

Impacts of Existing Policies on Low Emis- sions Development on Energy Sector in Malawi

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Executive summary

Following adoption of the Paris Agreement in 2015, Malawi submitted to the United Nations Framework Convention on Climate Change (UNFCCC) its commitment to reduce its greenhouse gas (GHG) emissions and scale-up adaptation action through the Intended Nationally Determined Contribution (INDC). The Government of Malawi updated its Nationally Determined Contributions (NDCs) in 2021, outlining its priority climate actions for the period until 2040. The revised NDCs provide concrete strategies for addressing the causes of climate change and responses to the adverse impacts in line with the aspirations of the Paris Agreement. To ensure a forward-looking low carbon national development, Malawi initiated a process towards a low carbon development strategy in 2012. This led and informed the development of various strategic tools and plans including the Nationally Appropriate Mitigation Actions (NAMA), REDD+ Strategy, National Climate Change Investment Plan and National Climate Change Management Policy (NCCMP). These processes were guided and facilitated by an institutional structure comprising various government ministries, department, and agencies (MDAs), with support from non-state actors.¹

The country has committed to achieving the United Nations Sustainable Energy for All (SE4ALL), in line with Sustainable Development Goal (SDG) 7. Energy is a means to an end that enables social and economic development and offers a pathway for achieving aspirations of many other SDGs. The third Malawian Growth and Development Strategy (MGDS III) recognises the significant role of energy, citing it as “the lifeblood of the economy,” and laying out a goal to “provide sufficient sustainable energy for industrial and socio-economic development”.² Improved access to reliable and sustainable energy supply is one of the core outcomes that MGDS III seeks to achieve. However, MGDS’ III successor, the Malawi 2063 First 10 Year Implementation Plan (MIP-1, 2021-2030) does not clearly outline Malawi’s low emissions development pathways, vision, and ambition. It however does establish a link with the Malawi NDCs. In response to the commitments made in MGDS III and as a means to support a low emissions development pathway, the government through the Department of Energy Affairs and Malawi Energy Regulatory Authority (MERA), has established policies, regulations, and a framework that will facilitate investments and rapid growth in the energy sector. To translate these aspirations and commitments into reality, Malawi will rely on the effective and efficient existence of energy and climate policies and plans, including the NDCs implementation. These will require transparent and accountable investments and funding arrangements that will lead to a reliable and sustainable energy sector development in the country. These also need to appreciate that mitigation measures identified within the energy sector account for the largest share of total emissions reduction potential at 85% by 2040.

This paper assesses the effectiveness and adequacy of existing policies for a low emissions development of the energy sector in Malawi. It focusses particular to Malawi’s updated NDCs, MGDS III (and its Successor MIP-1), and SDGs 7 and 13 in their relation to realizing the goals of the Paris Agreement, Clean Development Mechanisms (CDM) Frameworks, the Enhanced Transparency Framework (ETF) and economy wide low emissions development. In addition to an in-depth policy review, the study

¹ Government of Malawi, Environmental Affairs Department (2012), the Road towards Low Carbon Development Strategy in Malawi, UNFCCC Workshop, available on <https://cepa.rmpportal.net/Library/government-publications/National%20Climate%20Change%20Response%202012.pdf>

² Government of Malawi (2017), Malawi Growth and Development Strategy (MGDS) III, available on https://npc.mw/wp-content/uploads/2020/07/MGDS_III.pdf

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drew from detailed key informant interviews with 38 stakeholders in the energy and other related sectors in Malawi.

The study established that there is no stand-alone Low Emissions Development Strategy (LEDS) policy within the Ministry of Energy or in any other government agency supporting energy. Rather, Low Emissions Development (LED) is partially discussed and mainstreamed in energy policies, strategies, programs and plans. Regarding Malawi's international climate and energy commitments, the study noted no clear reference to Paris Agreement, CDM, ETF, SDG, MGDS III (and its successor MIP-1) and Malawi NDCs. However, there is notable progress for Malawi's involvement in regional and global energy and climate change initiatives. For instance, through being a party to SE4ALL, and to the UNFCCC Conference of Parties (COPs). Malawi has technically and financially benefited from such international engagements on climate change and energy actions. Notably, the country has developed new policies, initiated new systems and set new ambitions as contained in the updated NDCs. The country is also in the process of establishing a monitoring, reporting and verification (MRV) system, as well as putting in place a carbon markets framework. Inadequate financing mechanisms and instruments, including ineffective budgetary support processes for LED initiatives, are identified as key challenges. Overdependence on international LED and renewable energy financing mechanisms and instruments, which are complex in nature, make it difficult to assess current financing impacts on LED as well as informing on future donor and investor needs and potentials.

The study identified a set of mechanisms and offers policy recommendations through which the success of LED can be achieved for the energy sector in Malawi. Key policy action areas identified in this study suggest that the country needs to:

- › Enhance coordination and harmonisation of institutional arrangements and existing policies in relation to energy sector and LED;
- › Provide targeted and specific capacity building to strengthen institutional and technical capacities that would scale up understanding of the critical role of LED in creating climate solutions, enabling sustainable development and contribution to county's global commitments;
- › Establish pathways for a full and clear LED policy and emergence of sectoral specific LED experts and negotiators;
- › Enhance public and private financing to compliment international LED financing mechanisms while ensuring effective and inclusive budgetary support processes, and a sustained political buy in.

Introduction

The analysis of Malawi's updated NDCs and Implementation Framework interim report 2021 projects that total emissions, excluding forestry and other land use (FOLU), will continue to increase by over three times over the 2017-2040 period, rising from 9.3 million tCO₂e in the base year to 34.6 million tCO₂e in 2040, under the business-as-usual (BAU) scenario. The most rapid growth is forecasted within the energy sector, which expands its share of total emissions from 25% in 2017 to around 57% by 2040. The share of emissions from waste generation will fall slightly from about 18% in 2017 to 12% in 2040, whilst that of agriculture sector will decline significantly from 54% to 29% over the same period. Emissions from industrial processes and product use (IPPU) will remain at around 2% of the total. These trends are attributable to the expected rise in population and economic output, as well as growing contribution from fossil fuels to national emissions, particularly from an increasing demand for thermal power generation and transport services for the country.³

A detailed technical and economic assessment of GHG reduction measures for Malawi was undertaken to determine which options are most suitable for inclusion in the NDCs and their contribution potentials to attainment of LED in the country. The modelled annual emissions reduction potential in 2040 is estimated at about 17.7 million tCO₂e compared to base case BAU scenarios, which is standing at 34.6 million tCO₂e, representing a relative reduction of around 52%. Mitigation measures identified within the energy sector account for by far the largest share of total potential at 85%, followed by agriculture (9% of total), waste (5%), and IPPU (1%).^{4,5}

Within energy use, increased use of renewables and clean coal technology dominate mitigation potentials. Application of carbon capture and storage (CCS) to future grid-based thermal power plants from 2030 onwards represents the largest share of identified GHG reduction potentials, with almost half of all sectoral mitigation by 2040. Emissions reduction resulting from large-scale hydropower, and modal shift and low carbon fuels in transport sector are also found to be potentially significant. Hence the need to assess the existing policies and legal frameworks on LED in the energy sector in Malawi to provide understanding of their relevance, adequacy, and effectiveness towards realizing the country's low emissions development dreams. The assessment will provide useful insights on how to better align sectoral policies with the broader development agenda. It will also highlight opportunities to create effective short, medium, and long-term action plans, measures, and targets for the national development priorities.

Malawi NDCs emission reduction targets are based on an in-depth assessment of the country's mitigation potentials against a BAU scenario through 2040. The targets were established through an analysis of Malawi's existing sectoral and climate policy framework, the generation of qualitative information through consultation with government officials, experts and stakeholders, quantitative modelling of mitigation options and scenarios, and multi-criteria assessment to determine conditional and unconditional contributions. The analysis was built-up of Malawi's INDC submitted to UNFCCC in 2015 and other more recent assessments including, for instance, GHG mitigation estimates made in

³ Government of Malawi, Updated NDC (2021). Available on <https://unfccc.int/sites/default/files/NDC/2022-06/Malawi%20Updated%20NDC%20July%202021%20submitted.pdf>

⁴ Government of Malawi and NDC Partnership (2021), CAEP Support: Malawi Updated NDC Analysis and Implementation Framework, Interim Report.

⁵ Mainstreaming guidelines for Malawi's NDC have been prepared by ICLEI

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the context of NAMAs and the Third National Communication (TNC) to the UNFCCC, among others.⁶ The analysis of emission reduction potentials was undertaken in the following key steps:

- › *Step 1: Develop BAU emissions forecasts:* Develop a revised BAU baseline scenario through 2040 based on the national GHG inventory emissions in key sectors (energy, industrial processes and product use, IPPU, waste, agriculture, and forestry and other land use (AFOLU)).
- › *Step 2: GHG mitigation and economic assessment:* Identify and collect information on mitigation options across sectors based on INDC measures and discussions with in-country officials and experts and quantify their emissions reduction potential through 2040 compared to the BAU scenario. Quantify economic costs and benefits (including estimated investment requirements) to inform cost-benefits analysis and calculation of GHG abatement costs and investment.
- › *Step 3: Model GHG reduction pathways:* Model alternative GHG pathways based on the assessed mitigation options against the BAU baseline through 2040 to quantify emissions reduction potential across sectors identified in NDCs as well as associated costs and investment gaps.³

The government of Malawi identified energy as a priority sector to spur socio-economic development in the country. The Malawi National Energy Policy (NEP) aims to increase access to affordable, reliable, sustainable, efficient, and modern energy for every person in the country.⁷ It outlines that improvements in the energy sector are expected to positively impact other sectors, through well-defined policies and institutional frameworks, international assistance from development partners, and partnerships with the private sector. The policy is targeted to achieve the following long-term goals:

- › Make the energy sector effective to support socio-economic development agenda, including poverty reduction, sustainable economic development, and enhanced labor productivity;
- › Catalyze establishment of a more liberalized, private sector driven energy supply industry that is effective with competitive pricing through energy sector reforms;
- › 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.

In addition, the Malawi Renewable Energy Strategy establishes a detailed set of priorities and actions to achieve the vision for renewable energy in the country i.e. universal access to renewable electricity and a sustainable bioenergy sector. The strategy aims at developing grid-scale renewables, clean energy mini-grids, off-grid solar and bioenergy linking to the SE4ALL program and government commitments to UN global goals.⁸

⁶ Government of Malawi, (2020) The Third National Communication of the Republic of Malawi to the Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change MALAWI'S UPDATED NATIONALLY DETERMINED CONTRIBUTION 105 (UNFCCC).

⁷ Government of Malawi, (2018) National Energy Policy, available on <https://npc.mw/wp-content/uploads/2020/07/National-Energy-Policy-2018.pdf>

⁸ Government of Malawi, (2017) Renewable Energy Strategy, available on https://mera.mw/downloads/malawi-renewable-energy-strategy/?ind=1582531856249&filename=Malawi%20Renewable%20Energy%20Strategy%20_Final_.pdf&wpdmdl=1284&refresh=65d4534e83d2c1708413774

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Analyzing the three major energy and climate policies, the concept of LED does not clearly come out, even though LED has attracted interest in the global climate negotiations as an alternative to voluntary or obligatory GHG emission reduction targets in developing countries. Government MDAs are principle to resolving energy and climate challenges in the country. However, based on the feedback of stakeholders, MDAs struggle to understand the concept of low emission transition, mainstreaming LED strategies and concepts into national energy and climate policy planning or to effectively respond to the global call for reduced GHG emissions and how to align it with the sustainable development agenda at the country level. Resolving these challenges will require deeper understanding and translation of LED concepts into national energy and climate policies, planning processes, replicable programs, proving evidence for their success and aiming to scale up while making strong reference to SDGs, the Paris Agreement, CDM, NDCs and aspirations of a just energy transition.

Our analysis is limited to established policy and institutional settings in particular government MDAs and Malawian technical experts under the global sustainable energy and UNFCCC protocols. The study provides a comprehensive and a comparative analysis of existing policies, institutional arrangements, and flow of information in relation to national energy and climate policy processes in the country.

Methodology

This study drew evidence from two sources. The first source was a mapping of existing energy and climate policies and their statuses, stakeholder mapping, followed by in-depth and contextual review of the policy documents. This allowed for identification of policy priorities, alignments, as well as mapping stakeholders and their engagements.

Secondly, the study conducted in-depth interviews using a semi-structured questionnaire with 38 stakeholders in the energy and climate sectors (table 1). Interviews and consultations were at times conducted face to face following COVID-19 preventive measures and a few interviews by phone. Sampling for this study was based on targeting a representative sample of government, NGOs, CSOs, private sector and community representatives.

Category	Male	Female	Count	Proportion (%)
Government (MDAs)	7	5	12	31.6
Donors	2	2	4	10.5
NGOs/ CSOs	5	3	8	21.1
Private sector	4	2	6	15.8
Community representatives	4	4	8	21.1

Table 1: Composition of key informant interviewees

Study Outcomes

This study was aimed at examining the effectiveness and adequacy of the existing policies on LED on the energy sector and offers understanding into the potentials for Malawi to foster economic development while reducing GHGs emissions. In this relation, it analyzed Malawi's commitment to achieving SE4ALL with vision and targets in terms of emissions reduction needed to reaching climate ambitions. It further analyzed how government and key players in the sector will rely on the effectiveness and efficiency of the existing energy and climate policies and plans including updated NDC's to move forward key investments for achieving LED in Malawi. This would be based on transparent and accountable funding arrangements that aim to provide reliable and sustainable energy for Malawians at the most effective cost, thereby contributing to environmental and socio-economic development in line with Malawi 2063. It would also inform on how to establish a realistic pathway towards low carbon and resilient development for the country.

Existing policies and their relevance towards LEDS in Malawi

Malawi has over the years developed various energy and climate policies which provide guidance and direction in implementation of energy and climate interventions. Key existing policies and frameworks and their implementation status that are considered as crucial to LED include: Energy Policy (2018), Renewable Energy Strategy (2017), National Climate Change Management Policy (2016), Malawi updated NDCs (2021), and Malawi SDG 7 Cleaner Cooking Energy Compact (2021). Table 2 provides an overview and status of existing policies in the energy sector.

Policy	Gaps (overlapping)	Implementation framework/status
Energy Policy (2018)	Institutional, technical capacities, financing; data, knowledge and information sharing; ineffective coordination and policy harmonisation	Ongoing
Renewable Energy Strategy (2017)		2017 – 2022
National Climate Change Management Policy (2016)		Ongoing
Malawi NDC (2021)		Ongoing
Malawi SDG 7 Cleaner Cooking Energy Compact (2021)		Ongoing

Table 2: Status of existing policies (as of 2024)

Despite the challenges mentioned in table 2, there is notable progress in advancing policy planning and program delivery. These actions are already playing a critical role that helps to set the country to a pathway for meeting its national and international energy and climate obligations. However, the assessment revealed a gap in policy mainstreaming and sharing information among relevant MDAs. According to stakeholder feedback, these gaps create confusion and contribute to delays in policy implementation in the country.

Another critical issue compromising effectiveness of existing policies and their implementation is the continued changes in form of governance and institutional arrangements. This affects effectiveness in the coordination and workflow during implementation of policies and plans such as MIP-1. This assessment established that over the last 10 years, ministry titles and their associated institutional arrangements have changed more than five times, which have had policy implications as indicated in table 3.

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Year	Ministry title subsequent changes	Policy implications
2012	Natural Resources, Energy and Environmental Affairs	Change negatively affects sustainability of policy actions, alignment with partner and donor financing priorities, research technology and advocacy focus and institutional memory and information systems.
2013	Environment and Climate Management	
2014	Natural Resources, Energy and Mining	
2020	Natural Resources and Forestry	
2022	Natural Resources and Climate Change	

Table 3: Changes in ministry titles over time and implications

These short and successive ministerial changes and dynamics affect workflow, cause ineffectiveness, including tracking and reporting on LED projects and programs as well as their alignment with sectoral goals and targets. The assessment also established challenges to adequately evaluate multiple benefits of implementing LED projects and programs across sectors. Limited capacities to effectively articulate and quantify potential positive socio-economic co-benefits from aligning Malawi's updated NDC and other LED oriented policies, frameworks and strategies in the country was also found to be a major challenge. This therefore calls for government with support from development partners to build technical capacities of MDAs to measure the effects of its policies and report progress publicly to foster greater transparency, effectiveness, trust, ownership and ambition in energy and climate policy processes. It is imperative for the government to examine if LED programs underway are securing multiple benefits (social, environmental and economic impacts) while ensuring room for social redress mechanisms for past social and economic injustices and providing room for readiness for a just energy transition.

Establishing national MRV systems through ETF project will create an enabling environment for effective legal and regulatory framework for enhancing energy and climate action and improving data creation needed to inform policy areas. This would enable improvement in policy design, implementation and monitoring processes and better inform scaling up of best practices and initiatives in the energy sector in the country. Table 4 shows whether key energy and climate policies, strategies, frameworks or programs in Malawi support establishment of national MRV system and any enabling legislative frameworks. Transparent and accountable information flows is vital for realizing effective LED.

Energy/climate change policy, strategies, framework or program for establishing MRV System	Description	Availability of law to support the process
Energy Policy	Makes no reference to the need for MRV system or having associated monitoring and reporting of GHGs at the national level	None
Renewable Energy Strategy	Only refers to the SE4All Global Tracking Framework (GTF) for defining and measuring access to electricity and sustainable energy in Malawi.	None
Malawi updated NDCs, NDCs Implementation Plan and M&E Framework	Provides a basis for MRV system in the country to monitor and report on its NDCs targets in a manner consistent with Paris Agreement requirements, as well as aligning with existing procedures and arrangements including policy and strategic decision levels to which Malawi can	None

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	monitor and evaluate its progress in meeting NDCs targets through 2040.	
Malawi Climate Transparency Framework project	The objective of the project is to strengthen the capacity of institutions in Malawi and set up an information system to fulfil the enhanced transparency requirements of the Paris Agreement	None
Malawi 2063 First 10-year Implementation Plan	Does not make any explicit link with NDCs and MRV	None
Malawi Carbon Markets Regulatory Framework	Currently under development	None
Industrial processes and product use, agriculture, forestry and other land use; and waste	No data available	None

Table 4: Energy and climate policies and programs, and support elements for MRV system.

An MRV system is central for transparency framework under the Paris Agreement. As such the Malawi Climate Transparency Framework Project which is currently under implementation provides an opportunity to establish a well-coordinated and functional MRV system which will support Malawi's vision to decarbonize its economy in the long run, up to 2050.⁹

Based on available literature and 90% of stakeholder feedback, there is very slow and limited progress in assessing impacts of exiting policy towards LED and their contribution to economic development in the country in relation to emissions reduction targets. However, this assessment refers to the Carbon Pricing in Sub-Saharan Africa Report of 2020 by Konrad-Adenauer-Stiftung (KAS) country overview for Malawi¹⁰ which provides clear data and potential for Malawi to transition to LED and attain sustainable development as presented in table 5.

This will however require policy makers to understand the interlinkage and potential contributions of effective climate actions towards achieving sustainable development in the country. In this regard, policy makers will require further and focused support particularly on technical capacities, tools and data access to enable measuring and assessing such potential contributions. Learning from other country and regional experiences will also play an important role in guiding Malawi's efforts and strategies. For instance, policy makers and practitioners in Malawi may refer to sustainable development assessment tools such as the Initiative for Climate Action Transparency (ICAT) Sustainable Development Methodology. The methodology helps in effectively assessing policy impacts by supporting multiple objectives, advancing policies that contribute to multiple SDGs and priorities, building support for climate actions by assessing and communicating impacts that are most relevant to national audiences and informing policy design and implementation.¹¹ Another useful tool is the guide

⁹ LT-LEDS Synthesis Report of 2023 by UNFCCC available on [LT-LEDS Synthesis Report | UNFCCC](#)

¹⁰ Carbon Pricing in Sub-Saharan Africa Report of 2020 by Konrad – Adenauer – Stiftung e.V. (KAS), page 88 to 89, available on <https://www.kas.de/documents/282730/282779/Carbone+Pricing+in+sub-Saharan+Africa+an-glais.pdf/afbff20e-0b1a-61e8-24d6-38ae056c0c81?t=1594785554783>

¹¹ The Initiative for Climate Action Transparency, Sustainable Development Methodology, available at <https://climateactiontransparency.org/icad-toolbox/sustainable-developmnet>

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for measuring sustainable development from the Organization for Economic Cooperation and Development (OECD).¹²

Potential elements for LEDS and sustainable development	Description
NDC mitigation objectives	<ul style="list-style-type: none"> › Target: No economy wide target. NDCs contain a general undertaking to mitigate in line with Paris Agreement and set target for the agriculture sector but not for the energy sector › Prioritised sectors for mitigation: Priorities range across various sectors including agriculture, energy, LULUCF and transport. Regarding the energy sector, focus areas include clean cookstoves, increasing hydro-powered energy, and solar water heaters. Industry targets include production of blended cement. LULUCF includes a target of 2% increase in forest cover as well as 2.6MT reduction due to afforestation. In relation to transport, the NDCs aims to increase the percentage of population using public transport to 30%.
Documents/policies/statements/ initiatives indicating an interest/intention in developing direct and indirect carbon pricing	<ul style="list-style-type: none"> › Vulnerable Twenty (V20) 4th Ministerial Communique, Bali-Indonesia, 14th October 2018. Malawi is a member of the V20 Group of Ministers of Finance. The 4th Communique sets a goal to accelerate fossil fuel subsidy reform and support carbon pricing efforts. The V20 commit to advance the implementation of domestic carbon pricing mechanisms.
Existing participation in carbon markets and REDD+	<ul style="list-style-type: none"> › CDM: Malawi has two CDM cookstove projects. It is also part of eight POAs. › REDD: Malawi has 2 REDD projects and 2 ARR projects, both ongoing. The recently approved Malawi REDD+ Programme Action Plan includes forests protection and conservation, afforestation – tree planting and natural/assisted regeneration.

Table 5: Malawi Transition path to LEDS and sustainable development attainment.

On funding, according to the government of Malawi, the country has an inadequate budget allocation for the energy sector. The country has historically funded its energy sector through budget allocations, concessional finance and grants, but these sources are insufficient to meet current and future needs. Investment needs for the sector through 2030 are 2.5 billion USD in the power sector and up to 600 million USD for cooking. On-grid investment needs are split across new generation, transmission, distribution, and new connections. The off-grid solutions of putting light in every household by 2030 and power-productive uses of energy in rural areas compliment these needs. A rapid transition to improved cooking solutions that include supply and demand-side actions would reduce biomass to sustainable levels.¹³ However, Malawi's updated NDCs funding requirements represent investment

¹² Measuring sustainable development guide by Organisation for Economic Co-operation and Development (OECD, 2005), available on <https://www.oecd.org/greengrowth/35407580>

¹³ Government of Malawi (2019), Malawi sustainable Energy Investment Study, available on <https://www.un.org/ohrls/sites/www.un.org.ohrls/files/malawi-sustainable-energy-investment-study.pdf>

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costs for new plants, installations, equipment as well as additional implementation of mitigation initiatives that will contribute to emissions reduction through 2040. This is pegged at around 22.2 billion USD on electricity and heat.³

A range of green climate finance sources is already available and can be used for the country to access and de-risk commercial sources of finance. With this in place, funding can be unlocked from a wide range of international financial institutions, private investors and local banks. However, access to these sources of climate finance remains a significant administrative burden requiring detailed financial expertise with a clear link to financing LED while informing on future donor and investor needs. For instance, the Ministry of Finance and Economic Affairs should work to ensure that funding is available from institutions like the Green Climate Fund (GCF) and the Global Environment Facility (GEF), while the Malawi Investment and Trade Commission (MITC) should coordinate outreach and engagement with private investors.¹³

Regarding stakeholder engagement, with the adoption of SDGs and Paris Agreement, governments around the world are increasingly focusing on establishing and implementing policies and actions that achieve sustainable development and GHG mitigation objectives. As such, there is an increasing need to assess and communicate the multiple policies and actions to ensure they are effective in delivering a variety of SDGs and GHG mitigation benefits, including operationalizing activities to reduce emissions, increase resilience and identify projects and financing needs. Therefore, broad stakeholder consultations and engagements are essential for fostering greater transparency, effectiveness, trust, and ambition in policies and actions. However, this assessment reveals limited stakeholder engagements, especially among local communities and private sector (representing 37%) in the design, implementation and monitoring of existing energy and climate policies and their associated actions. These have far-reaching implications on building stakeholders understanding and synergies. It also compromises policy coherence, mobilization of technical and financial support as well as the alignment of investments for LED projects and programs.

Malawi national low carbon scenario based on updated NDCs

The Malawi mitigation contribution takes the form of a reduction in GHG emissions relative to a BAU emissions scenario over the period to 2040. The latest national inventory data estimates a total of GHG emissions excluding forestry and other land use (FOLU) at 9.33 million tonnes of carbon dioxide equivalent (tCO₂e) for 2017. Agriculture accounts for by far the largest share of the total (5.07 million tCO₂e, 54% of total), followed by the energy sector (2.34 million tCO₂e, 25% of total) and waste (1.67 million tCO₂e, 18% of total). Emissions from industrial processes represented just 0.24 million tCO₂e, equivalent to around 3% of total emissions in 2017 (mainly associated with calcination CO₂ emissions from minerals production). Within the agriculture sector, emissions from livestock represented the largest source category, followed by managed soils in crop production. After agriculture, the next major CO₂ emissions were found to come from methane from unmanaged waste disposal site (dumps), representing 13% and fossil fuel used in transport accounting for 11% of the total.³

A detailed assessment of identified GHG mitigation options for Malawi estimates a total emissions reduction potential of around 17.7 million tCO₂e in 2040 against the BAU scenario in the same year of 34.6 million tCO₂e, equivalent to a reduction of 52%. Under a BAU emissions scenario, total emissions excluding FOLU are forecasted to increase by more than three times by 2040, rising from 9.3 million tCO₂e in 2017 to 34.6 million tCO₂e in 2040 (figure 1). This outlook reflects assumptions of a growing contribution from fossil fuel to national emissions, arising from increasing demand for thermal power generation and transport services.³ Based on the analysis, mitigation measures have been grouped according to two different contributions:

- › **Unconditional contribution:** A reduction of 6 percent relative to BAU in the year 2040; equivalent to an estimated mitigation level of 2.1 million tCO₂e in that year. This is an

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unconditional target, based on domestically supported and implemented mitigation measures and policies.

- › **Conditional contribution:** An additional reduction of 45 percent relative to BAU in the year 2040; equivalent to an estimated mitigation level of 15.6 million tCO₂e in that year. This represents an additional targeted contribution, based on the provision of international support and funding.

The combined unconditional and conditional contribution is therefore a 51 percent reduction in GHG emissions compared to BAU by 2040, expressed as a single year target. The coverage of the contribution includes the three main GHG: carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).

The sectoral scope of this contribution covers all emissions sources described in the IPCC 2006 Reporting Guidelines, including emissions from the categories of energy; industrial processes and product use (IPPU); waste; and AFOLU but excluding sources from forestry and other land use (FOLU). These latter sources may be included within future contributions, subject to improved data availability and ongoing development in the accuracy of their quantification within the national GHG inventory. For the current NDC, an indicative emissions reduction contribution has instead been made. This has been estimated at 59.8 million tCO₂e of reductions through a range of FOLU interventions covering an area of up to 2 million hectares (Ha), of which 22% is unconditional and 78% is dependent on international support.³

Based on in-depth technical assessments of mitigation scenario presented above, a GHG assessment from FOLU have not been undertaken and does not deliver a comprehensive understanding of a low carbon scenario. As such, there is need for specific technical and economic assessments on impacts of FOLU on NDC planning and implementation, which would inform the uptake of low emissions development options in the country. This is one research area that the government and other key stakeholders could take into future consideration.

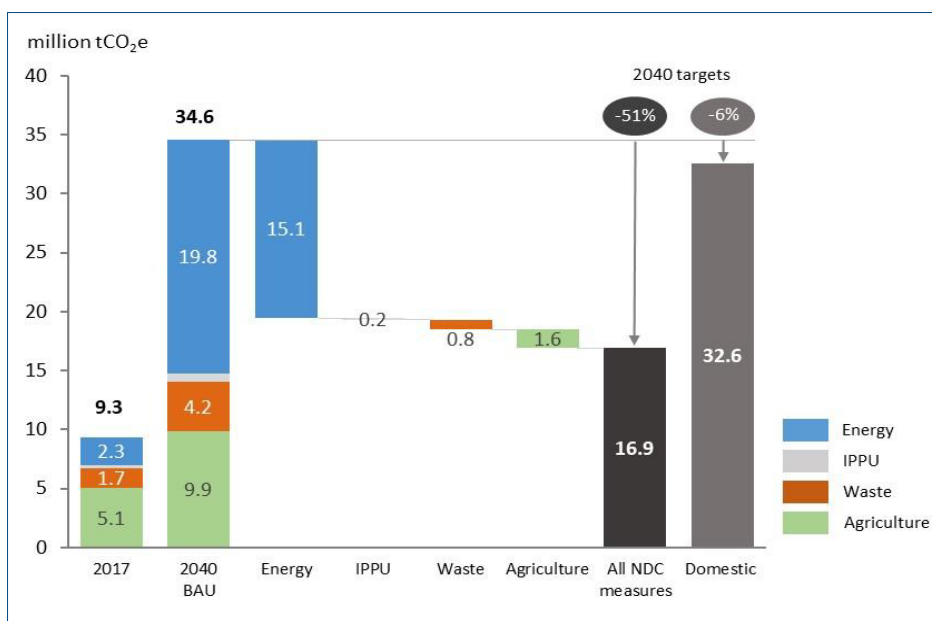


Figure 1: NDCs emission reduction scenarios (not including FOLU), Source: Government of Malawi, Updated NDC (2021), available on <https://unfccc.int/sites/default/files/NDC/2022-06/Malawi%20Updated%20NDC%20July%202021%20submitted.pdf>.

From existing policies to action

As indicated throughout this report, LEDS can provide value-addition to the myriads of existing energy and climate policies and related development strategies that already exist by providing integrated economic development and climate change planning. LEDS may serve a range of domestic purposes for government, private sector and the public as well as other institutions and stakeholders.¹⁴ Based on stakeholder feedback and analysis, the process of integrating LEDS into existing energy and climate policies can enhance co-ordination across different MDAs. Enhanced coordination would benefit programs associated with energy and climate actions which are currently scattered. Effective coordination would also help avoid duplication of efforts, save resources and improve communication with other stakeholder groups such as businesses and civil society. It will increase public awareness of ongoing climate action and related programs in the country. Importantly, LEDS can help guide and identify opportunities for the diversification of the economy and pathways for transitioning from fossil fuels. Private sector stakeholder representatives' insights indicated that provision of comprehensive clarification and understanding of the economic development, energy and climate change policy priorities and strategies is highly needed to provide early signals to the private sector for possible directions for investment, research, and development. This implies the need for stronger involvement of the private sector in the process of development of LEDS and their implementation. A clearer understanding of existing policy arrangements and their effectiveness would also inform and attract international community and other non-state actors, including opportunities for them to invest in the country as reflected by the feedback from NGOs and CSOs.

There is need for enhancing policy coherence that could be informed by political commitment, coordination, long-term planning and integration. This would be vital for achieving synergies and effective stakeholder engagements both at national and subnational levels as demonstrated in table 6.

Policy ambition for achieving LEDS	Characteristics
Political commitment	<ul style="list-style-type: none"> › Establishing a clear vision of major changes to be pursued following changes in ministry titles; › Having clearly established long-term GHG targets (in absolute terms) and intermediate milestones; › Providing clear indication for future sectoral emissions; › Identifying responsibilities for different actors.
Policy coordination	<ul style="list-style-type: none"> › Clearly outlining sectoral measures and policies while building on existing sectoral plans and mechanisms for realizing policy and institutional alignments.
Long-term planning	<ul style="list-style-type: none"> › A concrete vision of a desired future through a clear narrative of the short, medium, and long-term; › Recognizing short and long-term commitments by referring to Malawi NDC; › Having multiple pathways that show different possibilities over time.

¹⁴ Brazil low carbon case study by World Bank Group (2010), available on <https://www.agroicone.com.br/uploads/2014/10/manual-baixo-carbono.pdf>

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Policy integration, policy effects and monitoring	<ul style="list-style-type: none"> › Clearly linking Malawi NDC and MIP-1 to other thematic plans related to other policy priorities; › Clearly aligning SDGs and other policy priorities; › Quantifying policy effects and co-benefits; › Including measures to cope with potential trade-offs; › Providing clear framework at national level for monitoring implementation of LEDS, including indicators for tracking progress in emissions reduction and capturing effects in terms of other policy priorities. › Mainstreaming gender equality, women's and youth empowerment, social inclusion, and poverty alleviation in proposed low carbon options.
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Table 6: Creating policy coherence for achieving LEDS.

In addition, having a clear strategy for LED for Malawi that penetrates through current energy and climate change policies would identify gaps and priority actions and programmes and reflect funding needs for implementing climate change programmes and projects in the country. In table 7, the study outlines current energy and climate policies discourse and explore gaps, opportunities, adequacy, technical needs, and institutional arrangements towards attainment of LED based on stakeholder feedback and policy analysis.

Issues highlighted in the table portray gaps and opportunities for enhancing the integration of LEDS thinking into existing energy and climate policies. To achieve credibility and effectiveness of the policy framework, Malawi needs to clearly outline the LEDS overall outcomes of existing energy and climate change mitigation strategies. Integrating climate policies into relevant sectoral plans that avoid trade-offs and establish sound monitoring mechanism that embraces sustainable development and socio-economic priorities are crucial.

Policy	Technical		Institutional		Policy needs
	Opportunities	Gaps	Strengths	Gaps	
Energy Policy	Provides room for increase in access to affordable reliable, sustainable, efficient and modern energy.	Does not provide an analytical foundation for GHGs inventories and establishment to routinely collect data towards accountability and transparency on GHGs reporting.	Availability of MDA structures including staffing.	Inadequate capacities in GHGs accounting, monitoring and reporting.	Need to identify policy options for clear LEDS entry points and identify barriers to effective implementation. Prioritise policy review according to Malawi's energy and climate international obligations and commitments.
Renewable Energy Strategy	Sets out detailed priorities and actions to achieving universal access to renewable electricity and sustainable bio-energy sector in line with the SE4ALL and	Coordination across MDAs is limited and not clear in key areas for attaining LEDS. Does not define and provide roles for mainstreaming and uptake of LEDS including their forms of financing.	Established MDAs to support the LED uptake process.	Limited resource and financing allocation by government. Low capacities in the development of bankable LED	Align policies with development goals to increase participation and mobilize political and financial support. Utilise availability of online platforms to increase LEDS preparation and understanding.

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	commits to SDGs.			programs including access to financing instruments.	Consider interactions and engagement across policies and sectors.
Malawi NDC/ NDC Implementation Plan and M&E Framework	<p>Enables Malawi to define pathways for attainment of low carbon emission and resilient economy by 2040.</p> <p>Provides clear and detailed analytical presentation of investment needs across climate impacted sectors.</p> <p>Provides LEDS associated technologies potential for investments.</p>	<p>Not yet fully embraced by sectoral technicians.</p> <p>Pathways for mobilising for domestic financing not yet established.</p> <p>Inadequate dissemination to stakeholders such as the private sector and public awareness.</p>	<p>Provides room for establishment of MRV system to transparently report on progress made towards achieving targets defined.</p>	<p>Insufficient multi-sectoral and harmonised institutional structure.</p> <p>Lack of coordination in overall information flows to support NDC process not yet.</p> <p>Resources for financing not effectively established including private sector inclusion</p>	<p>Clearly defined sources of finance whether domestic or international linked to policy priorities.</p> <p>Improve stakeholder coordination and where possible revise NDC to clearly accommodate LEDS over time.</p> <p>Effectively engage stakeholders including citizens and enhance communication with other sectors.</p> <p>Raise both public and private (private actors, innovators, goods and service providers, technician etc.) awareness to increase stakeholder engagement.</p>

Table 7: Policy Analysis: Opportunities and Gaps.

Financial flows and contribution towards LED

Based on the financing outlook and needs for the energy sector reflected under the background, this section presents the energy capital investment needs for Malawi that will also contribute to development and uptake of LEDS. It discusses funding gaps that Malawi still faces including estimated funding requirements associated with all identified mitigation options under the Malawi updated NDC. As is demonstrated in figure 2, commercially viable sectors should aim for market-based financing although higher risk activities will require guarantees, subordinate capital, and first loss capital. Some sectors especially relating to low-income brackets, will continue to require subsidy in the longer term.

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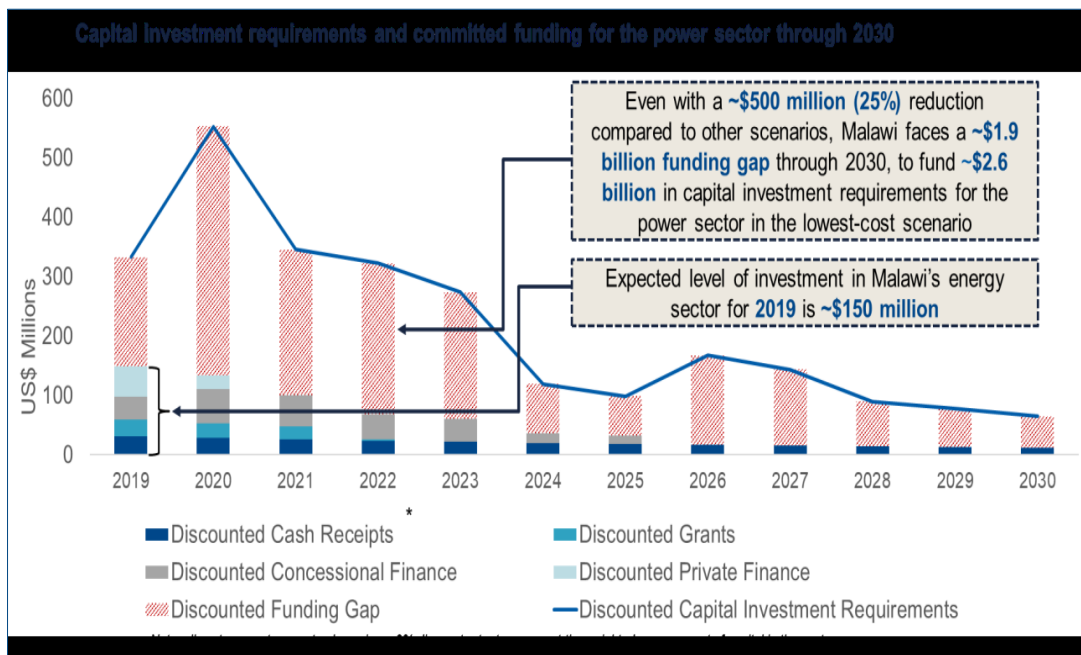


Figure 2: Capital investment requirements for the electricity sector through 2030. Source: Government of Malawi (2019), *Malawi sustainable Energy Investment Study*.

Overall, 350 million USD of donor commitments and first-loss capital is needed to leverage 1 billion USD in concessional and subordinate capital and 1.15 billion USD market-based financing. Implementing quick-win energy generation projects is vital for unlocking further commercial finance. The government has already published an IPP framework for Malawi that provides significant protection for investors through foreign exchange and credit guarantees. By implementing some projects, Malawi can provide a track record for the off-taker, build internal capacity, and unlock further commercial financing.¹³

As presented in figure 3 and table 8, the funding requirements associated with all identified mitigation options are estimated at 41.8 billion USD through 2040. These represent the investment costs required for new plant, installations, equipment, and goods, as well as additional implementation and ongoing costs. The funding levels for each sector broadly correspond to the estimated mitigation shares across each emitting sector, with energy projects accounting for the largest proportion (around 86%), followed by agriculture (9%). To achieve projected mitigation outcomes, estimates indicate how resource requirements increase significantly over each subsequent five-year period. This reflects increasingly deep cuts in emissions through 2040, but also the timing of large capital-intensive energy and infrastructure projects developed from around 2030 onwards.³

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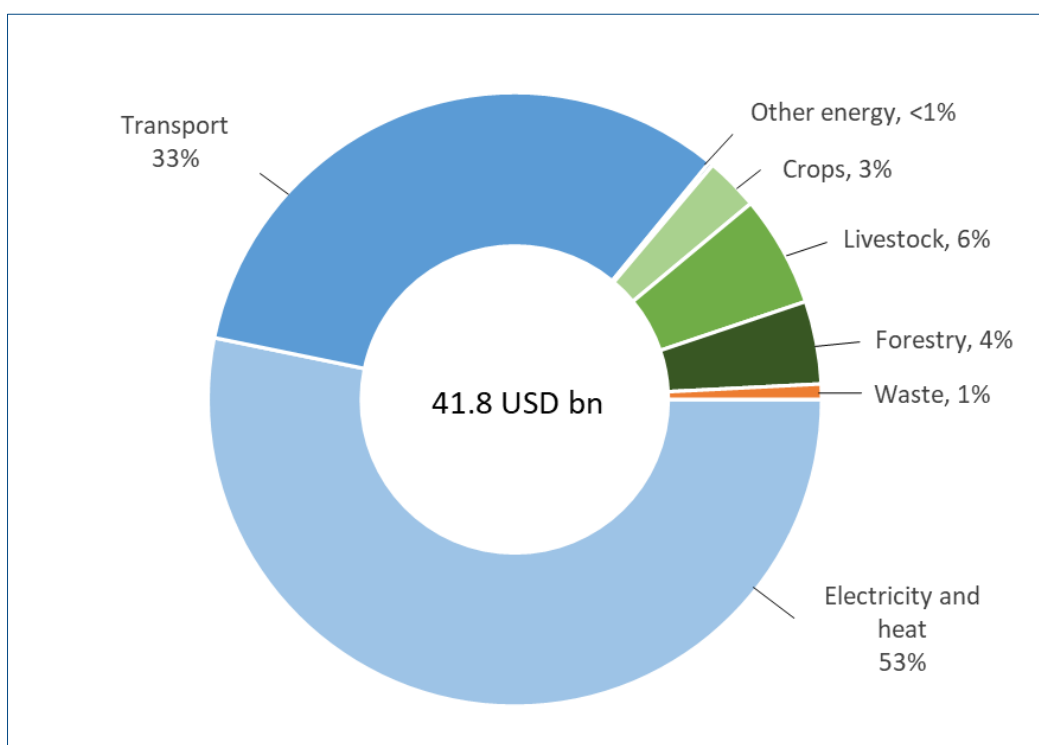


Figure 3: Funding requirements for all identified measures through 2040. Source: Government of Malawi, Updated NDC (2021).

Sector	2020-2025	2025-2030	2030-2035	2035-2040	Total
Electricity and heat	421	2,980	8,465	10,374	22,240
Transport	2,145	2,473	4,200	4849	13667
Other energy	19	22	23	24	88
Energy total	2,584	5475	12,688	15,247	35,994
IPPU	3.0	0.0	0.0	0.0	3.0
Crop management	131	284	368	392	1175
Livestock	505	652	646	646	2449
Agriculture total	635	936	1014	1,039	3,624
Forestry	743	854	226	0	1,824
Solid waste	214	42	7	7	271
Waste-water	33	33	0	0	67
Waste total	248	76	7	7	337
TOTAL	4,213	7,341	13,935	16,292	41,782

Table 8: Funding requirements for all mitigation measures (USD million). Source: Government of Malawi, Updated NDC (2021).

A descriptive analysis of stakeholder feedback also indicated the finance gap as a major challenge for the country to fully realize energy and climate policy aspirations. To bridge financing gaps, more multi-sectoral innovative financing instruments and mechanisms should be developed locally while further exploring and scaling-up already existing international financing instruments for LED. Mobilizing financial resources from international windows is critical considering that the implementation of most NDCs priority actions is highly conditional and dependent on access to external funding (figure 4).

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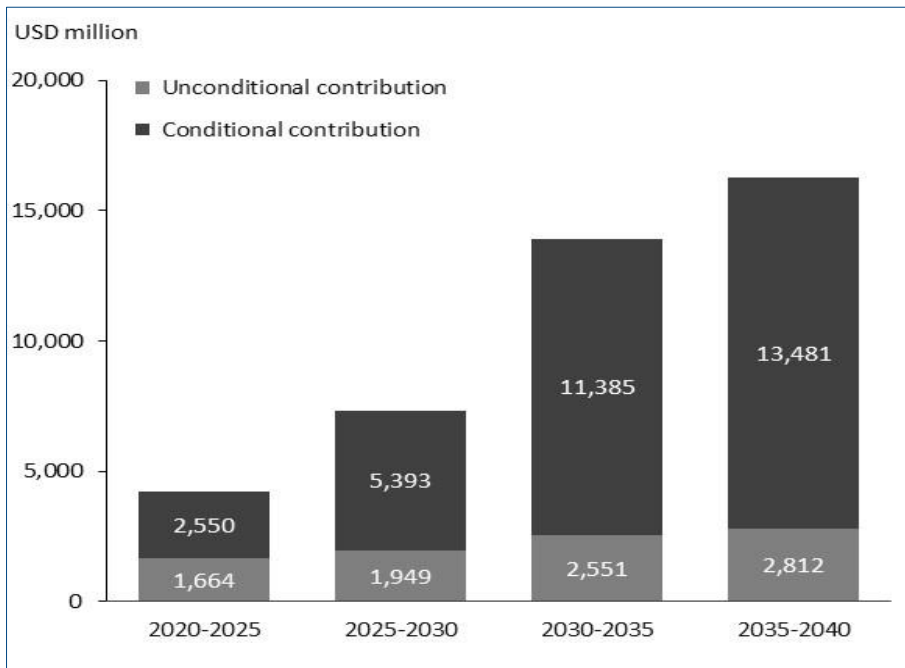


Figure 4: Estimated funding requirements according to the grouping of unconditional and conditional measures for each five-year period through 2040. Source: Government of Malawi, Updated NDC (2021).

Moving forward a set of actions can unlock funding needs in a positive feedback loop that can help the energy sector to develop rapidly, sustainably and at low cost. However, transparent and accountable arrangements for LEDS and associated technologies including balancing trade-offs between mitigation goals and other policy priorities need to be established. This is also in line with recommendations in the Malawi Sustainable Energy Investment Study (2019) recommending that the government should take the lead in implementing such actions, coordinating actors and communicating outcomes to demonstrate sectoral progress. Figure 5 is an extract from the Malawi Sustainable Energy Investment Study (2019) that presents a 5-step approach that would scale up sustainable energy investments in the country.

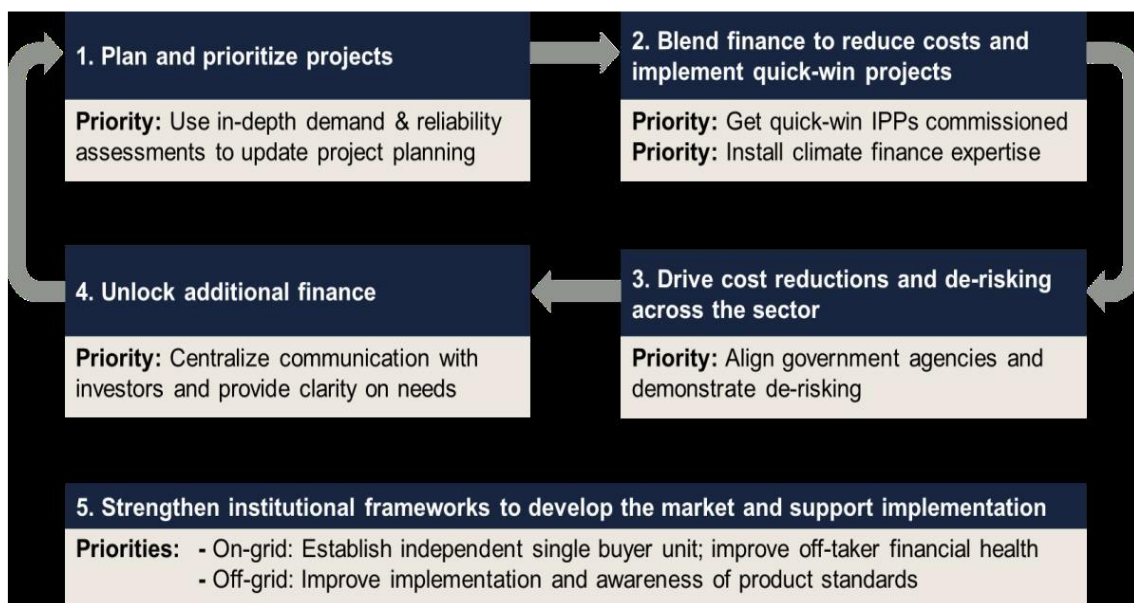


Figure 5: Five action areas for scaling-up sustainable energy investments. Source: Malawi of Government (2019), Malawi Sustainable Energy Investment Study.

Economic potential for LED inclusive sustainable energy in Malawi

Based on the Malawi Climate Transparency Project progress report (2023), an MRV system and establishment of a climate transparency unit within the Ministry of Natural Resources and Climate Change, Environmental Affairs Department to work closely with sectoral data collection hubs is being pursued.¹⁵ Sectoral data collection teams have been trained in climate transparency concepts, their roles in MRV system including reporting. Though the report is indicating progress made, stakeholder feedback showed that quantified economic potential for sustainable energy research has not been established up to date. Further, the potential for achieving economic growth as a result of the adoption of LED inclusive sustainable development is being challenged by limited fiscal space that has led to insufficient investment in infrastructure. Malawi has underinvested in infrastructure due to limited financial resources with sluggish economic growth over the past decade. In 2021, the country registered a GDP of 12.80 billion USD at 3 % annual growth. A small tax base as of 2019 tax revenues was at 17.3 % to the GDP and limited room to raise taxes due to inelasticity of the whole tax system as only PAYE (pay as you earn) tax, which already exerts pressure on citizens. This indicates the need to improve the tax elasticity in the country for tax base to grow relatively to GDP. Declining official development assistance (ODA) has led to financial gaps in recent years. For instance, the country received 1.70 billion USD in 2017, 1.38 billion USD in 2018 and 1.27 billion USD in 2019 as net ODA received according to recent data.¹⁶ Estimating effects of LEDS on socio-economic potential and policy priorities helps identify and proactively address economic challenges and align financial and investment gaps. Doing this requires a thoughtful selection of indicators, which in turn enhance political acceptability and credibility of LEDS by demonstrating that climate mitigation will not come at the expense of other socio-economic and environmental ambitions of the country but play a complementary role.

Stakeholder feedback was in line with the recent published report by World Bank, Malawi Economic Monitor 2020, which outlined that the government has been struggling to meet the large up-front capital expenditure required for investing in energy infrastructure.¹⁷ Poor performance of statutory and parastatals in the energy sector has compromised efforts to realize economic growth. For instance, the poor performance of the Electricity Supply Corporation of Malawi (ESCOM) puts sustainability of the sector at risk and limits the ability of the sector to attract private capital and diversify its energy services. ESCOM faces severe financial problems due to inefficiencies that are driven by management and human resource challenges, low revenue generation capacity, and liquidity problems. In addition, private sector and civil society representatives indicated that poor fast-tracking of processes that will allow IPPs to be able generate and supply power is limiting potential for private sector to invest in sustainable energy and LED.

Inclusiveness of sectoral actors

A well enabled and facilitated multi-stakeholder participation can make important contribution in strengthening the design, implementation and assessment of sectoral policies and programmes. It enhances the effectiveness of policies by integrating broad and diverse stakeholder knowledge and perceptions as well as consolidate the needed support for policies formulation and implementation.

¹⁵ Malawi Climate Transparency Project Progress Report (2023) by Global Environment Facility (GEF). Available at: <https://www.thegef.org/projects-operations/projects/10149>

¹⁶ World Bank Data (2018), available at: <https://data.worldbank.org/indicator/DI.ODA.ODAT.KD?locations=MW&start=2015>

¹⁷ World Bank, Malawi Economic Monitor (2020), available on <https://documents1.worldbank.org/curated/en/835161595529532367/pdf/Malawi-Economic-Monitor-From-Crisis-Response-to-a-Strong-Recovery.pdf>

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Enhanced transparency, accountability and legitimacy of decision-making processes are key for ensuring sustainable and effective multi-stakeholder engagements and collaborative efforts. As such the study adopted a stakeholder participation guide in assessing stakeholder engagement in the design, implementation and monitoring of existing energy and climate policies and actions in the country. This was useful in building understanding of the nature and scope of stakeholder participation and support, improving design and implementation of policies, strengthening the assessment and technical review of the transformational impacts of the policy on economic and energy development in the country.

The methodology for assessing stakeholder participation and engagement was guided by the overall stakeholder list under the study methodology above. The findings will help in resolving challenges that hinder effective and meaningful participation in policy formulation and implementation processes and inform on policy gaps, that would require adjustments and improvements.

Based on the stakeholder feedback, there were limited consultations and involvement of the private sector and communities in the planning and designing of three major energy and climate policies (Malawi Energy Policy, Malawi Renewable Energy Strategy and Malawi NDC). For instance, private sector actor groups and community representatives indicated having no knowledge of the processes including how to participate in the planning and designing of the mentioned key policies. This has far-reaching implications on realising and attracting investments from the private sector. The lack of private sector involvement in policy formulation would mean that such policies may not cover their interests and priorities in the best way and thus may not attract their investments. For instance, the policies may fail to provide incentives as a strategy to attract their financial investments in the energy sector. Stakeholders such as NGOs/CSOs were directly involved in the stages of planning and designing including validation of the policies. One respondent from the NGO/CSOs sector clearly expressed appreciation for their involvement in the processes as this allows them to effectively contribute and influence government on policy direction. This has also allowed them an opportunity to map areas to strengthen collaboration and partnership with government institutions. However, there has been limited involvement and access to information among communities, who are the main target beneficiaries of various programmes and projects being implemented under energy and climate action, including LED initiatives. Language barrier, ineffective coordination and leadership gaps between government institutions and community structures are some of the key hindrances to information access and community engagement.

Experts identified a lack of a well-structured policy results and monitoring frameworks at the national level as key causes of failure to allocate resources, operationalize policy implementation as well as measure targets and report on progress achieved. Low technical and institutional capacities to undertake accounting for GHGs and access to GHGs national inventory across different levels of programming and decision making are equally compromising factors. An example was the energy policy not reviewed on time to align priorities and targets to the NDC including the MIP-1 and other national development plans. Youth, women and disability group representatives expressed lack of their meaningful involvement in planning and designing of energy and climate policies despite being directly impacted by such policies, decision and initiatives at different levels.

Donors demonstrated to be strongly involved in the planning, designing, and implementation of policies including provision of technical and financial support. Donors have also been in the forefront of providing training and capacity building opportunities for relevant government officers through their various programs.

Conclusion

Despite Malawi not having a standalone low carbon growth plan to guide its economy-wide forward looking national economic development plans that encompasses a low emission climate resilient development, the energy sector has significant opportunities for embracing and enhancing low carbon growth. This is achievable through holistic and government-led multi-stakeholder approaches that could win and attract financial and technical support from development partners and the private sector. This needs to be facilitated by strengthening synergies and coordination amongst government structures and effective collaboration with key stakeholders aided by allocation of adequate financial resources to aid development and implementation of LEDS and related projects and programs. However, bankable projects will require aligning to Malawi technology and science needs, building capacities of staff on GHG accounting as well as establishing a national MRV system. Malawi's updated NDC, and economic and development plans such as the Malawi 2063 (for now MIP-1) will also require alignment with key energy and climate strategies while fostering inclusivity, gender equality, youth and women empowerment through accountable and transparent processes.

This study emphasizes the importance of the Malawi Climate Transparency Framework Project (2021 to 2024) which aims to strengthen capacities of institutions in the country and establish information system in efforts to fulfil the ETF requirements. As such, the project is critical in translating energy and climate policy goals and commitments into reality through enhancing collaboration between government and all non-state actors and communities. This will be facilitated through embracing multi-stakeholder mechanisms. Further, it would enhance coordination with initiatives under SE4ALL, REDD+, CDM among other initiatives towards achieving effectiveness of existing energy and climate policies and plans in the country. The project can also enhance and contribute to NDC processes and implementation as well as inform opportunities to invest towards achieving LEDS in Malawi, guided by transparent and accountable funding arrangements that aim to provide low cost, reliable and sustainable energy for the people of Malawi.

Recommendations

Recommendation	Description	Responsible
Coordination and harmonization of policies	<ul style="list-style-type: none"> › Establish coordination mechanisms and platform at the national and subnational levels to facilitate dialogue and identify pathways for mainstreaming sectoral and other relevant policies, plans and strategies in the country. › Develop tools and protocols aligned to multi-sectoral needs to track and report GHG emissions, climate actions and interpreting results into the MRV system. The MCTFP would be best positioned to facilitate this before its closure while drawing support from the NDC coordination unit and Ministry of Energy. 	› Government MDAs
Strengthening institutional and stakeholder capacities	› Strengthen capacities of key government staff and relevant stakeholders on national energy sector transition priorities, strategies and their alignments with international	› Government, donors, development partners, NGOs/CSOs,

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	<p>efforts and commitments of the country, including Paris Agreement.</p> <ul style="list-style-type: none"> › Establish knowledge platforms and linking them with arrangements to build technical and institutional capacities that will enable the country to meet its national aspirations as well as international commitments. This will also be useful in enabling resource mobilization and attracting investments. › Support establishment of climate transparency unit and training of its members on the effective management and use of national platform to track emissions reduction efforts. Enhance GHG inventory and MRV system integration with sectoral data management systems. 	<p>private sector and researchers</p>
<p>Financing</p>	<ul style="list-style-type: none"> › Develop private sector and investor engagement and communication strategy that would help in unleashing private sector investments through blended, concessional, and commercial financing. › Enhance public private partnerships to allow for dialogue on tax and investment incentives, risk management while enabling cost-effective pathways for LEDS. › Effectively work and coordinate with Ministry of Finance and Economic Affairs to support technical input and unlocking of finances and investments. 	<ul style="list-style-type: none"> › Government, development partners, and private sector
<p>Broad-based multi-stakeholder collaboration</p>	<ul style="list-style-type: none"> › Establish and embrace mechanisms and platforms that encourage multistakeholder engagements and synergies in the planning, designing, implementation and tracking of energy and climate policies and initiatives. This needs to appreciate the value of community and gender inclusion and mapping of priority action areas. 	<ul style="list-style-type: none"> › Government, donors, development partners, NGOs/ CSOs, community groups, media, private sector and researchers

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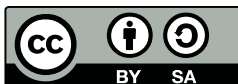
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