CEC, REA	5,000,000,000
Increase access to electricity in rural and urban areas	Develop a framework for measuring energy access (Include, baseline and monitoring)	Framework for measuring energy access developed	x	x					MOE, ERB, REA, ZESCO, CSO, ZOGT, NGO, CSOs, CPs, MNDP, MOH, MOA, MHID, MLG	5,150,000
	Formulate and implement an integrated Electrification Pathway (IEP) for universal access with a supporting National Electrification Strategy	National Electrification Strategy developed and implemented	x	x					MOE, REA, ZESCO, ZOGT, NGO, CPs, MNDP, MOH, MOE, MHID, MLG	4,500,000

	Develop a financing mechanism for implementation of IEP for universal access	IEP financing mechanism developed	x	x					MOE, REA, ZESCO, ZOGT, NGO, CPs, MNDP, MOH, MOE, MHID, MLG	100,000
	Develop a geospatial least cost planning tool to enhance electrification	Geospatial least cost planning tool develop	x	x					MOE, REA, ZESCO, ZOGT, NGO, CPs, MNDP, MOH, MOE, MHID, MLG	5,000,000
	Implement IEP	IEP implemented				x	x	x	MOE, REA, ZESCO, ZOGT, NGO, CPs, MNDP, MOH, MOE, MHID, MLG	200,000
	Construct stand alone and off grid systems (Solar Homes and Mini grids)	Stand alone and off grid systems Constructed	x	x	x	x	x	x	MOE, REA ERB, CSO, ZOGT, NGOs, CSOs, CPs, Private sector	25,090,000,000
	Extend the national grid to rural areas	Grid extended to rural areas	x	x	x	x	x	x	REA, ZESCO, MOE,	3,250,000,000
	Extend the grid to urban areas	Grid extended to urban areas	x	x	x	x	x	x	ZESCO, MOE, MLNR, MCT,	16,250,000,000
	Undertake densification and intensification on existing distribution lines	Households connected	x	x	x	x	x	x	REA, ZESCO MOE,	520,000,000
	Undertake connection using ready boards for low income households	Low income households connected	x	x	x	x	x	x	REA, ZESCO, MOE,	234,975,000

POLICY MEASURES	ACTIVITIES	INDICATORS	IMPLEMENTATION YEARS						RESPONSIBLE UNIT	ESTIMATED COST (ZMW)	
			2020	2021	2022	2023	2024	2025			
Objective 7: To ensure adequate, reliable and affordable supply of petroleum products and natural gas in order to increase security of supply of petroleum products											
Enhance mechanisms for effective management and development of the petroleum sub-sector	Develop a Petroleum Strategy and Action Plan;	Petroleum Strategy and Action Plan developed	x	x						MOE, ERB, BAZ, INDENI, TAZAMA, OMCs, PTAZ	2,000,000
	Develop procurement, financial & operational regulations for petroleum products	procurement, financial & operational regulations for petroleum products developed	x	x	x	x	x	x		MOE, ERB, INDENI, TAZAMA, OMCs, PTAZ	5,000,000
Ensuring full capacity utilization of existing petroleum infrastructure	Rehabilitate TAZAMA Pipeline	TAZAMA Pipeline Rehabilitated	x	x	x	x	x	x		MOE, ERB, INDENI, TAZAMA,	1,000,000,000
	Rehabilitate INDENI refinery	INDENI refinery Rehabilitated	x	x	x	x	x	x		MOE, ERB, INDENI, TAZAMA,	1,750,000,000
	Conduct routine maintenance for TAZAMA fuel depots	Routine maintenance for TAZAMA fuel Conducted	x	x	x	x	x	x		MOE, ERB, INDENI, TAZAMA,	1,000,000
	Procure relevant equipment and material for INDENI refinery	Equipment and material for INDENI refinery Procured		x	x	x				MOE, INDENI	1,000,000,000
Promote investments in the petroleum infrastructure	Construct fuel depots	Fuel depots Constructed	x	x	x	x	x	x		MOE, ERB, TAZAMA, MHID, MLNR, ZABS, MCTI, PRIVATE SECTOR, MOCTA, INDENI	1,600,000,000
	Construct rural filling stations	Rural filling stations Constructed	x	x	x	x	x	x		MOE, ERB, TAZAMA, MHID, MLNR, ZABS, MCTI, PRIVATE	1,000,000,000

									SECTOR, MOCTA, INDENI	
Recapitalise TAZAMA	TAZAMA Recapitalised		x	x					MOE, MOF, TAZAMA, PRIVATE SECTOR	100,000,000,000
Recapitalise INDENI refinery	INDENI refinery Recapitalised		x	x					IDC, MOE, MOF, TAZAMA, PRIVATE SECTOR	150,000,000,000
Construct Zambia - Angola pipeline	Zambia - Angola pipeline Constructed					x	x	x	MOE, ERB, MOF, TAZAMA, MHID, MLNR, ZABS, MCTI, PRIVATE SECTOR, MOCTA, INDENI.	500,000,000,000
Facilitate Construct Zambia – Mozambique pipeline	Zambia – Mozambique pipeline Constructed					x	x	x	MOE, ERB, MOF, TAZAMA, MHID, MLNR, ZABS, MCTI, MOCTA, INDENI, PRIVATE SECTOR,	500,000,000,000
Construct refinery plants	Refinery plants Constructed					x	x	x	MOE, IDC, ERB, TAZAMA, MHID, MLNR, ZABS, MCTI, PRIVATE SECTOR, MOCTA, INDENI	250,000,000,000
Construction of fuel depots in Eastern, Central, Southern and Northern Provinces	Fuel depots in Eastern, Central, Southern and Northern Provinces Constructed	x	x	x	x	x	x	x	MOE, ERB, MOF, TAZAMA, MHID, MLNR, ZABS, MCTI, PRIVATE SECTOR, MOCTA, INDENI	6,400,000

	Hold bilateral meetings with the Tanzanian Government on Single Point Mooring;	Bilateral meetings held	x	x					MOE, MOF, MNDP, TAZAMA, ERB	1,500,000
Ensure the effective and efficient pricing of petroleum products.	Quarterly review of petroleum pricing to reflect existing market dynamics.	Petroleum pricing reviewed	x	x	x	x	x	x	ERB, MOE, MOF, MCTI, TAZAMA, INDENI, OMCs	5,000,000
	Develop a risk management plan for price stability	risk management plan developed	x	x					ERB, MOE, MOF, MCTI, TAZAMA, INDENI, OMCs	250,000
	Conduct joint inspections on operations that affect pricing in the sector	joint inspections conducted	x	x	x	x	x	x	ERB, MOE, MOF, MCTI, TAZAMA, INDENI, OMCs, MHA	5,000,000
	Engage in long term supply contracts with Petroleum suppliers	Long term contracts signed	x	x					MOE, ERB, MOF, TAZAMA, MHID, MLNR, ZABS, MCTI, PRIVATE SECTOR, MOCTA, INDENI	4,500,000
Strengthen mechanisms aimed at ensuring uniform pricing of petroleum products across the Country	Review the operation of the uniform pricing of petroleum	Operation of the uniform pricing of petroleum reviewed	x	x	x	x	x	x	MOE, ERB, UPP MANAGER, MOF	500,000
	Undertake joint inspections	Joint inspections undertaken	x	x	x	x	x	x	MOE, ERB, UPP MANAGER, MOF, MHA	200,000,000
	Undertake monitoring and inspection	Monitoring and inspection undertaken	x	x	x	x	x	x	MOE, ERB, UPP MANAGER, MOF	6,000,000

POLICY MEASURES	ACTIVITIES	INDICATORS	IMPLEMENTATION YEARS						RESPONSIBLE UNIT	ESTIMATED COST (ZMW)
			2020	2021	2022	2023	2024	2025		
Objective 8: To promote private sector participation in the Energy Sector in order to ensure sustainable growth of the sector										
Promote citizen owned entities in the development of the energy sector	Provide incentives to the private sector	Incentives to the private sector provided	x	x	x	x	x	x	MOE, MOF, MCTI, ZRA, BRRA, ERB,	2,500,000
	Provide capacity building in development and management to energy service companies	Capacity building provided	x	x	x	x	x	x	MOE, MOF, MCTI, ZRA, BRRA, ERB,	5,000,000
	Identifying of investment opportunities	Investment opportunities Identified	x	x	x	x	x	x	MOE, ERB, MOF, TAZAMA, MHID, MLNR, ZABS, MCTI, PRIVATE SECTOR, MOCTA, INDENI	100,000
	Develop a framework to promote local participation in the energy sector	Framework developed	x	x					MOE, ERB, MOF, TAZAMA, MHID, MLNR, ZABS, MCTI, PRIVATE SECTOR, MOCTA, INDENI	1,000,000
	Conduct awareness campaigns on investment opportunities and incentives	Awareness campaigns conducted	x	x	x	x	x	x	MOE, ERB, MOF, TAZAMA, MHID, MLNR, ZABS, MCTI, PRIVATE SECTOR, MOCTA, INDENI	5,000,000
Ensure Cost reflective Pricing in the energy sector	Carry out regular cost of service studies	Cost of service studies undertaken	x			x		x	MOE, ERB, ACADMIA, REA, CSOs, ZIPAR	1,500,000
	Implement a multi-year tariff framework for electricity	Multi-year tariff framework for electricity implemented	x	x	x				ERB ZESCO, MOE, CCPC, CSO	5,000,000

	Establish price regulation for all customer categories	Price regulation for all customers established	x	x					ERB, MOE, ZESCO, PRIVATE SECTOR, CCPC, ZIPAR, PMRC, CSOs,	3,000,000
Develop standardized Transaction Documents	Consultative Meetings with relevant stakeholders to identify the transaction documents.	Consultative Meetings undertaken	x	x					MOE, ERB, MOF, TAZAMA, MHID, MLNR, ZABS, MCTI, PRIVATE SECTOR, MOCTA, INDENI	1,000,000
	Review existing transaction documents	Transaction documents reviewed	x	x					MOE, ERB, ACADEMIA, REA, PRIVATE SECTOR, ZIPAR, MOHE	1,000,000
	Develop and Implement Standardised Transaction Documents	Transaction documents developed	x	x					MOE, ERB, ZESCO, ACADEMIA, REA, CPs, PRIVATE SECTOR, ZIPAR, MOHE	500,000

POLICY MEASURES	ACTIVITIES	INDICATORS	IMPLEMENTATION YEARS						RESPONSIBLE UNIT	ESTIMATED COST (ZMW)
			2020	2021	2022	2023	2024	2025		
Objective 9: To promote innovation, research and development in the energy sector in order to accelerate technological advances										
Facilitate partnerships between research institutes and all stakeholders in the sector	Mapping of Research institutions in the energy sector.	Research institutions Mapped	x	x					MOE, ERB, ZESCO, ACADEMIA, MOHE, PRIVATE SECTOR, ZIPAR, PMRC, ZARENA, ZOGT, SIAZ,	1,500,000
	Undertake consultations with stakeholders	Consultative Meetings undertaken	x	x	x	x	x	x	MOE, ERB, ZESCO, ACADEMIA, MOHE, PRIVATE SECTOR, ZIPAR, PMRC, ZARENA, ZOGT, SIAZ,	200,000
	Undertake joint research	Joint research undertaken	x	x	x	x	x	x	MOE, ERB, ZESCO, ACADEMIA, MOHE, PRIVATE SECTOR, ZIPAR, PMRC, ZARENA, ZOGT, SIAZ,	1,000,000
Enhance institutional capacities to enable them conduct scientifically objective studies in the energy sector	Conduct trainings in the energy sector on research methods	Training conducted	x	x	x	x	x	x	MOE, ERB, ZESCO, ACADEMIA, MOHE, PRIVATE SECTOR, ZIPAR, PMRC, ZARENA, ZOGT, SIAZ,	3,000,000
	Sign MoUs with research institutions	MOUs signed	x	x					MOE, ERB, ZESCO, ACADEMIA, MOHE, PRIVATE SECTOR,	500,000

POLICY MEASURES	ACTIVITIES	INDICATORS	IMPLEMENTATION YEARS						RESPONSIBLE UNIT	ESTIMATED COST (ZMW)
			2020	2021	2022	2023	2024	2025		
Objective 10: To mainstream gender, climate change, and health and safety in the energy sector.										
Increase systematic mainstreaming of gender in the energy sector	Undertake a gap analysis in gender	Gap analysis in gender undertaken	x	x					MOE, MoG, ERB, ZESCO, REA, PRIVATE SECTOR, CPs, CSOs	200,000
	Undertake internship and mentorship programmes targeting the under-represented gender	Internship and mentorship programmes undertaken			x	x	x	x	MOE, MOG, ERB, ACADEMIA, KGRTC, ZESCO, REA, PRIVATE SECTOR, INDENI, TAZAMA	100,000
	Develop an energy sector gender strategy and action plan	Energy sector gender strategy and action plan developed	x	x					MOE, MOG, ERB, ACADEMIA, KGRTC, ZESCO, REA, PRIVATE SECTOR, INDENI, TAZAMA	500,000
	Undertake affirmative action measures in employment and on boards to Promote balanced representation by gender	Affirmative action measures undertaken	x	x	x	x	x	x	MOE, MOG, ERB, ACADEMIA, KGRTC, ZESCO, REA, PRIVATE SECTOR, INDENI, TAZAMA	Neutral

	Train staff in gender mainstreaming	Staff trained	x	x	x	x	x	x	MOE, MOG, ERB, ACADEMIA, KGRTC, ZESCO, REA, PRIVATE SECTOR, INDENI, TAZAMA	1,500,000
Increase systematic mainstreaming of climate change in the energy sector	Align the energy sector with nationally determined contributions (NDC).	Energy sector aligned to NDC	x	x	x	x	x	x	MOE, MOG, ERB, ACADEMIA, KGRTC, ZESCO, REA, PRIVATE SECTOR, INDENI, TAZAMA, CPs, CSOs, ZEMA	300,000
	Cost and undertake measures to protect climate vulnerable people and their activities	Measures to protect climate vulnerable people and their activities undertaken	x	x	x	x	x	x	MOE, MOG, ERB, ACADEMIA, KGRTC, ZESCO, REA, PRIVATE SECTOR, INDENI, TAZAMA, CPs, CSOs, ZEMA MLNR	2,300,000
Promote health and safety in the energy sector	Develop awareness materials on health and safety in the energy sector	Awareness materials on health and safety in the energy sector developed	x	x	x	x	x	x	MOE, MOH, ERB, ACADEMIA, KGRTC, ZESCO,	250,000

									REA, PRIVATE SECTOR, INDENI, TAZAMA, CPs, CSOs, ZEMA, MSD	
	Undertake awareness campaigns in the utilisation of energy	Awareness campaigns undertaken	x	x	x	x	x	x	MOE, ERB, ACADEMIA, KGRTC, ZESCO, REA, PRIVATE SECTOR, INDENI, TAZAMA, CPs, CSOs, ZEMA, MOH, MSD,	600,000
	Enforce regulations on health and safety	Regulations on health and safety enforced	x	x	x	x	x	x	MOE, ERB, ACADEMIA, KGRTC, ZESCO, REA, PRIVATE SECTOR, INDENI, TAZAMA, CPs, CSOs, ZEMA, MOH, MSD,	600,000

