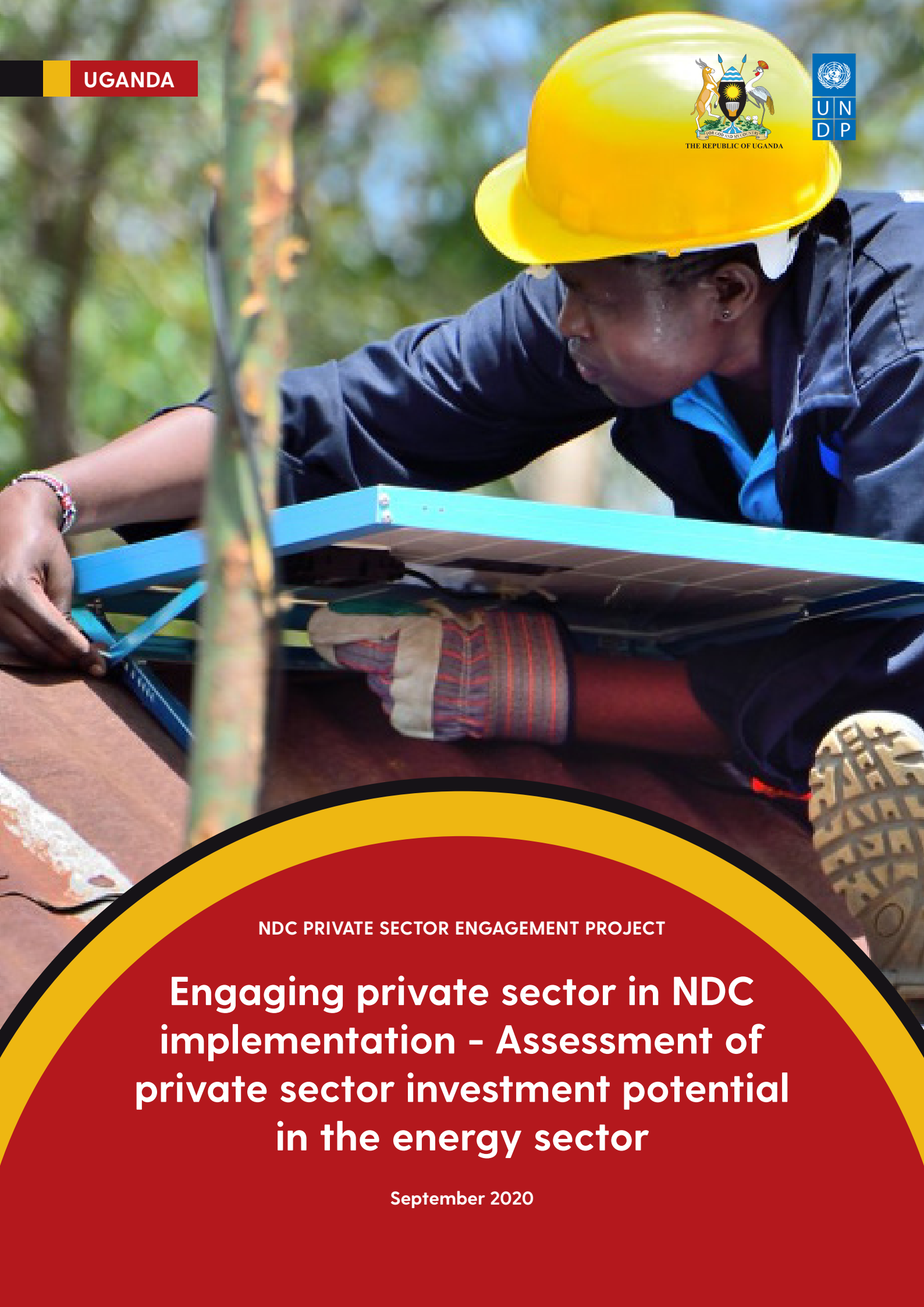


UGANDA



NDC PRIVATE SECTOR ENGAGEMENT PROJECT

# Engaging private sector in NDC implementation - Assessment of private sector investment potential in the energy sector

September 2020

## ABOUT UNDP

UNDP's work on climate change spans more than 140 countries and USD \$3.7 billion in investments in climate change adaptation and mitigation measures since 2008. With the goal to foster ambitious progress towards resilient, zero-carbon development, UNDP has also supported the implementation of the Paris Agreement on Climate Change by working with countries on achieving their climate commitments or Nationally Determined Contributions (NDCs).

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The NDC Support Programme provides technical support for countries to pursue a “whole-of-society”, integrated approach that strengthens national systems, facilitates climate action and increases access to finance for transformative sustainable development. The programme helps countries address these financial barriers by deploying a structured approach for scaling up sectoral investments and putting in place a transparent, enabling investment environment. Beyond direct country support, UNDP facilitates exchanges and learning opportunities on NDC implementation at the global and regional level by capitalizing on our close collaboration with the UNFCCC and other strategic partners. The Programme, which works in contribution to the NDC Partnership, is generously supported by the German Federal Minister for the Environment, Nature Conservation, and Nuclear Safety (BMU), the German Federal Ministry of Economic Cooperation and Development (BMZ), the European Union and the Government of Spain.

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# TABLE OF CONTENTS

<b>LIST OF TABLES &amp; FIGURES</b>	<b>4</b>
<b>ACRONYMS</b>	<b>5</b>
<b>1. INTRODUCTION</b>	<b>6</b>
<b>2. GREENHOUSE GAS EMISSIONS AND CLIMATE TARGETS</b>	<b>7</b>
2.1 Overview of Uganda’s GHG emission profile	7
2.2 Uganda’s energy sector and its GHG emissions	7
2.3 Uganda’s NDC and energy sector targets	9
<b>3. ENABLING ENVIRONMENT</b>	<b>10</b>
3.1 Overall policy environment	10
3.2 Climate change-related policy environment	11
3.3 Energy sector policy environment	13
3.4 Private sector policy environment	16
3.5 Energy sector institutions and institutional framework	17
3.6 Overall business environment	17
3.7 Ease of doing business	20
3.8 Enabling environment for cross-border and foreign investments	23
<b>4. PRIORITIZED SECTOR CONTEXT</b>	<b>32</b>
4.1 Renewable energy	32
4.2 Energy efficiency	41
4.3 Clean cooking	44
4.4 Transport	48
4.5 Financial institutions providing green financing relevant to the energy sector	49
<b>5. PRIVATE SECTOR INVESTMENT POTENTIAL</b>	<b>56</b>
5.1 Data sources	56
5.2 Investment potential	56
<b>6. REPORTING FRAMEWORK TO ALIGN BUSINESS OPPORTUNITIES WITH NDC IMPACT TARGETS IN UGANDA’S ENERGY SECTOR</b>	<b>59</b>
6.1 Rationale for private sector alignment with NDC impact targets	59
6.2 Reporting frameworks	59
<b>7. CONCLUSION</b>	<b>67</b>

# LIST OF TABLES & FIGURES

## TABLES

Table 1: Electricity generation composition (2019)	8
Table 2: Energy sector mitigation measures under the NCCP	12
Table 3: Policy actions under the Renewable Energy Policy	14
Table 4: Strategic objectives under Uganda's biomass energy strategy	16
Table 5: Government institutions and institutional framework in the energy sector	17
Table 6: Uganda's risk profile	19
Table 7: Uganda's Doing Business score and rank (2016-2020)	20
Table 8: Renewable energy investments in Uganda	35
Table 9: Investment costs for planned additional capacities	36
Table 10: Financial institutions providing green financing to the energy sector	49
Table 11: Centenary Bank's products provided to Uganda's energy sector	50
Table 12: CDM projects in Uganda	51
Table 13: Uganda's NDC targets	56
Table 14: Calculation of investment potential in renewable energy	57
Table 15: Calculation of investment potential in solar home systems	57

## FIGURES

Figure 1: Energy sector emissions trend (2005-2015)	8
Figure 2: Renewable energy power generation ecosystem in Uganda	33
Figure 3: Value chain for on-grid renewable energy generation in Uganda	34
Figure 4: Selected renewable energy associations in Uganda	37
Figure 5: Value chain for off-grid renewable energy power generation in Uganda	38
Figure 6: Selected list of technology providers and small-scale developers in Uganda	39
Figure 7: Uganda's energy efficiency ecosystem	41
Figure 8: Uganda's clean cooking ecosystem	45
Figure 9: Value chain for clean cooking stoves and efficient fuel	45
Figure 10: Selected improved fuel manufacturers in Uganda	46
Figure 11: Transport subsector ecosystem in Uganda	48

# ACRONYMS

<b>AFOLU</b>	Agriculture, forestry and other land use	<b>REFIT</b>	Renewable Energy Feed-in Tariff
<b>BAU</b>	Business-as-usual	<b>REP</b>	Renewable Energy Policy
<b>BEST</b>	Biomass Energy Strategy for Uganda	<b>SACCO</b>	Savings and credit cooperative organization
<b>BoU</b>	Bank of Uganda	<b>SHP</b>	Small hydropower
<b>BRT</b>	Bus Rapid Transit	<b>SHS</b>	Solar home systems
<b>BUR</b>	Biennial Update Report	<b>SMEs</b>	Small and medium enterprises
<b>CDM</b>	Clean Development Mechanism	<b>SSA</b>	Sub-Saharan Africa
<b>CFL</b>	Compact fluorescent lamp	<b>SUNREF</b>	Sustainable Use of Natural Resources and Energy Finance
<b>C&amp;I</b>	Commercial and industrial	<b>tCO<sub>2</sub>e</b>	Tons of carbon dioxide equivalent
<b>DESCO</b>	Distributed energy service company	<b>UETCL</b>	Uganda Electricity Transmission Company Limited
<b>ESCO</b>	Energy service company	<b>UGGDS</b>	Uganda Green Growth Development Strategy
<b>GDP</b>	Gross domestic product	<b>UGX</b>	Ugandan shilling
<b>GETFIT</b>	Global Energy Transfer Feed-in Tariff	<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>GHG</b>	Greenhouse gas	<b>URSB</b>	Uganda Registration Services Bureau
<b>GWh</b>	Gigawatt hour	<b>US\$</b>	United States dollar
<b>IPP</b>	Independent power producer	<b>VAT</b>	Value-added tax
<b>IPPU</b>	Industrial processes and product use	<b>VC</b>	Venture capital
<b>LED</b>	Light-emitting diode	<b>VSLA</b>	Village savings and loan association
<b>LPG</b>	Liquefied petroleum gas		
<b>MEMD</b>	Ministry of Energy and Mineral Development		
<b>MFI</b>	Microfinance institution		
<b>MW</b>	Megawatt		
<b>NAMA</b>	Nationally Appropriate Mitigation Action		
<b>NCCP</b>	National Climate Change Policy		
<b>NDC</b>	Nationally Determined Contributions		
<b>NDP</b>	National Development Plan		
<b>NDPII</b>	National Development Plan 2015/16 – 2019/20		
<b>OECD</b>	Organisation for Economic Co-operation and Development		
<b>POA</b>	Programme of Activities		
<b>PPA</b>	Power purchase agreements		
<b>PPP</b>	Public-private partnerships		
<b>PV</b>	Photovoltaic		
<b>REA</b>	Rural Electrification Authority		
<b>REDD+</b>	Reduce emissions from deforestation and forest degradation		

# 1. INTRODUCTION

Transforming Nationally Determined Contributions (NDCs) into tangible actions that lead to long term, zero-carbon and climate-resilient development requires financing. Access to finance is fundamental to realize the objectives set by the NDCs. However, countries continue to face challenges in securing the resources needed to achieve their NDC targets.

To support the transition to low-emission, climate-resilient development, private sector resources must be mobilized to fill the gap caused by a lack of public investment. The adoption of the Paris Agreement sent a strong policy signal for private sector investment in climate finance. The development of the NDCs has also offered investment opportunities for the private sector. In 2015, private sector investments reached US\$299 billion, before dropping to \$242 billion in 2016, due to the combination of falling technology costs and lower capacity additions in some countries.<sup>1</sup> Project developers are by far the largest providers of climate finance, investing \$125 billion in 2016.

Broader-scale investments are needed to achieve the objectives set in the NDCs and the Paris Agreement. For example, it is estimated that \$23 trillion in public and private investments is needed. Given the magnitude of the need, most of that will have to come from the private sector.<sup>2</sup> Ensuring the transition to low-carbon agriculture, forestry, water and waste sectors, among others, will require additional capital. Global estimates of the cost of change adaptation may rise to between \$280 billion and \$500 billion per year by 2050; costs may be higher under higher emissions scenarios.<sup>3</sup>

To bridge this gap, it is important to identify the private sector stakeholders engaged in markets and industries and understand which financial instruments and services are available to technology providers and users and providers of capital.

Developing countries and emerging economies offer private sector players significant potential to participate in climate finance and climate actions. Those players include multinational corporations (MNC) and financial institutions; small and medium enterprises (SMEs) may also be mobilized in these countries. However, these players face obstacles, including financial and regulatory barriers and technical limitations, to investing and engaging in climate actions.

This report estimates the private sector investment potential for delivering NDC sectoral targets in Uganda's energy sector. Section 2 assesses greenhouse gas (GHG) emissions and climate targets in the energy sector, describes the sector's importance for achieving emission reductions in Uganda and identifies targets. Section 3 focuses on the enabling environment, providing an overview of the main policies relevant to private sector investment and the energy sector. It also assesses macroeconomic risks, the business environment and the regulatory environment relevant to foreign direct investment.

Section 4 assesses energy sector investments in renewable energy, energy efficiency, clean cooking and transport in Uganda. It also provides an overview of the main challenges to that investment. Section 5 analyses private sector investment potential by energy subsector, using targets identified based on Uganda's policy documents. Section 6 presents the reporting framework to align business opportunities with Uganda's NDC energy sector targets and with the SDGs.

1 Climate Policy Initiative. October 2017. *Global Landscape of Climate Finance 2017*.

2 NDC Partnership. *Unlocking private finance to help governments achieve their climate goals*. <http://ndcpartnership.org/unlocking-private-finance-helps-governments-achieve-their-climate-goals>.

3 Sustainable Development Goals. 2016. *UNEP report: Cost of adapting to climate change could hit \$500B per year by 2050*. <https://www.un.org/sustainabledevelopment/blog/2016/05/unep-report-cost-of-adapting-to-climate-change-could-hit-500b-per-year-by-2050/>.

## 2. GREENHOUSE GAS EMISSIONS AND CLIMATE TARGETS

Uganda is a relatively low GHG emitter. However, the country is experiencing significant adverse impacts of climate change, including changing weather patterns, rising water levels of water bodies and increased frequency of extreme weather events. In response to this challenge, Uganda has taken steps to ensure the resilience of its people to the effects of climate change and contribute to mitigating global warming.

This section presents Uganda's GHG emission profile, its energy sector-specific GHG emissions, and the country's NDC and energy sector-related targets.

### 2.1 OVERVIEW OF UGANDA'S GHG EMISSION PROFILE

Uganda's GHG emissions account for only 0.099 percent of total GHG emissions globally. At 1.39 tons of carbon dioxide equivalent (tCO<sub>2</sub>e) per capita, its GHG emissions are among the lowest per capita in the world. (The global average is approximately 7.99 tCO<sub>2</sub>e per capita.) The country's 2015 GHG emissions totalled 77.381 million tCO<sub>2</sub>e. Based on Uganda's national GHG inventory, they include CO<sub>2</sub> (primarily from land), CH<sub>4</sub> (primarily from livestock and burning), and N<sub>2</sub>O, direct and indirect, from managed soils.

In sectoral terms, the agriculture, forestry and other land use (AFOLU) sector represents the most significant source of GHG emissions, totalling 66.829 million tCO<sub>2</sub>e, or 86.4 percent of total 2015 emissions. The energy sector follows, with 8.452 million tCO<sub>2</sub>e (10.9 percent of total emissions), waste at 1.610 million tCO<sub>2</sub>e (2.1 percent), and industrial processes and product use (IPPU) at 0.378 million tCO<sub>2</sub>e (0.6 percent).

Uganda's GHG emission profile was obtained from information provided in its first biennial update report (BUR) to the United Nations Framework Convention on Climate Change (UNFCCC), calculated using 2015 datasets. Compared with GHG emissions information from its second national communications to the UNFCCC, which uses 2005 datasets, Uganda's emissions across all sectors are trending upward. From 2005 to 2015, total national emissions increased from 64.3 million tCO<sub>2</sub>e to 77.381 million tCO<sub>2</sub>e. In sectoral terms, sectoral emissions increased as follows during that period:

- AFOLU: from 59.735 to 66.829 million tCO<sub>2</sub>e;
- Energy: from 4.016 to 8.452 million tCO<sub>2</sub>e;
- Waste: from 0.490 to 1.610 million tCO<sub>2</sub>e; and,
- IPPU: from 0.171 to 0.378 million tCO<sub>2</sub>e.

Uganda's indicative NDC projected business-as-usual (BAU) GHG emissions for 2030, including the land use, land use change and forestry sector, are estimated at 77.3 million tCO<sub>2</sub>e.

### 2.2 UGANDA'S ENERGY SECTOR AND ITS GHG EMISSIONS

Uganda's energy sector drives its national economy. The sector includes both traditional biomass-based energy sources and conventional energy sources, including petroleum and renewable energy.

#### 2.2.1 ELECTRICITY SUPPLY (ELECTRICITY GENERATION)

Uganda's electricity generation capacity is based primarily on hydropower sources and is supported by petroleum-based thermal, bagasse cogeneration, and other small-scale power generation sources from solar photovoltaics (PVs) and biomass. The country's installed capacity totalled 1,182.2 MW in 2019. Table 1 shows the distribution of total installed capacity.

**Table 1: Electricity generation composition (2019)**

ELECTRICITY GENERATION SOURCE	CAPACITY (MW)	PERCENTAGE
LARGE HYDROPOWER	813.00	68.77%
SMALL HYDROPOWER	119.45	10.10%
THERMAL	101.60	8.60%
BAGASSE COGENERATION	96.20	8.14%
SOLAR PV	<b>50.83</b>	4.30%
DIESEL	1.08	0.09%
OTHER BIOMASS	0.04	0.003%

Source: Electricity Regulatory Authority

Independent power producers account for nearly 60 percent of Uganda’s generation capacity. The presence of private sector investment in the energy sector reflects the country’s favourable enabling environment. However, Uganda has one of the lowest electrification rates in Africa. In 2017, its electrification access rate stood at 19 percent, with 23 percent access in urban areas and 19 percent in rural areas.<sup>4</sup> Approximately 7.5 MW (0.63 percent) of total installed generation capacity listed in Table 1 is off-grid electricity.

### 2.2.2 ENERGY DEMAND

Biomass is the primary energy source in Uganda and is used across all sectors, except the transport subsector. Dominant energy sources include fuelwood (about 90 percent of total primary energy consumption), charcoal (about 6 percent) and agricultural waste (about 4 percent). Primary energy consumption in 2015 totalled 18,616,330 tons of oil equivalent.

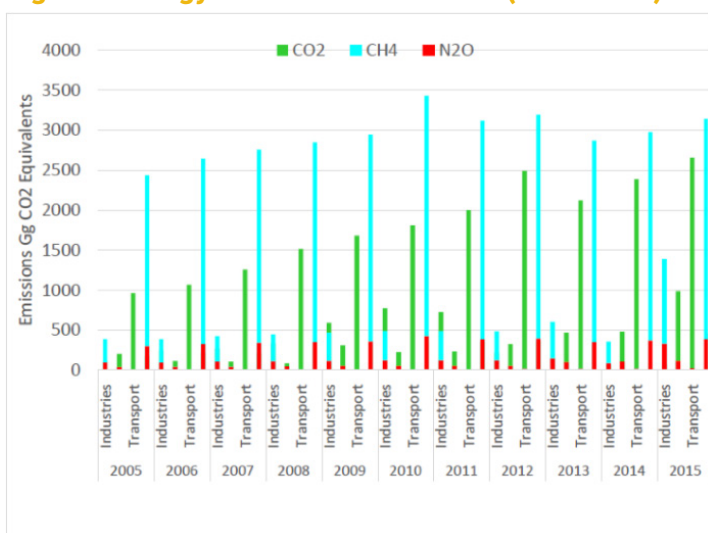
### 2.2.3 ENERGY IN TRANSPORT

Fossil fuel is used in all energy subsectors, but most is consumed in the transport subsector. It uses primarily petroleum-based fuel, such as premium motor spirit (petrol) and automotive gas oil (diesel). All petroleum products are imported into the country.

### 2.2.4 ENERGY SECTOR GHG EMISSIONS

Uganda’s energy sector produces GHG from the combustion of fossil fuels used across its subsectors. The majority of emissions come from the transport subsector and, to some extent, the energy generation subsector. Figure 1 shows the 2005-2015 emissions trend in transport, electricity, manufacturing industries and construction subsectors. Transport subsector emissions have increased steadily over the years.

**Figure 1: Energy sector emissions trend (2005-2015)**



Source: Uganda’s First Biennial Update Report to the UNFCCC, 2019

4 USAID Power Africa. *Power Africa in Uganda*. <https://www.usaid.gov/powerafrica/uganda>



## 2.3 UGANDA'S NDC AND ENERGY SECTOR TARGETS

Uganda's NDC emphasizes that it gives priority to reducing the vulnerability of its population, environment and economy by implementing adaptation actions. This involves the agriculture and livestock, forestry, infrastructure (with an emphasis on human settlements, social infrastructure and transport), water, energy, health and disaster risk management sectors. Nonetheless, Uganda has presented its contribution to mitigation: it seeks to reduce national GHG emissions by about 22 percent by 2030, compared to BAU levels. This will be done by implementing policies and measures in the energy supply, forestry and wetland sectors. It intends to carry out strategies, plans and actions for low GHG emission development in the context of its development goals.

The NDC lists the country's priority adaptation actions for the energy sector. They include increasing efficiency in the use of biomass in the traditional energy sector, promoting renewable energy and other energy sources, increasing efficiency in the modern energy sector (mainly electricity), ensuring the best use of hydropower by careful management of the water resources, and climate proofing investments in the electricity power sector. Although these are priority adaptation measures that the country intends to undertake for the sector, they can also contribute to mitigation and, therefore, may also be considered as cross-cutting measures.

In terms of specific mitigation actions in the energy sector, the NDC emphasizes Uganda's commitment to policies and measures in the power supply subsector to support its low-carbon development. Those include:

- Build enabling infrastructure for electricity sector development, including power lines, substations and transmission facilities:
  - The NDC notes that the development of the electricity sector holds great mitigation potential for Uganda based on the potential offsetting of wood and charcoal burning and resulting deforestation.
- Achieve a total of at least 3,200 MW renewable electricity generation capacity by 2030, up from 729 MW in 2013.

The NDC also includes additional mitigation policies and measures that Uganda intends to undertake if it receives sufficient international support in the form of finance, technology and capacity building, including support accessed through climate finance instruments and international market mechanisms. In the energy sector, these policies and measures fall under the energy demand and transport subsectors. For the energy demand subsector, they include:

- Adopt sustainable energy solutions in public buildings:
  - Energy efficiency in hospitals
  - National Appropriate Mitigation Action for Integrated Sustainable Energy Solutions for Schools in off-grid areas
- Promote and increase the uptake of energy efficient cooking stoves or induction cookers;
- Promote and increase the uptake of solar energy systems; and,
- Develop and enforce building codes for energy efficient construction and renovation.
- Transport subsector policies and measures are as follows:
  - Develop and implement a long-term transport policy accounting for climate change mitigation concerns; and,
  - Adopt Fuel Efficiency Initiative National Appropriate Mitigation Action: Policies and regulations to promote cleaner fuels and more fuel-efficient vehicle technology.

Uganda's energy sector is the main driver of its economic development. The energy sector is the second-largest source of GHG emissions, following the AFOLU sector. Those emissions are expected to continue rising as the population and economy grow. The Government of Uganda has emphasized the importance of the energy sector in achieving the country's mitigation target by calling for a reduction of 22 percent of national GHG emissions by 2030, compared to BAU levels. The transport and energy generation subsectors have been the most significant source of GHG emissions in the energy sector. Mitigation actions laid out in Uganda's NDC focus more on the power supply subsector, but also cover energy efficiency in electricity and biomass use and transport. The government has also emphasized the importance of private sector participation in achieving its targets in the sector. The following sections discuss the opportunities for private sector investment in Uganda's energy sector.

## 3. ENABLING ENVIRONMENT

The existence of an enabling environment, including related legislation, laws, programmes and plans, is crucial to achieve the sustainable development targets in any country. Uganda has developed a wide range of policies related to climate change and the energy sector, emphasizing the need to involve the private sector.

This section highlights existing key policies that shape the private sector in Uganda’s energy sector, followed by an overview of its current business environment, including the macroeconomic environment and ease of doing business.

### 3.1 OVERALL POLICY ENVIRONMENT

The Government of Uganda recognizes the importance of integrating climate change considerations into its policies, strategies and plans as reflected in Uganda Vision 2040 and its National Development Plan. These documents also highlight the importance of the private sector to achieve the country’s development goals.

#### 3.1.1 UGANDA VISION 2040

Uganda adopted Vision 2040 as the country’s economic development driver for 2013-2040. It aims to transform Ugandan society from a predominantly low-income country into a competitive, upper middle-income one by 2040.

Specific to the energy sector, Vision 2040 recognizes that the electricity generation subsector is a key driver to achieve its objectives. It will seek to generate capacities from energy sources including hydropower, geothermal, wind, solar and biomass, taking climate change into consideration. In this respect, the government has committed to invest in research and development and to provide incentives that encourage the use of renewable energy and support the upgrading of industrial technologies to reduce energy use.

#### 3.1.2 NATIONAL DEVELOPMENT PLAN

POLICY OBJECTIVE	POLICY RELEVANCE TO THE PRIVATE SECTOR	POLICY IMPLICATIONS FOR THE PRIVATE SECTOR
To increase household incomes and improve quality of life of Ugandans through sustainable industrialization for inclusive growth, employment and sustainable wealth creation.	<ul style="list-style-type: none"> <li>• Ensure macroeconomic stability</li> <li>• Strengthen the private sector for the country’s development</li> <li>• Strengthen the role of the state in guiding and facilitating development</li> </ul>	Establishes a suitable enabling environment for private sector participation in the country’s sustainable development.

The National Development Plan is a series of five-year development plans aimed at achieving the objectives of Uganda Vision 2040. The National Development Plan 2020/21–2024/25 (NDPIII) is the third of the series, building on the progress made and lessons learned from the planning and implementation experiences of NDPI and NDPII. Its overarching goal is to increase household incomes and improve quality of life of Ugandans through sustainable industrialization for inclusive growth, employment and sustainable wealth creation.

The NDPIII sets five key objectives to be achieved during the five-year period. These are: (i) enhancing value addition in key growth opportunities; (ii) strengthening the private sector to create jobs; (iii) consolidating and increasing the stock and quality of productive infrastructure; (iii) enhancing the productivity and social well-being of the population; and, (iv) strengthening the role of the state in guiding and facilitating development.

To achieve these objectives, the government will pursue development strategies, including: (i) agro-industrialization; (ii) fast-tracking oil, gas and mineral-based industrialization; (iii) import substitution/

promotion of local manufacturing; (iv) export promotion; (v) harnessing the tourism potential; (vi) providing a suitable fiscal, monetary and regulatory environment for the private sector to invest; (vii) increasing local content participation; (viii) institutionalizing infrastructure maintenance; (ix) developing intermodal transport infrastructure to enhance interoperability; (x) increasing access to stable, reliable and affordable energy; (xi) leveraging urbanization as a driver for socio-economic transformation; (xii) improving access and quality of social services; (xiii) institutionalizing human resource planning for the economy; (xiv) enhancing skills and vocational development; (xv) promoting science, technology, engineering and innovation as well as ICT; (xvi) increasing access to social protection; (xvii) promoting a development-oriented mind-set; (xviii) increasing government participation in strategic sectors; (xix) increasing resource mobilization for implementation of national development programmes; (xx) re-engineering the public service to promote investment; and (xxi) enhancing partnerships with non-state actors for effective service delivery.

The NDP III identifies 18 programmes to achieve its objectives. Relevant to the energy sector is the Sustainable Energy Development Programme. It aims to increase access to and use of electricity, increase generation capacity, increase adoption and use of clean energy, and promote use of energy efficient practices and technologies.

Relevant to the private sector is NDP III's Private Sector Development Programme. It aims to increase the competitiveness of the private sector to drive sustainable inclusive growth. This will be achieved through sustainably lowering the costs of doing business, promoting local content in public programmes, strengthening the enabling environment and enforcement of standards, strengthening the role of government in unlocking investment in strategic economic sectors, and strengthening the organizational and institutional capacity of the private sector to drive growth.

## **3.2 CLIMATE CHANGE-RELATED POLICY ENVIRONMENT**

Uganda's economy and the general well-being of its population depends highly on its natural resources and climate. Changes in the global climate system, as indicated by scientific studies, pose challenges to the country's development, as Uganda is highly vulnerable to the impacts of climate change. This is evident, with the country experiencing increased frequency and severity of extreme weather events. Average temperatures in its semi-arid areas are rising, especially in the southwest. The frequency of hot days has increased, while the frequency of cold days has decreased, with these changing temperature patterns leading to more frequent and lengthier droughts. As a result, water resources, hydroelectricity production, agriculture and other sectors are also experiencing significant impacts. These changes are also responsible for the spread of the malaria parasite into new areas of the country and for the significant shrinking of the ice caps on the Rwenzori Mountains. Rainfall has decreased and has become less predictable and less evenly distributed. Floods, landslides, droughts and other extreme weather events are increasing in frequency and intensity.

Recognizing this challenge, the Government of Uganda intends to achieve its long-term sustainable economic growth taking climate change into consideration. On the international level, Uganda reflects its commitment to address climate change through its ratification of the UNFCCC in 1993, the Kyoto Protocol in 2002 and, most recently, the Paris Agreement in 2016.

The following subsections present the country's policies, strategies and plans that incorporate climate change into its development planning framework to ensure that the country is resilient to the adverse effects of climate change and can mitigate their impacts, while aiming to transform Uganda into a competitive, upper middle-income country. Uganda's NDC, representing the country's commitment to the international community to address the impacts of climate change under the Paris Agreement, was discussed in detail in Section 2.3.

### 3.2.1 NATIONAL CLIMATE CHANGE POLICY (2015)

POLICY OBJECTIVE	POLICY RELEVANCE TO THE PRIVATE SECTOR	POLICY IMPLICATIONS FOR THE PRIVATE SECTOR
To ensure a harmonized and coordinated approach towards a climate-resilient and low-carbon development path for sustainable development in Uganda.	Mobilization of financial resources to address climate change, including development of financing mechanisms.	Policy direction provides opportunities to enhance private sector participation in implementing climate change-related activities.

The National Climate Change Policy (NCCP) is Uganda’s integrated response to addressing climate change. It has been prepared and designed in the context of the country’s vision and national development priorities. The NCCP provides a clearly defined pathway for dealing with the challenges of climate change within Uganda’s socio-economic context and looks ahead to the opportunities and benefits of a green economy. It provides strategies and actions that address both sustainable development and climate change and helps the government achieve its Post-2015 Development Agenda and other internationally-agreed development goals without compromising the environment and natural resource base.

The NCCP’s goal is to ensure a harmonized and coordinated approach towards a climate-resilient and low-carbon development path for sustainable development. Its overarching objective is to ensure that all stakeholders address climate change impacts and their causes through appropriate measures, while promoting sustainable development and a green economy.

The NCCP defines sector-specific policy priorities to mitigate GHG emissions in Uganda. Mitigation measures identified in the policy include those addressing forestry, land use and land use change, reducing emissions from deforestation and forest degradation (REDD+), wetlands, agriculture, energy generation, energy use, transport, waste management and industry and cross-cutting mitigation actions. The NCCP identifies the following mitigation measures specific to the energy sector and its subsectors.

**Table 2: Energy sector mitigation measures under the NCCP**

ENERGY SUB-SECTOR	MITIGATION MEASURES
<b>Energy generation</b>	<ul style="list-style-type: none"> <li>Promote investment in clean energy generation under public-private partnerships.</li> <li>Promote, encourage and incentivize industries to develop cogeneration by producing heat or steam and electricity from renewable biomass.</li> <li>Provide tax incentives and other benefits to private sector companies that invest in cleaner energy generation.</li> <li>Promote the use of alternative renewable energy sources, such as solar, biomass, wind and biofuels, and their associated technologies.</li> <li>Develop hydroelectric and geothermal power systems and integrate them into the East African Power Pool in the medium term.</li> <li>Promote the use of combined-cycle gas turbines where shortfalls exist in renewable energy power generation systems.</li> <li>Regulate the oil and gas sector and use of fossil fuels to reduce GHG emissions.</li> </ul>
<b>Energy use</b>	<ul style="list-style-type: none"> <li>Promote the development of energy conservation and efficiency projects in all sectors.</li> <li>Enforce building codes to reduce energy consumption and encourage designs that maximize the use of natural daylight in buildings.</li> <li>Promote the use of energy efficient technologies such as compact fluorescent lamps and other commercially available high-efficiency lamps.</li> <li>Promote efficient firewood/charcoal stoves, solar and liquefied petroleum gas (LPG) cookers to address the high costs of acquiring these technologies through household subsidies or tax waivers.</li> <li>Reduce deforestation by providing alternative clean energy sources and efficient appliances for energy use, management and conservation.</li> </ul>
<b>Transport</b>	<ul style="list-style-type: none"> <li>Improve road infrastructure and traffic management in urban centres to reduce traffic congestion and GHG emissions.</li> <li>Promote reduction of greenhouse emissions from the transport subsector.</li> <li>Promote private sector investment in the biofuels industry, covering the entire biofuel chain from cultivation to fuel processing.</li> <li>Establish national standards for emissions and implement strict vehicle emission standards in line with measures to gradually phase out old, inefficient motor vehicles, while encouraging the importation of efficient ones.</li> </ul>

A long-term low-carbon and climate-resilient development strategy is currently being developed for Uganda that builds on the development goals of the NCCP, NDC and other relevant strategies. This strategy should help the country identify bold and concrete actions that will help deliver sustainable economic transformation.

### 3.2.2 UGANDA GREEN GROWTH DEVELOPMENT STRATEGY

POLICY OBJECTIVE	POLICY RELEVANCE TO THE PRIVATE SECTOR	POLICY IMPLICATIONS FOR THE PRIVATE SECTOR
To ensure that the goals of Uganda Vision 2040 and the NDP11 are attained in a sustainable manner.	Identifies focus areas, which include the energy sector and transport, providing frameworks for all actors, including the private sector.	Provision of incentives and green innovations as part of investment mobilization strategy.

The Uganda Green Growth Development Strategy 2017/18 –2029/30 (UGGDS) aims to operationalize the green growth principles, as highlighted in the 2030 Agenda on Sustainable Development, Uganda Vision 2040 and the National Development Plan, to support the country’s accelerated transition to middle-income status. Uganda defines green growth as an inclusive, low-emission economic growth process that emphasizes the effective and efficient use of the country’s natural, human and physical capital, while ensuring that natural assets continue to provide for present and future generations.

The UGGDS’ general objective is to provide guidance on priorities, strategies and governance frameworks for implementing the green growth principles within the existing development frameworks, leading to the sustainable development of the country. Its specific objectives are to:

- Accelerate economic growth and raise per capita income through targeted investments in priority sectors with the highest green growth multiplier effects;
- Achieve inclusive economic growth along with poverty reduction, improved human welfare and employment creation; and,
- Ensure that the social and economic transition is achieved through a low-carbon development pathway that safeguards the integrity of the environment and natural resources.

The strategy also includes focus areas with high potential for private sector investment and that contribute to achieving national development goals and targets. These were identified using empirical macroeconomic analytical studies. The energy sector’s focus areas are:

- Energy for green growth, with increased emphasis on: investing in renewable energy through biomass energy for electricity, improving technologies to enhance biomass efficiency in domestic and industrial uses, enhancing on-grid solar power potential, using geothermal energy, and, strengthening environmental, health and economic safeguards for energy generation; and,
- Sustainable transport, focusing on multi-modal and mass transport systems for urban areas and development, use and interconnectivity of planned national and regional transport connectivity.

### 3.3 ENERGY SECTOR POLICY ENVIRONMENT

Uganda has designed several policies that guide the development of the country’s energy sector. The 2002 Energy Policy for Uganda<sup>5</sup> is the primary document for the energy sector. It highlights the sector’s direct linkage with other economic sectors and its role as a major contributor to national development and government revenues, with its performance directly impacting the performance of other sectors. The revised Energy Policy has been drafted and aims to consolidate the achievements of the Energy Policy 2002, align the policy framework with recent international, regional and national developments and commitments, and ensure that the government is well positioned to address the new and emerging socio-economic challenges of the energy sector in the coming decade.

The 1999 Electricity Act<sup>6</sup> provides the regulatory framework for the electricity subsector, which liberalized and introduced competition into the electricity sector.

<sup>5</sup> Ministry of Energy and Mineral Development. 2002. *The Energy Policy for Uganda, 2002*.  
<sup>6</sup> Ministry of Energy and Mineral Development. 1999. *Electricity Act, 1999*.

### 3.3.1 RENEWABLE ENERGY POLICY FOR UGANDA (2007)

POLICY OBJECTIVE	POLICY RELEVANCE TO THE PRIVATE SECTOR	POLICY IMPLICATIONS FOR THE PRIVATE SECTOR
To increase the use of modern renewable energy so that it is a substantial share of national energy consumption.	Provides a conducive policy, legal and regulatory environment for the private sector to encourage investment in renewable energy development.	<ul style="list-style-type: none"> <li>• Provisions for feed-in tariffs</li> <li>• Provision of a standardized power purchase agreement</li> <li>• Public-private partnerships encouraged.</li> </ul>

The Renewable Energy Policy for Uganda (REP) was issued in 2007 and covers the 10-year period to 2017. Its overall goal is to increase the use of modern renewable energy so that it constitutes a substantial share of national energy consumption.

To realize these policy objectives, the REP set out the details of strategies to be undertaken for each policy objective. These strategies have also been translated into policy actions, in the form of specific programmes. Table 3 lists the REP policy action programmes.

**Table 3: Policy actions under the Renewable Energy Policy**

POLICY ACTIONS	PROGRAMME DESCRIPTION
<b>POWER GENERATION PROGRAMME</b> <ul style="list-style-type: none"> <li>• Large hydropower scheme</li> <li>• Small power scheme</li> </ul>	<p>To support public and private sector investments in renewable energy generation, with approaches for both large and small hydropower schemes.</p> <ul style="list-style-type: none"> <li>• Large hydropower: sites will be tendered pursuant to the provisions of the Electricity Act; developer will arrange appropriate financing package; tariffs will be negotiated on a case-by-case basis.</li> <li>• Small power: basic studies of the resources and sites will be conducted, followed by promotion, tendering to the private sector and development. This will cover mini-hydropower schemes, biomass cogeneration, wind power, peat, geothermal and solar thermal electric and limited to 20 MW installed capacity per plant.</li> </ul>
<b>ELECTRICITY ACCESS PROGRAMME FOR RURAL AND URBAN POOR</b>	The programme will enhance the ongoing procedures for community schemes, where the cost of connection to the community is subsidized. It will also support the development of independent grids supplied by micro and pico hydros and biomass gasifiers, to be managed by communities, and solar PV systems in dispersed remote settlements. The programme will prioritize supporting electrification for productive uses and key social services.
<b>MODERN ENERGY SERVICES PROGRAMME</b>	This programme will support renewable energy technologies, such as improved wood fuel and charcoal stoves, solar PV, and solar water heaters. It will also incorporate the dissemination of biogas, LPG and kerosene for cooking as substitutes for wood energy.
<b>BIOFUELS PROGRAMME</b>	This programme will support investments in the production and use of ethanol, biodiesel, methanol and biogas. All petroleum product dealers will be required to blend fossil fuels with biofuels up to 20 percent, as appropriate.
<b>ENERGY EFFICIENCY PROGRAMME</b>	The programme implements the Energy Efficiency Strategy. The government will promote efficient use of renewable energy resources through the activities described in the Energy Efficiency Strategy for Uganda. The necessary legal instruments will also be put in place.
<b>WASTE TO ENERGY PROGRAMME</b>	This will cover waste-to-energy conversion through direct combustion, gasification or biological conversion to biogas.

The REP is currently under review and is being integrated into the draft national energy policy under development. The draft energy policy covers the subsectors of renewable energy, clean cooking, electrical power, rural electrification and access, energy efficiency and conservation, nuclear energy and other cross-cutting issues.

### 3.3.2 FEED-IN TARIFF

POLICY OBJECTIVE	POLICY RELEVANCE TO THE PRIVATE SECTOR	POLICY IMPLICATIONS FOR THE PRIVATE SECTOR
To help Uganda maintain a substantial renewable energy component in the electricity generation mix by removing key hurdles to private investment in renewable energy.	Leverages approximately \$375 million in private finance for renewable energy generation projects with limited amount of grant funding.	Provision of cost-effective tariffs to enhance the financial viability of renewable energy generation projects.

The Renewable Energy Feed-in Tariff (REFit) was initially established under the REP, with its first phase from 2007 to 2009. Its overall aim is to encourage and support greater private sector participation in power

generation from renewable energy technologies by establishing an appropriate regulatory framework. The REFiT is a regulatory mechanism used to promote and increase the amount of electricity generated from renewable sources by providing a fixed tariff based on the levelized production cost for a guaranteed period of time.

The REFiT applies to small-scale renewable energy systems of selected technologies with installed capacity of between 0.5 MW and 20 MW, as defined by the Electricity Act 1999.

The Global Energy Transfer Feed-in Tariff (GETFiT) Programme further strengthened and fast-tracked small-scale renewable energy generation projects implemented by private developers. It enhanced the overall enabling environment for private investment by improving the REFiT system and its application, such as in the use of standardized Power Purchase Agreement templates and more efficient permitting and licensing procedures.

### 3.3.3 ENERGY EFFICIENCY POLICY

Uganda has focused its energy sector investments largely on expanding energy access by increasing energy supply. However, the links between energy efficiency and energy access, the importance of energy efficiency in new energy supply, and the multiple benefits of energy efficiency for the level and quality of energy available have been largely overlooked. Although no policies specifically related to energy efficiency have been issued, current policies do include strategies and plans in this area, such as the energy efficiency programme under the REP.

The Energy Efficiency Roadmap for Uganda also provides priority recommendations for implementing energy efficiency and maximizing benefits to meet the goals and priorities established in Uganda’s 2015 Sustainable Energy for All Initiative Action Agenda.<sup>7</sup>

The Energy Efficiency and Conservation Act is currently being developed. When enacted, it will provide the legal, institutional and regulatory framework for energy efficiency and conservation in Uganda. It will seek to regulate the efficient and rational use of energy, enhance and promote energy efficiency and conservation, avoid the wasteful use of energy, and ease the burden of energy costs on the economy and environment. It provides for enforcing the efficient use of energy in all sectors of the economy. Once enacted, it could further mobilize private sector investment in energy efficiency.

### 3.3.4 BIOMASS ENERGY STRATEGY FOR UGANDA (2013)

POLICY OBJECTIVE	POLICY RELEVANCE TO THE PRIVATE SECTOR	POLICY IMPLICATIONS FOR THE PRIVATE SECTOR
To introduce rational and implementable approaches to manage the biomass energy sector.	Highlights the importance of private sector involvement, both biomass users and producers.	Private sector opportunities in biomass supply and consumption value chains.

The 2013 Biomass Energy Strategy for Uganda (BEST) proposes rational and implementable approaches to manage the biomass energy sector and strategic objectives aligned to strategies referred to in the REP, the National Forest Plan, Plan for Modernization of Agriculture, National Development Plan and Vision 2040. Realistic interventions in Uganda’s biomass sector have been detailed as strategic objectives under the BEST. Table 4 summarizes these strategic objectives relevant to the private sector.

<sup>7</sup> Ministry of Energy and Mineral Development. 2017. *Energy Efficiency Roadmap for Uganda: Making Energy Efficiency Count*.

**Table 4: Strategic objectives under Uganda’s biomass energy strategy**

CATEGORIZATION	STRATEGIC OBJECTIVE
<b>Biomass demand interventions</b>	<p>Fuel efficiency and clean cooking environment:</p> <ul style="list-style-type: none"> <li>• Increase awareness of indoor pollution and associated health risks related to use of traditional stoves, especially in rural areas. Partner with Ministry of Health to eliminate indoor pollution-related health hazards by introducing improved cookstoves (ICS).</li> <li>• Initiate carbon financing models that will subsidize ICS costs so that they can outcompete traditional inefficient devices.</li> </ul> <p>Efficient technologies (fuel substitution):</p> <ul style="list-style-type: none"> <li>• Provide technology to enable use of alternative biomass (apart from wood). Invasive species like <i>Lantana camara</i> and paper mulberry are potential sustainable non-carbonized briquetting materials.</li> <li>• Promote use of biogas, especially in institutions and cattle keeping areas, simultaneously improving agricultural production by using slurry as high-quality fertilizer.</li> <li>• Promote increased use of LPG in urban areas (wealthier households) by improving distribution mechanisms and access to appliances through a credit scheme.</li> <li>• Provide technologies and include carbon financing so that local gin producers shift to small scale-industrial ethanol production.</li> <li>• Promote use of biofuels that takes a sustainable approach in harmony with other competing interests.</li> </ul>
<b>Biomass supply interventions</b>	<p>Cost-effective increase in biomass supply:</p> <ul style="list-style-type: none"> <li>• Implement government plans to invest in energy crops (annual and perennial) and encourage private sector to do the same.</li> <li>• Enhance current government and private sector tree planting efforts by tapping into existing payment for ecosystem services (PES) such as REDD, NAMAs, CDM and POAs.</li> <li>• Where substantial forest plantations exist, promote use of forest prunings and thinnings for energy purposes.</li> <li>• Aggressively promote use of improved charcoal kilns and gasification technologies – partnerships among investors, research institutions and government agencies needed.</li> </ul>

### 3.4 PRIVATE SECTOR POLICY ENVIRONMENT

Uganda’s policies that are relevant to sustainable economic development and that address the adverse effects of climate change and low-carbon development of the energy sector acknowledge the critical role of private sector engagement in achieving the country’s development goals. Uganda’s Public-Private Partnership (PPP) Programme further supports development of the country’s private sector.

#### 3.4.1 PUBLIC-PRIVATE PARTNERSHIP FRAMEWORK POLICY FOR UGANDA

POLICY OBJECTIVE	POLICY RELEVANCE TO THE PRIVATE SECTOR	POLICY IMPLICATIONS FOR THE PRIVATE SECTOR
Better use and allocation of public funds, more efficient delivery of public infrastructure, provision of good quality public services, and increased economic growth and foreign direct investment.	Development of an environment supporting private sector participation.	Private sector opportunities in renewable energy generation and transport subsectors.

The PPP Framework Policy for Uganda was formally adopted in 2010, when several PPP projects were already underway. The Government of Uganda has adopted PPPs as a key strategy for partnering with the private sector to deliver public infrastructure projects and related services to attain economic growth and development. The PPP Policy informed the formulation of the PPP Act, 2015, which details the implementation of the PPP programme. The Act has since streamlined the law and processes to deliver and implement PPP projects. Twenty-eight PPP infrastructure projects have been implemented to date. The most recent include the Butama hydroelectric plant and the Tororo solar PV plant.<sup>8</sup>

<sup>8</sup> The World Bank Group. *PPPKnowledgeLab*. <https://pppknowledgelab.org/countries/uganda>



## 3.4.2 TAX INCENTIVES AND EXEMPTIONS

POLICY OBJECTIVE	POLICY RELEVANCE TO THE PRIVATE SECTOR	POLICY IMPLICATIONS FOR THE PRIVATE SECTOR
To provide incentives and tax exemptions for investments.	Exempts equipment imported into the country, including for the energy sector, from duty and all taxes.	Improved profitability for renewable energy, energy efficiency and transport investments.

The Government of Uganda provides import-based incentives that exempt equipment imported into the country from duty and all taxes as part of the East African Community's General Exemption Regime. Specific to the energy sector, this includes specialized solar and wind energy equipment, energy-saving lighting (compact fluorescent lamps (CFLs) and light-emitting diodes (LEDs)), and commercial vehicles of 20 tonnes and above.<sup>9</sup> LPG was exempted from taxation in 2006 but the tax was later introduced in 2015, based on expectations that Uganda would launch its own gas production by 2020.

## 3.5 ENERGY SECTOR INSTITUTIONS AND INSTITUTIONAL FRAMEWORK

Uganda's energy sector includes several key institutions. Table 5 summarizes the government institutions in the sector that shape its overall direction.

**Table 5: Government institutions and institutional framework in the energy sector**

INSTITUTION	DESCRIPTION
<b>Ministry of Energy and Mineral Development</b>	Provides policy guidance; creates an enabling environment to attract investment; acquires, processes and interprets technical data to establish the country's energy and mineral resource potential; and inspects, regulates, monitors and evaluates the activities of private companies in the sector.
<b>Electricity Regulatory Authority</b>	Responsible for regulating the generation, transmission, distribution, sale, export and import of electricity in Uganda.
<b>Rural Electrification Agency</b>	Responsible for implementing the rural electrification agenda and mandated to facilitate rural electrification.
<b>Uganda Electricity Generation Company Limited</b>	Key responsibilities include generating electric power and selling it within Uganda/ exporting it to neighbouring countries; building, operating and maintaining electricity generation plants; monitoring the operation of and maintenance of its assets; and providing technical support as and when required
<b>Uganda Electricity Distribution Company Limited</b>	Owns the electricity distribution network and is responsible for administering the lease and assignment agreement with Umeme (Uganda's main electricity distribution company) for network management.
<b>Uganda Electricity Transmission Company Limited</b>	Operates the national transmission system responsible for bulk power purchases and sales, imports and exports energy, operates the high voltage transmission system, and serves as national system operator.
<b>Ministry of Works and Transport</b>	Mandated to plan, develop and maintain economic, efficient and effective transport infrastructure and transport services in Uganda.

## 3.6 OVERALL BUSINESS ENVIRONMENT

### 3.6.1 MACROECONOMIC ENVIRONMENT

Uganda's economy has recently grown at a slower pace as the country continues its recovery. The slowdown was caused mainly by adverse weather, unrest in South Sudan, private sector credit constraints and poor execution of public projects. However, the novel coronavirus (COVID-19) pandemic is severely affecting Uganda's growth, with economic activity decreasing as a result of policy measures implemented to contain the spread of the virus.

Average annual growth between 2011-2016 was 4.5 percent, compared to 7 percent during the 1990s and early 2000s.<sup>10</sup> The economy grew by 6.1 percent in 2018, with a strong services sector and a rebound in

<sup>9</sup> Uganda Investment Authority. *A Guide on Tax Incentives/Exemptions available to Investors in Uganda*.

<sup>10</sup> World Bank Group. *The World Bank in Uganda* <https://www.worldbank.org/en/country/uganda/overview>

agriculture from the previous year's drought.<sup>11</sup> The economy was performing well before the pandemic, with 6 percent growth projected for fiscal year 2019/20.<sup>12</sup> However, the global supply chain disruptions brought about by the pandemic and the national lockdown measures imposed to control it presented additional challenges, resulting in a severe decline in economic activity. Economic growth is thus expected to decrease in FY2019/20, with projected growth of 3.3 percent, well below the previous forecast. Nonetheless, the economy is expected to slowly recover in FY2020/21, with a 3.7 percent growth projection.<sup>13</sup> To help Uganda address its urgent balance of payments and fiscal needs, the International Monetary Fund approved the disbursement of \$491.5 million in emergency assistance under the Rapid Credit Facility. These funds will also help finance health, social protection and macroeconomic stabilization measures and catalyse additional support from the international community.

The medium-term outlook is positive, albeit uncertain. It is based on the assumption that the pandemic's effects are contained and that infrastructure and oil sector investments can proceed as planned. Growth could range from 5.7 to 6.0 percent from FY2021/22- 2023/24 and could reach 9.2 percent in FY2024/25 with the expected launch of the oil production sector. However, uncertainty is high given current low oil prices.

Downside risks to the outlook include weather-related shocks, the regional security situation, shocks from the global economic environment, and the political and security situation in the run-up to the 2021 general elections. This assessment incorporates the assumption that the economic shock from the pandemic is temporary and that the global and Ugandan economies will start to recover in the second half of FY2020/21. If the pandemic is not contained and its effects continue to be significant, fiscal costs could be significantly higher and the recovery could be delayed.

Prior to the pandemic, macroeconomic policies supported economic activity and the government continued its policy of scaling up infrastructure investment. Investment reached 8.9 percent of GDP in 2018 and was expected to increase further in 2019 and 2020. As a result, public debt rose to 41.3 percent of GDP at the end of 2018.<sup>14</sup> With the onset of the pandemic, policy focus shifted to containing its spread, mitigating its economic impact, and cushioning the impacts on the most vulnerable and the private sector. In the medium term, the government remains committed to pursuing sound macroeconomic policies to restore macroeconomic stability, ensure fiscal and debt stability, and bolster inclusive growth once the crisis fades.

Uganda was already facing significant challenges in the energy sector prior to the COVID-19 crisis, which has weakened the economic and fiscal outlook. Recovery could be achieved by steadily mainstreaming climate action into fiscal policies, as proposed by the Coalition of Finance Ministers for Climate Action. Uganda is among the countries that initially endorsed the Coalition's principles, with other countries following after its formal announcement. The Coalition recently proposed a set of principles for stimulus packages that would provide the right balance between sustainability and investment strategy.

### **Coalition of Finance Ministers for Climate Action and recovery principles**

In April 2019, governments from over 20 countries met in Finland and launched the Coalition of Finance Ministers for Climate Action. The Coalition recognizes the challenges posed by climate change, the unique capacity of the world's finance ministers to address them, and the ways in which collective engagement could strengthen these efforts. The Helsinki Principles recognize the importance of finance to achieve climate action goals.

In July 2020, the Coalition published guidance related to climate action for the post-pandemic future.<sup>15</sup> It emphasizes the importance of finance for recovery and long-term transformation, while recognizing that macro-fiscal contexts are more complex than before the crisis. The document acknowledges the need for emerging economies to anticipate the substantial investments needed to drive the transformation to a low-carbon climate-resilient economy.

<sup>11</sup> International Monetary Fund, 2019. *Uganda, Staff report for the 2019 article IV consultation*.

<sup>12</sup> International Monetary Fund, 2020. *Request for Disbursement Under the Rapid Credit Facility—Press Release; Staff Report; and Statement by the Executive Director for Uganda*.

<sup>13</sup> Ibid.

<sup>14</sup> International Monetary Fund, 2019. *Uganda, Staff report for the 2019 article IV consultation*.

<sup>15</sup> Coalition of Finance Ministers for Climate Action, 2020. *Better Recovery, Better World: Resetting climate action in the aftermath of the COVID-19 pandemic*.

In this context, leveraging international climate finance to unlock fiscal space and leverage private finance will be crucial to achieve the goals set by the Paris Agreement and all NDCs. The work on shifting the financial system must also continue, including on reporting (Task Force on Climate-Related Financial Disclosures), green taxonomies, risk management and returns.

Aligning national priorities, economic and fiscal policies on these principles could help Uganda attract private sector investment and achieve its climate goals in the energy sector. The following subsections present the country’s performance in detail.

### 3.6.2 COUNTRY RISK

The Economist Intelligence Unit (EIU) gave Uganda a B rating in overall country risk, based on the Unit’s June 2020 risk assessment.<sup>16</sup> The country scored one grade lower than before the COVID-19 crisis, due to increasing macroeconomic and external financial weakness and the rising volatility of the shilling against the US dollar resulting from the pandemic and the 2020 locust infestation. Table 6 summarizes Uganda’s risk profile.

**Table 6: Uganda’s risk profile**

	SOVEREIGN RISK	CURRENCY RISK	BANKING SECTOR RISK	POLITICAL RISK	ECONOMIC STRUCTURE RISK
NOVEMBER 2019	B	BB	B	CCC	B
JUNE 2020	B	B	B	CCC	B

#### 3.6.2.1 SOVEREIGN RISK

Uganda’s inflation averaged 2.9 percent in 2019 and will increase to 3.8 percent in 2020, following increased domestic food prices from upward price pressures due to monetary easing and currency depreciation. Exchange rates led to an increase in inflation volatility because of a widening current account deficit resulting from the COVID-19 crisis. The weakening of other macroeconomic and liquidity indicators led to a poorer underlying score for sovereign risk as a result of the pandemic and locust infestation in 2020, together with additional near-term risks of constrained access to international finance due to the pandemic. However, the country’s rating did not change. Foreign exchange reserves declined and now cover just 79.8 percent of the gross external financing requirement. This increased foreign liquidity, reflecting Uganda’s capacity to meet repayment obligations on foreign currency debt. Nonetheless, the economic policy mix remains broadly supportive of macroeconomic stability, which is a positive for the country’s creditworthiness.

#### 3.6.2.2 CURRENCY RISK

Uganda’s currency risk rating declined from a BB-rating in 2019 to a B-rating in 2020. The shilling had been stable prior to the pandemic but remains vulnerable to adverse movements in global commodity prices due to persistent current account deficits, which exposes it to currency risks. The shilling’s volatility against the US dollar has risen amid the pandemic, reflecting waning confidence in emerging market currencies. Prior to the pandemic, foreign direct investment inflows were expected to increase in 2020/21, which would have provided some support to the shilling. However, due to the current crisis, net direct investment flows from external financing have decreased sharply from \$1,266 million in 2019 to \$696 million in 2020, based on the forecast for the year.

#### 3.6.2.3 BANKING SECTOR RISK

The banking sector risk in Uganda is characterized by rising real interest rates to levels that increase the risk that borrowers will face repayment issues, which could discourage lending. Moreover, a large share of the population has limited access to financial services, owing to low income levels, a large informal sector and

<sup>16</sup> Economist Intelligence Unit. 2020. *Country Risk Service, Uganda*.

poor financial literacy. When the Bank of Uganda (BoU) cut its policy rate by 100 basis points to 9 percent in October 2019 amid low inflationary pressures, commercial banks gained room to lower lending rates slightly (currently averaging 19.8 percent) and boosted credit growth. Sound financial supervision supports the overall rating for banking sector risks.

### 3.6.2.4 POLITICAL RISK

Uganda remains under the tight control of Yoweri Museveni, its president of 33 years, with firm backing from the ruling National Resistance Movement. However, the opposition’s discontent with the current administration is mounting. This could lead to protests, especially as the February 2021 national elections draw closer. The security service is expected to keep order and contain any unexpected outbreaks of violence before they can pose a threat to Uganda’s underlying stability. The political risk remains the same at a CCC-rating, but near-term risks are rising because of the approaching election and the humanitarian, social and economic impacts of the coronavirus outbreak.

### 3.6.2.5 ECONOMIC STRUCTURE RISK

Uganda showed long-term stability in real GDP growth over the past decade. The economy remains vulnerable to poor weather, as the agricultural sector, which accounts for about 22 percent of GDP and generates the bulk of export earnings, is highly dependent on rainfall, further heightening the economy’s exposure to weather-related shocks.

## 3.7 EASE OF DOING BUSINESS

The business environment is one of the most important factors when considering local and foreign investments. Investors tend to consider both existing market opportunities and a country’s ease of doing business. Regulations, including business regulation and property rights protections, have an impact on economic growth and must therefore be taken into account.

Through its Doing Business Project, the World Bank Group provides objective measures of business regulations and their enforcement across 190 countries and 11 cities around the world. The Project covers 12 areas of business regulation that affect small and medium-size domestic firms in each country, including starting a business, dealing with construction permits, obtaining electricity, registering property, obtaining credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, resolving insolvency and employing workers.

According to the World Bank’s Doing Business 2020 Report, Uganda ranked 116<sup>th</sup> out of 190 countries in 2019.<sup>17</sup> The country improved from 127<sup>th</sup> in 2018 to 116<sup>th</sup> (Doing Business 2019 Report). Its ease-of-doing business ranking averaged 120.75 from 2008 to 2019, with its highest rank at 106<sup>th</sup> in 2008 and lowest at 135<sup>th</sup> in 2014. Table 7 shows Uganda’s ranks and scores over the last five years.

**Table 7: Uganda’s Doing Business score and rank (2016-2020)**

YEAR	SCORE	RANK
2020	60.0	116
2019	57.06	127
2018	56.94	122
2017	57.77	115
2016	57.1	116

Source: World Bank. Doing Business reports (2016-2020)

This section provides an overview of the key indicators for doing business in Uganda, based on the Doing Business 2020 Report.

<sup>17</sup> World Bank Group. 2019. *Doing Business 2020, Economy Profile Uganda*.

### **3.7.1 STARTING A BUSINESS**

This indicator measures the number of procedures, time, cost and paid-in minimum capital requirements for a small- to medium-sized limited liability company to start up and formally operate in the largest business city of each economy. It is relevant to Uganda's private sector actors intending to start businesses that will implement mitigation actions in the energy sector.

Uganda ranks 169<sup>th</sup>, with a score of 71.4 out of 100, which is below the sub-Saharan Africa (SSA) regional average score of 80.1. This is due primarily to the 13 legal procedures to start and formally operate a company in Uganda, compared to the regional average of 7.4, and thus affects the time and costs associated with completing each procedure.

### **3.7.2 DEALING WITH CONSTRUCTION PERMITS**

This indicator tracks the procedures, time and cost to build a warehouse, including obtaining necessary licenses and permits, submitting all required notifications, requesting and receiving all necessary inspections, and obtaining utility connections. It also measures the building quality control index, evaluating the quality of building regulations, the strength of quality control and safety mechanisms, liability and insurance regimes, and professional certification requirements.

Uganda ranks 113<sup>th</sup> overall, with a score of 66.4, which is higher than the SSA regional average. Building a warehouse requires completing 18 procedures, compared with the regional average of 15.1. Despite that higher number, the time to complete each procedure is shorter and the costs are lower than the regional average. In addition, Uganda's building quality control regulatory performance is higher than the regional average and even relatively higher than that of the Organisation for Economic Co-operation and Development (OECD) high-income average.

### **3.7.3 GETTING ELECTRICITY**

This indicator measures the procedures, time and cost for a business to obtain a permanent electricity connection for a newly constructed warehouse. Reliability of supply, transparency of tariffs and the price of electricity are also measured by the reliability of supply and transparency of tariffs index. This indicator is relevant both to energy sector mitigation actions and to business development in general.

Uganda ranks 168<sup>th</sup> on this indicator, with a score of 48.4, which is below the SSA regional average of 50.4. Although the procedures associated with obtaining electricity access can be completed very quickly, the costs are more than double those of the SSA regional average. Uganda's reliability of supply and transparency of tariff index is 4, above the regional average of 1.6.

### **3.7.4 REGISTERING PROPERTY**

This indicator examines the steps, time and cost involved in registering property, assuming the standard case of an entrepreneur who wants to purchase land and a building that is already registered and free of title dispute. It evaluates the quality of the land administration system based on five factors: infrastructure reliability; information transparency; geographic coverage; land dispute resolution; and, equal access to property rights. This is relevant for medium- to large-scale renewable energy projects, new energy efficient building construction, and transportation infrastructure projects requiring land.

Uganda ranks 135<sup>th</sup> on this indicator, scoring 53.6, equal to the SSA regional average. Although the time required to register a property and the costs associated with completing the procedures generate a score better than the regional averages, the 10 procedures required to register properties are greater than the regional average number of 6.1. The quality of land administration index of 10.5 is higher than the 9.0 regional average.

### 3.7.5 GETTING CREDIT

This indicator explores the strength of credit reporting systems and the effectiveness of collateral and bankruptcy laws in facilitating lending. This is relevant to mobilizing private sector investments in the energy sector, as credit is generally required to invest, especially for local stakeholders.

Uganda ranks 80<sup>th</sup> on this indicator, with a score of 60.0. Although this is above the 45.2 SSA regional average, the country has the lowest score in terms of credit registry coverage, at zero percent of adults.

### 3.7.6 PROTECTING MINORITY INVESTORS

This indicator measures the strength of minority shareholder protections against directors' misuse of corporate assets for personal gain, as well as shareholder rights, governance safeguards and corporate transparency requirements that reduce the risk of abuse. This is important to encourage both local investment and foreign investment in the country.

Uganda ranks 88<sup>th</sup> with a score of 56.0, which is higher than the 38.5 SSA regional average, and scored low on the disclosure index. However, the country performed better than the SSA regional average on the extent of director liability, ease of shareholder suits, extent of shareholder rights, extent of ownership and control, and extent of corporate transparency and even performed close to the OECD high-income average.

### 3.7.7 PAYING TAXES

This indicator measures the taxes and mandatory contributions that a medium-size company must pay or withhold in a given year, as well as the administrative burden of paying taxes and contributions and complying with post-filing procedures (VAT refund and tax audit).

Uganda ranks 92<sup>nd</sup> overall for this indicator, scoring 73.1, which is above the 57.8 SSA regional average. The country's indicators for tax payments, time required to comply with taxes, total tax and contribution rate, and post-filing are all above regional averages.

### 3.7.8 TRADING ACROSS BORDERS

This indicator measures the time and costs associated with the logistics of exporting and importing goods. It measures the time and cost (excluding tariffs) of three sets of procedures – documentary compliance, border compliance and domestic transport – within the overall process of exporting or importing a shipment of goods.

Uganda ranks 121<sup>st</sup> overall with a score of 66.7, which is above the 53.6 SSA regional average. The country scored lowest on time to import (border compliance) among all of the trading across borders indicators, at 145 hours, compared with 126.2 hours for the regional average and 8.5 for the OECD high-income average. This can be a barrier to investors, especially for activities that require importing energy and transport-related technologies and equipment.

### 3.7.9 ENFORCING CONTRACTS

This indicator measures the time and cost to resolve a commercial dispute through a local court of first instance and the quality of judicial processes index, evaluating whether each economy has adopted a set of good practices that promote quality and efficiency in the court system.

Uganda ranks 77<sup>th</sup> overall for this indicator, with a score of 60.6, which is higher than the 49.6 SSA regional average. At 490 calendar days, the country performs better than regional averages and the OECD high-income averages in terms of time required to enforce contracts through the courts, compared with 654.9 days for SSA and 589.6 days for OECD averages.

### 3.7.10 RESOLVING INSOLVENCY

This indicator measures the time, cost and outcome of insolvency proceedings involving domestic legal entities. The variables are used to calculate the recovery rate, which is recorded as cents on the dollar recovered by secured creditors through reorganization, liquidation or debt enforcement (foreclosure or receivership) proceedings.

Uganda ranks 99<sup>th</sup> overall with a score of 43.6, which is higher than the 31.3 SSA regional average. Under this indicator, the country performs better than the region, but remains relatively low compared with averages of the OECD high-income countries.

Uganda has been improving its Doing Business ranking slowly over the last three years and has implemented business regulatory reforms. In 2019, the country strengthened the monitoring and regulation of power outages by increasing the accuracy of the annual system average interruption duration index and system average interruption frequency index, which made it easier for businesses to access electricity. In 2018, the country reduced the time to export and import by further implementing the Single Customs Territory, as well as by developing the Uganda Electronic Single Window and the Centralized Document Processing Centre, which improved its trading across borders. However, it also increased the cost of transferring property that year by increasing regulated lawyers' fees, resulting in a lower property registration score.

## 3.8 ENABLING ENVIRONMENT FOR CROSS-BORDER AND FOREIGN INVESTMENTS

The enabling environment for cross-border and foreign investments constitutes another important factor in investment decisions for foreign investors. Foreign investors may perceive risks to be higher in some countries if regulations pertaining to foreign investment are not seen as favourable. For example, some investors may perceive restrictions on the payment of dividends to foreign investors, repatriation of funds and tax issues as constraints.

This section provides an overview of important laws and regulations pertaining to investment and foreign investment in Uganda, as well as an analysis of gaps and challenges for foreign investment.

### 3.8.1 REGULATIONS RELATED TO DIRECT FOREIGN INVESTMENT IN UGANDA

The Investment Code Act governs investments in Uganda and is the main policy related to direct foreign investment in the country.

OBJECTIVES OF THE REGULATIONS	IMPLICATIONS FOR FOREIGN INVESTMENT
<ul style="list-style-type: none"><li>• Provide the overall framework for all investments in Uganda.</li><li>• Provide the regulatory framework for multinational companies investing and operating in Uganda.</li></ul>	<ul style="list-style-type: none"><li>• Minimum capital requirement set at \$250,000.</li><li>• Dividend and payments to foreign entities is established.</li><li>• Transfer pricing regulated.</li><li>• Technology transfer framework available.</li></ul>

#### INVESTMENT CODE ACT, 2019

The Investment Code Act, 2019 regulates investment activities in Uganda. It establishes the country's regulations on investment activities in a range of sectors and on foreign direct investment including entry, admission, investment protection, investment guarantees, employment and compliance.

The Uganda Investment Authority is the Act's regulatory agency and the country's primary investment promotion agency. The Act strengthened its authority compared to its earlier mandate under the repealed Investment Code Act, Cap 92. The 2019 legislation transformed it into a one-stop solution for all investment-related activities in Uganda. Its functions include coordinating, promoting, registering, facilitating and monitoring all investment and business activities in Uganda.

The Act establishes preferential treatment for partner states in East Africa and has broadened the scope of domestic investors to include citizens of the East African Community partner states, which include Uganda, Kenya, South Sudan, Tanzania, Rwanda and Burundi.

The Act highlights the importance given to the Buy Uganda Build Uganda policy, under which foreign investors are encouraged to use local raw materials, services and labour. Section 12 of the Act lists the incentives available to domestic and foreign investors. Under those terms, foreign investors are not required to partner with local entities to invest or to use local resources in their businesses, although the policy strongly encourages them to do so. To qualify for incentives under the Act, an investor must satisfy the following criteria intended to encourage local content:

- Meet the minimum investment capital for the investment as required in the relevant Acts of Parliament;
- Engage in any of the priority areas specified in Schedule 2 of the Act;
- Export a minimum of 80 percent of the goods produced;
- Provide for substitution of 30 percent of the value of imported products;
- Source locally 70 percent of the raw materials used;
- Directly employ a minimum of 60 percent of Ugandan citizens; or
- Introduce advanced technology or upgrade indigenous technology.

The Investment Code Act establishes minimum capital requirements, set at \$250,000 in planned investments for foreign investors, who are required to obtain an investment license. Domestic investors must meet a lower threshold of \$50,000. Investors involved in trade are not required to obtain an investment license, but must submit proof of operating capital of \$100,000 for a trade license. For banks and financial institutions, the BoU has set a minimum paid-up capital requirement for new banks entering the banking industry. The commercial bank requirement is UGX 25 billion, the non-bank financial institution requirement is UGX 1 billion, and the requirement for microfinance deposit-taking institutions is UGX 500 million.

The Act limits foreign direct investment in several sectors:

- Foreign investors that engage in sectors such as wholesale and retail commerce, public relations, personal services, professional services, postal services, food processing, care hire services, taxis, and confectioneries are not eligible for incentives granted to other business sectors;
- Regulatory licenses are required for investments in mining, energy generation, banking, pharmaceuticals, air transport, education, health and production; and,
- Foreigners are restricted from investing directly in crop or animal production.

Companies intending to invest in Uganda should incorporate or register the enterprise in accordance with the Companies Act, 2012. Although the Act restricts foreign direct investment in crop or animal production, foreigners may lease land or create a locally-based firm to invest in these sectors.

## **TRANSFER PRICING REGULATIONS**

Uganda's transfer pricing rules follow OECD guidelines. The rules are stated in Sections 90 and 91 of the Income Tax Act 1997, Cap 340, and are overseen by the Uganda Revenue Authority (URA), which is responsible to assess and collect taxes and enforce tax laws in the country. The URA specifies the documentation required for transfer pricing. The transfer pricing rules apply as follows:

- Taxpayers who engage in transactions exceeding UGX 500 million must comply with the documentation requirements for transfer pricing;
- The URA determines transactions liable for tax of multinational enterprises; and,
- Transactions across borders are not subject to a threshold.



## COMPANIES ACT, 2012

The Companies Act, 2012 is the main law that covers company incorporation, administration and regulation. The Uganda Registration Services Bureau (URSB) is the body that governs registration of domestic and foreign companies and insolvencies. All domestic, public, and foreign companies must follow URSB procedures to register a company in Uganda. The documents required to register a foreign company include a certified copy of the charter, memorandum and articles of association, and the name and address of a person resident in Uganda authorized to act on behalf of the company.

The Act also clarifies areas such as validity of contracts, eligibility of financial assistance, share capital and dividends, and transfer of shares of a single member company.

### 3.8.2 CAPITAL MARKET LAWS AND REGULATIONS

Capital markets are important for foreign investment as they facilitate the buying and selling of securities. Uganda's two stock exchanges are the Uganda Stock Exchange (USE), which lists capitalized and established companies, and the ALTX East Africa (ALTX), which lists startups and existing small and medium enterprises. The 1996 Capital Markets Authority Act, Cap 84 established the Capital Markets Authority (CMA) of Uganda, housed within the Ministry of Finance. The Authority promotes, develops and regulates the capital markets industry in Uganda, with the overall objectives of investor protection and market efficiency. It plays a significant role in regional and international cooperation and is a member of the East African Securities Regulatory Authorities (EASRA) and the International Organization of Securities Commissions (IOSCO).

The CMA published updated capital markets (securities exchange) regulations in 2018. They include the requirements for application and conditions for approval. The regulations do not distinguish between national and foreign companies.

OBJECTIVES OF THE REGULATIONS	IMPLICATIONS FOR FOREIGN INVESTMENT
<ul style="list-style-type: none"><li>• Provide the overall framework for capital markets in Uganda.</li></ul>	<ul style="list-style-type: none"><li>• Listing regulations and approval process for both USE and ALTX are defined in the CMA Act.</li><li>• No difference between national and foreign companies.</li></ul>

### CAPITAL MARKETS DEVELOPMENT MASTER PLAN (2016/17-2026/27)

The CMA spearheaded the development of the 10-year Capital Markets Development Master Plan to attract more international capital to meet the country's growing financing needs. The development of capital markets in Uganda is very slow and faces challenges, such as a limited institutional investor base, market infrastructure issues, narrow retail investor base, low capital markets awareness and high transaction costs.

The CMA thus introduced a Master Plan to address these challenges and position capital markets to achieve national development goals. In addition, to enhance inflows from international investors, the Plan seeks to classify Uganda's capital markets in the Morgan Stanley Capital International stock market index within the Frontier Market Category for Equities and Bonds category.

The objectives of the master plan are to:

- Improve access to finance for the public and private sectors;
- Facilitate the deepening and broadening of securities markets;
- Improve efficiency in securities market regulation;
- Facilitate the development of market intermediation services; and,
- Maximize the supply of long-term finance.

### 3.8.3 BANKING SUPERVISION LAWS AND REGULATIONS AND OTHER REGULATIONS RELATED TO THE FINANCIAL SECTOR

The banking and financial sector is regulated by laws and regulations that include the Financial Institutions Act, Microfinance Deposit-Taking Institutions Regulations and the Bank of Uganda Act.

OBJECTIVES OF THE REGULATIONS	IMPLICATIONS FOR FOREIGN INVESTMENT
<ul style="list-style-type: none"> <li>• Provide the overall framework for banking services and non-banking financial services in Uganda.</li> <li>• Provide the overall framework for non-bank lending in Uganda.</li> </ul>	<ul style="list-style-type: none"> <li>• Minimum capital requirements of UGX 25 billion approved by the BoU for banks and UGX 1 billion for non-bank financial institutions.</li> <li>• Foreign entities are subject to similar requirements for incorporation, with additional requirements for licensing.</li> <li>• Guidelines provided on operations of representatives of foreign banks in Uganda.</li> </ul>

#### FINANCIAL INSTITUTIONS ACT, 2004

The Financial Institutions Act, 2004 is the key act for the operations of all financial institutions in Uganda, except microfinance institutions, which are guided by the Microfinance Deposit-Taking Institutions Act, 2003. The former is the basic legislation that sets guidelines for financial institutions in Uganda and covers the following key areas:

- Licensing of financial institutions;
- Requirements for accounts and financial statements;
- Liquidation, receivership and amalgamation procedures;
- Shareholding in financial institutions;
- Corporate governance of financial institutions; and,
- Deposit Protection Fund guidelines.

Amendments to the Act were passed in 2005 and 2010 to enhance the stability of the country's financial institutions. They revised the guidelines on areas such as the licensing of financial institutions, capital adequacy, corporate governance, credit classification, credit concentration exposure limits, ownership control and liquidity procedures. Further amendments were made in 2016 and 2018 to provide guidelines for Islamic banking in Uganda (BoU).

The minimum paid-up cash capital requirement for banks is UGX 25 billion in liquid assets, approved by the BoU. The minimum for non-bank financial institutions is UGX 1 billion. Foreign entities are subject to the same requirements for incorporation. However, the licensing regulation imposes additional requirements for those entities to obtain a certificate of incorporation, including that:

- Cooperation will be established between the BoU and the home country supervisor to ensure a level of consolidated supervision; and,
- The home supervisory authority of the foreign body must provide a no-objection certificate.

The Act provides guidance on corporate governance to all financial institutions and lists the roles and responsibilities of the board of directors in detail. It requires a financial institution to have at least five directors and two executive directors who are resident in Uganda. In addition, no more than 50 percent of directors may be employees of the financial institution or its affiliates, with the exception of foreign-owned banks, where the BoU may ease this rule.

The Act also provides guidelines on the operation of foreign bank representatives in Uganda. A foreign bank may apply to the BoU to establish a representative office in Uganda. Such representatives are restricted from carrying out certain activities, as described in the Act, and may face imprisonment of up to two years and a penalty if they fail to comply. Representative offices in Uganda are restricted from the following activities without prior permission from the BoU:

- Changing the name;
- Changing management;
- Changing the registered office address in Uganda;
- Closing the representative office; and,
- Engaging in other activities, apart from those authorized by the BoU.

### MICROFINANCE DEPOSIT-TAKING INSTITUTIONS ACT, 2003

The Microfinance Deposit-Taking Institutions Act, 2003 is the main law governing microfinance institutions in Uganda. The Act provide guidelines on licensing, restrictions, corporate governance, supervision, receivership and liquidation procedures for microfinance firms.

The minimum capital requirement for a microfinance deposit-taking institution is UGX 500 million.

The Act was amended in 2004 to include guidelines on the conditions and documents required to obtain a microfinance license in Uganda. They include a copy of memorandum of articles, the company’s registered place of business, authorized paid-up capital, a copy of the resolution from the board of directors approving the subsidiaries, the feasibility study of the planned business, projected balance sheets and business strategy.

### BANK OF UGANDA ACT, 2000

The Bank of Uganda Act, 2000 sets forth the administrative powers and duties of the BoU, the country’s central bank, which include issuing legal tender, maintaining external reserves, promoting stability of the currency and participating in the country’s economic growth. Its functions include:

- Issuing Uganda’s national currency, the Uganda shilling;
- Ensuring the regulation of monetary policy and money supply;
- Regulating and supervising all financial institutions;
- Managing Uganda’s forex reserves and external debt;
- Advising the Ugandan government on economic and financial issues; and,
- Serving as a banker to the commercial banks and the Government of Uganda.

The BoU is responsible to regulate monetary policies and financial institutions, including commercial banks and non-bank financial institutions, such as credit institutions, microfinance institutions, microfinance deposit-taking institutions, foreign exchange bureaus and money remitters.

## 3.8.4 INSOLVENCY AND BANKRUPTCY-RELATED REGULATIONS AND PROCEEDINGS

The Insolvency Act, 2011 provides Uganda’s legal framework for processes related to insolvencies, receiverships, reorganizations, restructurings and bankruptcy. The Companies Act, 2012 provides the framework for arrangements in out-of-court restructurings.

OBJECTIVES OF THE REGULATIONS	IMPLICATIONS FOR FOREIGN INVESTMENT
<ul style="list-style-type: none"> <li>• Provide the overall framework for insolvency procedures in Uganda.</li> </ul>	<ul style="list-style-type: none"> <li>• No discrimination against foreign creditors, same rights as other creditors.</li> </ul>

## INSOLVENCY ACT, 2011

The Insolvency Act, 2011 is the principal legislation governing insolvency in Uganda, including receivership arrangements, cross-border insolvency issues, administration and bankruptcy. The Act covers the following key areas:

- Specific statutory insolvency regimes and restructuring for different industries;
- Procedures for voluntary and involuntary insolvency proceedings;
- Insolvency requirements;
- Duties on creditors, foreign secured creditors, secured creditors' rights, and unsecured creditors' rights;
- Timelines for different types of insolvencies and restructuring;
- Priority claims in insolvency and restructuring proceedings;
- Liabilities and duties of directors of financially distressed companies; and,
- Transactions that may be set aside in an insolvency.

The office of the Official Receiver, which falls under the URSB, is the regulating authority responsible to deal with corporate and individual insolvencies and fulfil provisions of the Insolvency Act. The office investigates all stakeholders of an insolvent company to determine any impropriety or fraud and prosecutes any offences.

The Act sets forth international or cross-border insolvency procedures in Uganda.

**Recognition of foreign proceedings:** A foreign representative may apply to the High Court of Uganda for the recognition of foreign proceedings for the purpose of insolvency or restructuring of a company. Depending on the State where the debtor's main centre of interests is located, the proceeding may be classified as foreign main or foreign non-main.

**Coordination in cross-border issues:** When a foreign proceeding and another proceeding under the governing act in Uganda occur concurrently, the High Court has set rules and order of precedence to coordinate the relief/judgements handed down by different courts and under different laws in insolvency cases.

**Precedence of rules and guidelines of the domicile country:** The company's domicile (i.e., the country in which the company has the majority of its business) will determine the guidelines to be followed during insolvency or restructuring.

**No discrimination against foreign creditors:** Sections 233 and 234 of the Act specify the conditions under which a foreign creditor may have access to insolvency proceedings in Uganda. In general, foreign creditors have the same rights as other creditors in claims, ranking and participation in proceedings.

Banks, insurance companies, and other statutory institutions in Uganda are also subject to legislation under their respective regulatory bodies, which may take precedence over the Insolvency Act, 2011. Those bodies include the BoU for banking, credit institutions and commercial lenders, the Insurance Regulatory Authority for insurance companies, the Capital Markets Authority for capital markets, and the Microfinance Regulatory Authority for microfinance institutions. The respective regulatory authorities may order the winding-up of a company in Uganda if it is found incapable of meeting operational requirements.

## COMPANIES ACT, 2012

The Companies Act, 2012 plays a key role in out-of-court restructurings by providing frameworks to reach an agreeable scheme or arrangement. While the Insolvency Act, 2011 is the key statutory legislation, the Companies Act, 2012 provides guidelines on areas such as reconstruction, compromises with creditors, arrangements, voluntary wind-up and amalgamation.

The Act provides frameworks for out-of-court restructuring to reach an arrangement that is agreeable to at least 75 percent of the creditors. It then applies to all creditors, liquidators and the company. Informal frameworks are rarely used in consensual restructurings.

The Companies Registry maintains all insolvency, winding-up and amalgamation records. The Official Receiver of the URSB must be duly notified during these procedures.

### 3.8.5 FOREIGN EXCHANGE

Foreign exchange laws in Uganda include the Foreign Exchange Act, 2004 and Financial Institutions Regulations, 2010.

OBJECTIVES OF THE REGULATIONS	IMPLICATIONS FOR FOREIGN INVESTMENT
<ul style="list-style-type: none"> <li>• Provide the overall framework for insolvency procedures in Uganda.</li> </ul>	<ul style="list-style-type: none"> <li>• Remittances or repatriations in foreign currencies may be transferred to and from Uganda through authorized banks and intermediaries.</li> </ul>

#### FOREIGN EXCHANGE ACT, 2004

The Foreign Exchange Act, 2004 is the key legislation that governs foreign exchange operations in Uganda. It highlights the authority of the BoU and provides guidelines on compliance enforcement.

The Act dictates that all remittances or repatriations to and from Uganda be made through a licensed financial institution or person. Provisions under the Act pertaining to international payments are as follows:

- All payments to and from Uganda in foreign currency between residents and non-residents or between non-residents may be made only through a bank; and,
- Any transfer of foreign exchange to and from Uganda may be made only through a licensed person.

The Investment Code Act includes provisions to protect investments. Specifically, for protection in case of compulsory acquisition, a registered business enterprise shall not be compulsorily taken possession of or acquired except in accordance with the Constitution. However, if the enterprise is compulsorily taken possession of or acquired, provisions under the Act include the prompt payment of fair and adequate compensation prior to the taking of possession of the property. The Act allows compensation to investors to be transferred freely out of Uganda without any exchange control regulations under the Foreign Exchange Act, 2004.

#### FINANCIAL INSTITUTIONS REGULATIONS, 2010

The Financial Institutions Regulations, 2010 provides guidelines on restrictions on lending and reporting requirements for forex business operations. They established regulatory requirements for foreign exchange businesses in the following areas:

- Limits on foreign exchange open position;
- Restrictions on foreign exchange lending;
- Restrictions on foreign exchange deposits and placements with correspondent financial institutions; and,
- Reporting requirements.

### 3.8.6 ENFORCEMENT

No specific enforcement bodies exist in Uganda. Foreign investments are monitored by the Uganda Investment Authority, guided by the Investment Code Act, 2019. Foreign investors must obtain an investment license from the Authority before any investment participation.

Section 3.7.9 provides details on contract enforcement in Uganda. If a country is a member of the Commonwealth, Uganda entertains reciprocal enforcement of judgments. If the country is not, the enforcement of judgements will depend on the reciprocal arrangements between the respective country and Uganda.

Any dispute between a business enterprise and the Government of Uganda may be submitted for arbitration in accordance with any of the following methods, as agreed mutually by both parties:

- The rules of the International Centre for the Settlement of Disputes;
- The framework of any multilateral or bilateral agreement on investment protection to which Uganda is a party; or,
- Any other international machinery for the settlement of investment disputes.

The Investment Code Act states that all efforts shall be made to settle the dispute through negotiations for an amicable settlement, in accordance with the Arbitration and Conciliation Act. When the parties do not agree on any of the arbitration methods for settlement of disputes, the business enterprise may apply to the High Court of Uganda.

The implementation of distinct dispute settlement mechanisms under the Investment Code Act provides private investors with the guarantee that its disputes will be settled legally and impartially.

### **3.8.7 OTHER SIGNIFICANT REGULATORY LIMITATIONS ON FOREIGN INVESTMENT**

When a foreign company is registered, the provisions of the Companies Act, 2012 apply to it. The company will have the same power to hold land in Uganda as domestic companies, subject to the Land Act, the Investment Code Act and the Constitution.

### **3.8.8 SUMMARY OF FINDINGS FOR FOREIGN INVESTMENT REGULATORY ENVIRONMENT**

Overall, the regulatory environment for foreign investments in Uganda is supportive and does not discriminate against foreign-owned businesses. The sectors in which foreign investment is prohibited or restricted are limited. Specific to the energy sector, foreign investors that engage in energy generation must obtain regulatory licenses from the sector regulatory body. In terms of land holdings, foreign companies generally have the same power to hold land in Uganda as domestic companies once their registration is approved. Capital requirements remain reasonable, at \$250,000 in planned investments for foreign investors.

Investments in capital markets do not differ between national and foreign companies. For investments in the banking and financing sector, foreign entities are subject to incorporation requirements similar to those imposed on domestic entities, with additional requirements only to obtain a license. Guidelines on the operations of foreign bank representatives in Uganda are provided.

The Insolvency Act sets out international or cross-border insolvency procedures in Uganda. There is no discrimination against foreign creditors. Generally, foreign creditors have the same rights as other creditors in claims, ranking and participation in proceedings. The Investment Code Act allows compensation to investors to be transferred freely out of Uganda without exchange control regulations.

Although Uganda has no enforcement body, foreign investments are monitored by the Uganda Investment Authority and guided by the Investment Code Act. Uganda provides reciprocity and allows for foreign judgements from Commonwealth member countries to be enforced in the country. For other countries, enforcement of judgements will depend on the reciprocal arrangements between each country and Uganda.

The overall enabling environment for private investment in the energy sector in Uganda is relatively strong and Uganda's economy has been growing in recent years, albeit at a slower pace. However, the pandemic is severely affecting growth, with economic activity decreasing due to the policy measures implemented to

contain the spread of the virus. Consequently, the level of economic growth is expected to fall well below the forecast prior to the pandemic.

Nonetheless, the outlook over the medium term is positive even amid uncertainty. The government remains committed to pursuing sound macroeconomic policies to restore macroeconomic stability, ensure fiscal and debt stability, and bolster inclusive growth once the crisis fades.

Although the economic outlook has weakened because of the pandemic, in recent years Uganda developed policies and strategies supporting the development of private investment in the energy sector to achieve low-carbon development. Policies such as feed-in tariffs, tax incentives and exemptions and a PPP framework are encouraging for private sector engagement in the energy sector and its subsectors. The regulatory framework also supports investment in the energy sector, as it provides favourable conditions for foreign direct investment and cross-border investment.

## 4. PRIORITIZED SECTOR CONTEXT

The policy environment for Uganda's energy sector encourages private sector participation in investments to attain low-carbon sustainable development and achieve its NDC and national targets. Given the country's projected economic growth and, with it, greater energy needs resulting in increased GHG emissions, this presents even more opportunities for private sector involvement. However, the energy sector is constrained by barriers and challenges to scaling up private investment in the country. These existing barriers and gaps need to be addressed to support private sector participation in Uganda's energy sector.

This section presents the structure of each subsector, analysing its ecosystem and value chain, the current status of private sector engagement and investment, investment barriers and critical gaps, recommendations and entry points for private sector investment, and examples of best practices.

The ecosystem analysis provides an overview of the relationship between inputs and products for specific subsectors. It helps explain the business environment for private stakeholders in each subsector. The value chain analysis builds on the ecosystem analysis, providing an illustrative representation of the identified chain actors, their functions and an analysis of their relationships.

The combination of both analyses provides a better understanding of how and where stakeholders and organizations are positioned within the ecosystem and value chain and identifies opportunities and engagement points for decision-makers in the public and private sectors.

### 4.1 RENEWABLE ENERGY

Uganda is richly endowed with renewable energy resources for energy production and provision of energy services. They include hydropower, biomass, solar, geothermal and wind. The country's estimated electrical power potential from these resources totals about 5,300 MW. However, these remain largely unexploited, due mainly to perceived technical and financial risks.

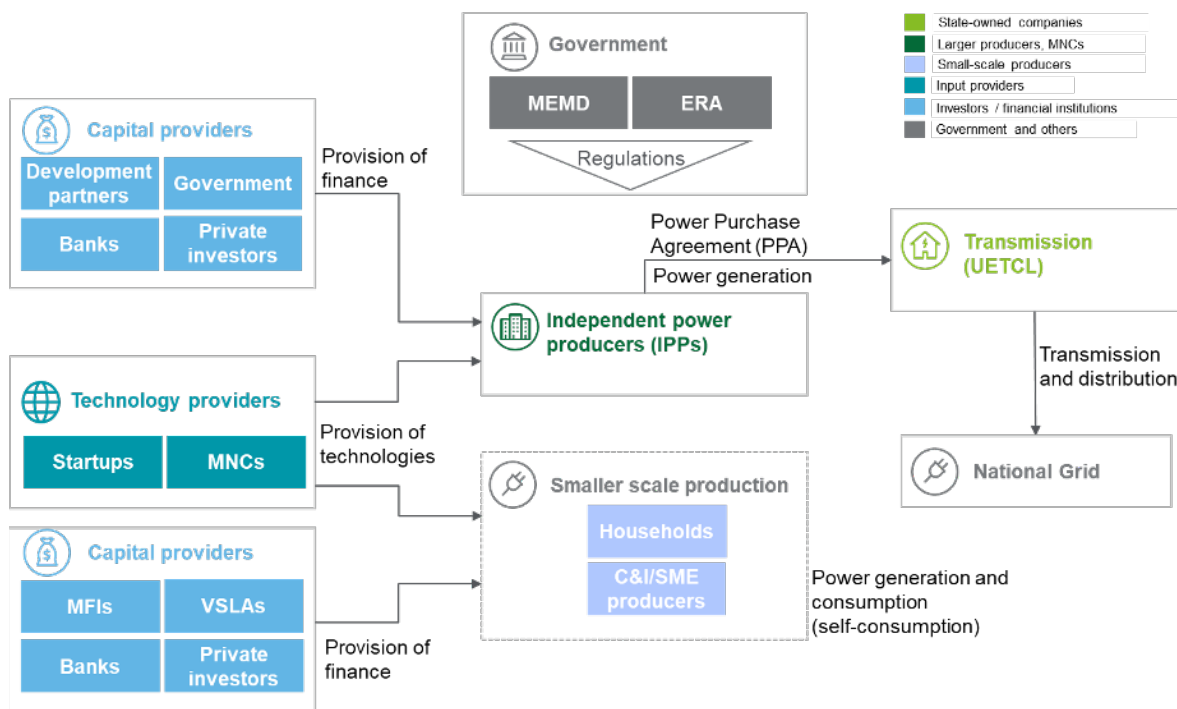
Uganda's target is to achieve renewable energy power generation capacity of 3,200 MW by 2030. This will require developing solar PV, hydro, geothermal, wind and biomass cogeneration for on-grid, mini-grid and off-grid applications. This subsection analyses the renewable energy ecosystem and value chain in Uganda.



## 4.1.1 ECOSYSTEM ANALYSIS

Figure 2 details the renewable energy power generation ecosystem in Uganda.

**Figure 2: Renewable energy power generation ecosystem in Uganda**



The renewable energy power generation ecosystem can be divided among input providers, electricity producers and end users. Input providers include technology providers for both utility-scale and small-scale renewable energy generation, solar panel providers, solar home system (SHS) solution providers and developers, and capital providers. At the other end of the ecosystem, end users include national grid users (through the grid managed by UETCL), commercial and industrial (C&I) producers, and households that consume the off-grid electricity produced.

The price of electricity and regulations imposed by the government have a significant impact on all stakeholders in this ecosystem. They impact profitability and/or return on investment for all electricity producers through agreed power purchase agreements (PPA) and substantially affect the decisions of off-grid electricity producers. Stakeholders within the ecosystem are therefore significantly linked to one another.

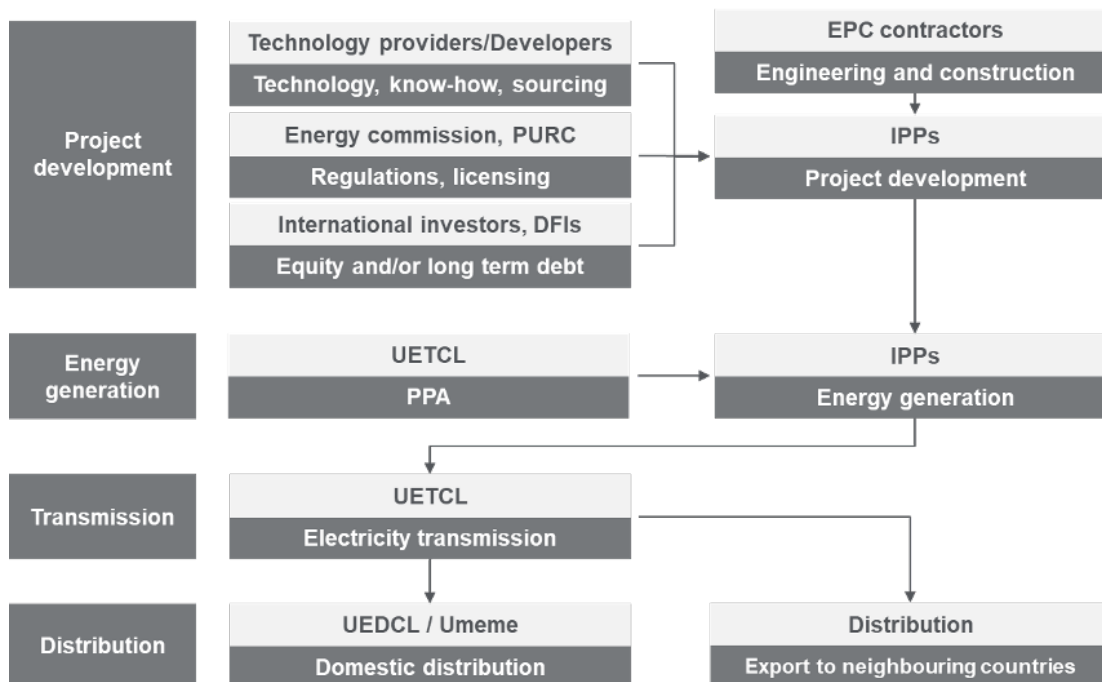
Renewable energy power production in Uganda may be categorized into utility-scale on-grid power producers, C&I and households. Their needs differ in terms of capital provision and uses of renewable energy. Utility-scale power producers seek to develop long-term projects, which require long-term capital. They are also significantly linked to other stakeholders in the ecosystem, such as the government and public utilities.

Renewable energy users on the C&I and household levels develop projects on a smaller scale and seek to generate power for self-consumption. They are less closely linked with other stakeholders.

## 4.1.2 ANALYSING THE VALUE CHAIN, MAPPING PRIVATE SECTOR ACTORS AND IDENTIFYING BARRIERS TO ON-GRID UTILITY-SCALE RENEWABLE ENERGY GENERATION IN UGANDA

Figure 3 shows the value chain analysis of on-grid utility-scale renewable energy power generation.

**Figure 3: Value chain for on-grid renewable energy generation in Uganda**



Independent power producers (IPPs) are at the centre of the on-grid renewable energy value chain in Uganda, producing electricity that is fed to the national grid through PPAs with UETCL. Developers and IPPs are involved in developing utility-scale renewable energy generation. They bring key stakeholders together around potential projects, including technology providers, engineering, procurement and construction (EPC) contractors, financiers, and public utilities.

Investors in utility-scale projects are usually development finance institutions (DFI) and other international investors that can provide equity and long-term debt. Projects are structured financially with the investors and PPA terms and conditions are agreed upon with public utilities. The government, through the Ministry of Energy and Mineral Development (MEMD), Electricity Regulatory Authority (ERA) and others, impacts the project through regulations and by issuing licenses to IPPs.

After project initiation, IPPs work with EPC contractors to commission the power plant. After commissioning, IPPs operate the plant and sell electricity based on the conditions established by the PPA. Electricity is then distributed to the domestic grid and international markets.

The main gap in the on-grid market value chain is the availability of long-term capital for project developers. In Uganda, the electricity oversupply affecting PPA negotiations also weighs on the market.

### DEVELOPERS/INDEPENDENT POWER PRODUCERS

IPPs are the key players in private sector investment in the renewable energy subsector. They develop utility-scale power plants, initiating, developing and operating projects them once the power plant is commissioned. At the project development stage, technology providers/developers and investors support IPPs. Technology providers/developers support the sourcing of the project idea and provide the technology and know-how required for project initiation and development. Technology providers and IPPs are often interlinked. IPPs currently account for nearly 60 percent of the country's total generation capacity. Table 8 provides details of renewable energy IPPs and developers with investments in Uganda as of 2018.

**Table 8: Renewable energy investments in Uganda**

RENEWABLE TECHNOLOGY	PLANT NAME	CAPACITY (MW)	INVESTMENT COST* (MILLIONS OF \$)
HYDRO	Kiira HPP	200	
	Nalubale HPP	180	
	Bujagali Energy Limited (BEL)	250	
	Isimba Hydro Power dam	183	567.7
	Kasese Cobalt (KCCL)	9.9	
	Tibet Hima Mining Co Ltd	5	
	Bugoye Hydro Limited	13	
	AEMS Mpanga	18	
	Ishasha Ecopower	6.6	
	Kabalega Hydromax Buseruka	9	
	Muvumbe	6.5	12.5
	Siiti	5	15.0
	Nyagak**	3.5	
	Kisiizi Hospital Power**	0.036	
	Rwimi	5.54	19.9
	Nyamwamba	9.2	28.7
	Lubilia	5.4	16.0
	Nkusi	9.6	19.6
	Mahoma Hydro	2.7	
Waki HPP	4.8	17.3	
Swam**	0.04		
Bwindi**	0.064		
BAGASSE COGENERATION	Kakira Sugar Limited	51.1	56.8
	Kinyara Sugar Works Limited	14.5	
	Sugar and Allied Uganda Limited	11.9	
	SCOUL	9.5	
	Mayuge Sugar Limited	9.2	

RENEWABLE TECHNOLOGY	PLANT NAME	CAPACITY (MW)	INVESTMENT COST* (MILLIONS OF \$)
SOLAR PV	Access Solar	10	14.3
	Tororo Solar North	10	19.6
	MSS Xsabo Solar Power Limited	20	
	Absolute-Kitobo	0.23	
	Kalangala Infrastructure Services**	0.6	
OTHER BIOMASS	Pamoja-Tiribogo	0.032	
	Pamoja-Ssekanyonyi	0.011	
	Kalangala Infrastructure Services**	1	

\* Where available

Source: Electricity Regulatory Authority

\*\* Off-grid generator

Uganda has successfully attracted private sector investments in creating new capacity. The 250 MW Bujagali hydropower plant, at the time of its completion, was the largest private investment built by an IPP in Africa. Planned additional hydropower generation capacities detailed in Table 9 show their reported investment costs.

**Table 9: Investment costs for planned additional capacities**

PLANT NAME	PLANNED CAPACITY	COMPLETION DATE	TOTAL INVESTMENT COST (\$)	AVERAGE INVESTMENT COST (\$)
<b>LARGE HYDROPOWER</b>				
Karuma Hydro Power dam	600 MW	2019	1.688 billion	2.8 M/MW
Ayago Hydro power	840 MW	2022	1.97 billion	2.3 M/MW
<b>SMALL HYDROPOWER</b>				
Siti 2 Small hydropower (SHP)	16.5 MW	2019	33.0 million	2.0 M/MW
Kyambura SHP	7.6 MW	2019	24.0 million	3.2 M/MW
Sindila SHP	5.3 MW	2019	19.4 million	3.7 M/MW
Ndugutu SHP	5.9 MW	2019	17.1 million	2.9 M/MW
Nyamagasani 1 SHP	15.0 MW	2020	36.1 million	2.4 M/MW
Nyamagasani 2 SHP	5.0 MW	2019	19.4 million	3.9 M/MW
Kikagati SHP	16.0 MW	2020	86.0 million	

Source: Energy Efficiency Roadmap for Uganda and GETFIT Annual Report 2018

## ENGINEERING, PROCUREMENT, CONSTRUCTION/INSTALLERS

Engineering, procurement, construction (EPC) refers to the contractors responsible for all activities from design to procurement, construction, commissioning and handover of the power plant to the IPP. There are several EPC companies in Uganda. Some utility-scale EPC contractors are subsidiaries of consortiums formed by foreign investors based in Uganda. Figure 5 provides an illustrative list of renewable energy associations in Uganda under which EPC contractors are members of.

**Figure 4: Selected renewable energy associations in Uganda**



#### **4.1.2.1 GAPS AND CHALLENGES FOR IPPS AND THE LARGER ON-GRID UTILITY SCALE RENEWABLE ENERGY GENERATION VALUE CHAIN**

##### **ELECTRICITY SUPPLY NOT FULLY EVACUATED**

The Government of Uganda has prioritized increasing the country’s energy production in recent years and has attracted investment in the sector. The government has established an enabling environment for private sector participation in the energy sector that includes feed-in tariff systems (REFiT and GETFiT), PPP schemes, standardized PPAs and tax exemptions. This has benefited large players, such as IPPs, which have invested in grid-connected renewable energy projects.

However, while new investments in the country’s generation capacity increased, electricity demand did not increase accordingly. Developments on the transmission and distribution side lagged, contributing to the current electricity supply not being fully evacuated. As such, projections suggest that Uganda will have about 380 MW of excess power generation capacity by 2020. This constrains further private sector investment in the energy sector, particularly in renewable energy power generation, given the high perceived risks associated with investment in renewable energy technologies.

##### **LACK OF GRID INFRASTRUCTURE LEADING TO LOW ELECTRIFICATION RATE**

Despite the current and increasing electricity generation capacity, the country’s electrification rate remains one of the lowest in Africa. In 2017, only 19 percent of Ugandans nationwide had access to electricity. Although the acceleration of electrification and access to electricity remains a priority, as stated in Uganda’s Energy Policy and electrification-related strategies, transmission and distribution lines in rural and remote areas remain scarce. This is due to the high costs of extending high-voltage transmission lines to these areas, which is deemed cost-ineffective and inefficient.

The current constraint in the electrification rate is interlinked with the projected excess power generation. Addressing the country’s lack of grid infrastructure, thereby increasing its electrification rate, can address the electricity supply evacuation challenge and generate greater potential for private sector investment.

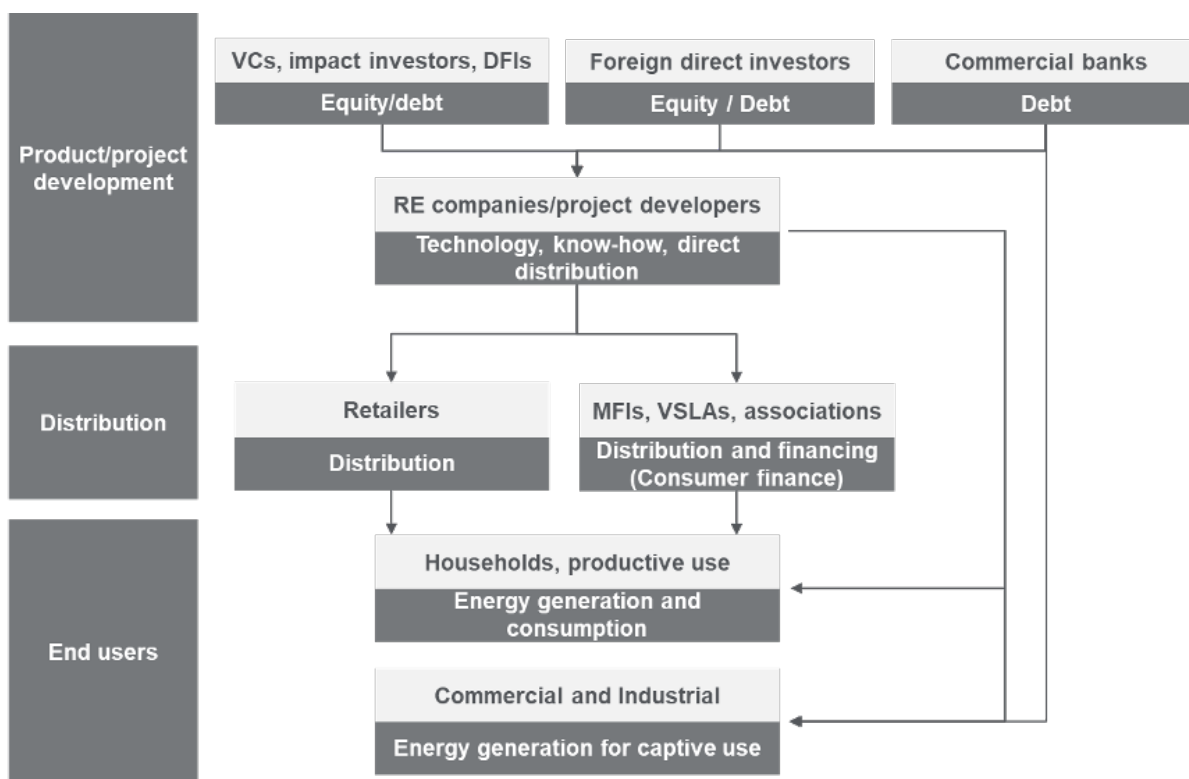
##### **LIMITED CAPACITIES OF ELECTRICITY TRANSMISSION AND DISTRIBUTION INFRASTRUCTURE**

Uganda’s electricity transmission and distribution network faces challenges, with load demand remaining relatively high throughout most of the network, causing it to be unreliable during peak times. To improve the security and reliability of electricity supply, the transmission and distribution infrastructure should be enhanced and expanded. This would effectively distribute power from new generation plants and existing capacity generation and improve delivery to different areas of the country, increasing electrification.

### 4.1.3 ANALYSING THE VALUE CHAIN, MAPPING PRIVATE SECTOR ACTORS AND IDENTIFYING BARRIERS TO COMMERCIAL, INDUSTRIAL AND HOUSEHOLD RENEWABLE ENERGY USE IN UGANDA

Figure 5 presents the value chain analysis of C&I and household use of renewable energy in Uganda.

**Figure 5: Value chain for off-grid renewable energy power generation in Uganda**



The value chain for off-grid applications of renewable energy power generation is centred on households and commercial and industrial end users. They are the source of demand for renewable energy technology solutions. The primary demand driver for non-grid connected end users is the lack of access to on-grid electricity. The primary demand driver for grid-connected end users is to achieve savings on electricity costs and improve power supply. Another driver may include reducing fuel expenses.

The value chain of off-grid renewable energy power generation in Uganda may be divided in two. The first involves the larger-scale value chain: large renewable energy companies and project developers providing technologies and solutions to commercial and industrial users. The second is the smaller-scale value chain: smaller technology and solution providers serving smaller commercial and industrial users, small and medium-sized enterprises, and household clients.

In the larger-scale value chain, a request from a C&I user usually initiates a project. C&I users seek the services of technology developers/installers to design and install a solution adapted to their specific needs. Some developers also provide financial structuring services to support project financing. C&I users in Uganda develop primarily renewable energy generation capacity for captive use, with the possibility of selling surplus electricity to the grid once a net metering system is developed.

The smaller-scale renewable energy market value chain includes, for example, SHSs and is more complex than the on-grid generation and larger C&I use value chains. Technology providers providing SHS solutions are at the centre. Projects are usually initiated based on end-user demand, which is based on the services and products that SHS companies provide. Households and other end users thus request services and products developed by SHS companies.

SHS companies provide services and products to end users directly or through distributors and intermediaries. Distributors and intermediaries, such as kiosks, retail outlets, microfinance institutions (MFIs), village savings and

loan associations and others, allow more customers to obtain access to products and technologies by reaching out to rural areas or providing financial services to households and SMEs in areas linked with the SHS asset.

Technology providers in Uganda, especially those providing asset-based lending services, are usually financed by foreign investors such as venture capital (VC) and impact investors.

## TECHNOLOGY PROVIDERS AND SMALL-SCALE DEVELOPERS

Renewable energy technology providers and small-scale developers in Uganda provide mini-grid solutions, commercial and industrial scale installations, community-based installations, and household-level solutions.

**Figure 6: Selected list of technology providers and small-scale developers in Uganda**



Uganda has a rapidly growing SHS market, which is served by the private sector. National sales were reported to total approximately 10,000 systems annually in 2015 for residential, institutional and industrial uses.<sup>18</sup>

### Off-grid investments: NEoT Offgrid Africa (NOA) platform<sup>19</sup>

The platform’s objective is to invest hundreds of millions of euros in distributed renewable energy projects in Africa over the next five years. It offers a solution to the challenge of replacing traditional, polluting electricity generation methods (including oil lamps and diesel engines) with clean solutions (solar power + batteries).

The market is estimated to be worth several billion euros and has become more accessible, thanks to recent technological advances, particularly in batteries and the digital economy (mobile payment technologies in particular). NOA will invest in projects that serve both consumers and businesses (including industrial facilities, telecom towers, commercial buildings and hotels).

NOA will also invest in projects delivered in partnership with developers of projects and technologies.

Other similar initiatives support the off-grid market, including GOGLA, DFID’s Energy Compact and Power Africa’s Beyond the Grid sub-initiative.

## 4.1.3.1 GAPS AND CHALLENGES FOR TECHNOLOGY PROVIDERS, SMALL-SCALE DEVELOPERS, C&I AND HOUSEHOLD RENEWABLE ENERGY GENERATION VALUE CHAIN

### LACK OF BUSINESS MODELS FOR DEVELOPING MINI-GRIDS

The development of renewable energy for mini-grid and off-grid applications presents significant opportunities for private sector investment in Uganda’s energy sector. Several mini-grid projects have been implemented in Uganda; their success is attributed to subsidies provided by the Rural Electrification Agency (REA) through the national Rural Electrification Fund and support from international donors throughout the project planning and development stages. The ERA has also established licensing procedures and guidelines for small-scale renewable energy projects. For example, mini-grid systems under 2 MW are exempt from electricity license

<sup>18</sup> Ministry of Energy and Mineral Development. 2017. *Energy Efficiency Roadmap for Uganda: Making Energy Efficiency Count*.

<sup>19</sup> NEoT Capital. 2017. *Introducing NEoT Offgrid Africa*. <https://neotcapital.com/new-blog/2017/9/13/introducing-neot-offgrid-africa>

requirements. However, the lack of cost-reflective tariffs that do not depend on government subsidies to incentivize further development of renewable energy in mini-grids remains a key barrier.

The current off-grid tariff structure in Uganda allows mini-grid operators to charge higher tariffs than on-grid operators. However, the ERA still determines and regulates off-grid tariffs to balance affordability and cost-reflectiveness. From the project developer’s perspective, the tariffs set by the ERA are too low. This means that they may not be sufficient to earn an acceptable return on investment, which would not justify private sector investment in mini-grid projects. At the same time, the government does not provide guarantees. The risks associated are thus too high for local banks to provide financing to private sector players.

**RECOMMENDATION AND POINT OF ENTRY 1**

**Developing innovative business models for mini-grid development**

Developing innovative business models will be critical to achieving renewable energy-based rural electrification. Given the initial cost of mini-grids and the current lack of cost-reflective tariffs that would convince developers that such projects are viable, business models could be considered that would decrease operational costs and increase connection coverage. This would enable developers to recover their initial investments by decreasing running costs and scaling-up revenues.

Investments in mini-grid renewable energy development could be further supported by developing incentive schemes to reduce initial investment costs. This could be done through grants, subsidies, minimum revenue guarantees and result-based financing.

**Best practice example: Powerhive East Africa**

Powerhive is a private micro-grid solutions provider. It created a fee-for-service business model to provide electricity to the rural poor in developing countries by developing proprietary technology and streamlined customer service operations. Powerhive operates as a private utility and absorbs the costs of developing the micro-grid infrastructure. It allows customers to purchase electricity using mobile money payments through mobile phones. Payments trigger automatic electricity production for households and businesses for a period of time based on the amount of electricity purchased.

Powerhive first tested its model in Mokomoni, a rural village in Nyanza, Kenya, where a 1.5 kW micro-grid was commissioned in 2012. In 2013, it expanded to three other pilot sites in Kenya serving approximately 1,500 rural customers. In 2015, Kenya’s Energy Regulatory Commission granted Powerhive concessions to supply electricity to hundreds of rural communities in the country beyond the national grid.

**Best practice example: Result-based financing for mini-grids**

Result-based financing (RBF) provides additional cash flow to mini-grid operators based on specific milestones. For mini-grids, RBF is usually indexed on the number of customers connected to the grid and on the quality of the connection. This has been implemented in Tanzania as performance grants, where the World Bank–supported TEDAP programme provided up to \$600/new connection for hydro-based mini-grids and \$500 for solar mini-grids.<sup>20</sup>

<b>Main implementer</b>	Developers of mini-grids will lead the development of new business models. The government, together with development partners, could supplement by providing incentive schemes.
<b>Private sector involvement</b>	The private sector will be involved in implementing mini-grid projects through innovative business models.
<b>Financial benefits</b>	Decreased operational costs and increased connection coverage enabling developers to recover their initial investments by decreasing running costs and scaling-up revenues. The private sector would also receive financial support through the incentive schemes.
<b>Mitigation outcomes</b>	Increased generation from renewable energy sources and decreased GHG emissions from the energy generation sector.

<sup>20</sup> IRENA, 2018. Policies and Regulations for Renewable Energy Mini-grids



## LACK OF QUALITY ASSURANCE FRAMEWORK

Stakeholders identified the existence of sub-standard, low-quality and counterfeit solar home products in the market. In general, customers will invest in less-expensive products, disregarding durability, reliability and quality considerations. The government has undertaken efforts to develop a quality assurance framework. However, this remains a challenge.

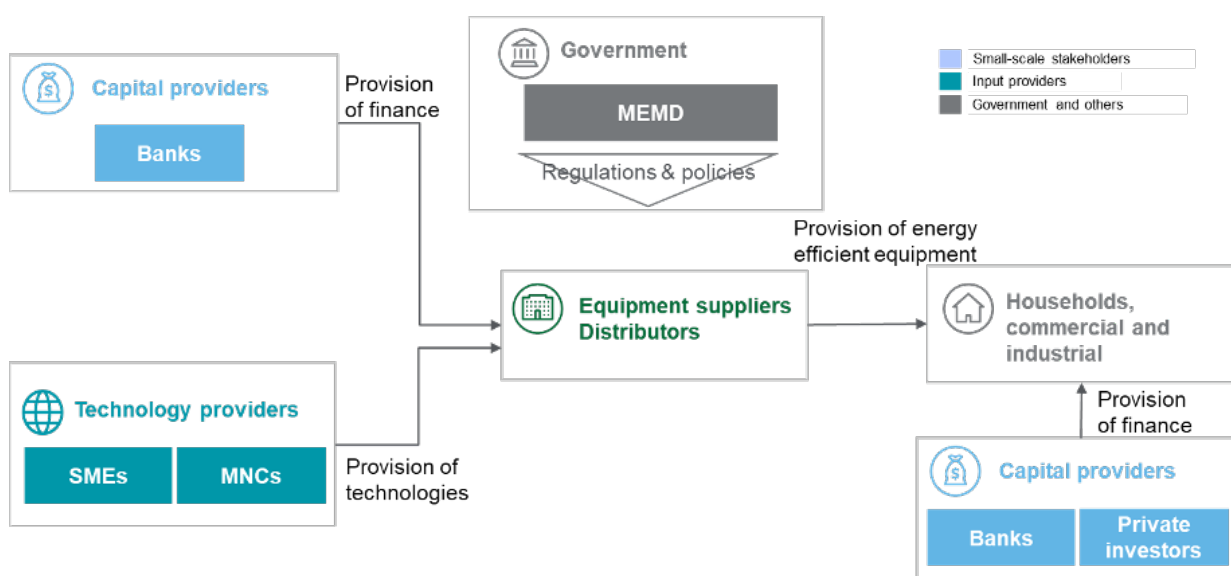
## 4.2 ENERGY EFFICIENCY

Uganda’s energy efficiency targets focus on sustainable energy efficient solutions in public buildings and on developing and enforcing building codes for energy efficient construction and renovation.

### 4.2.1 ECOSYSTEM ANALYSIS

Figure 7 shows the energy efficiency ecosystem in Uganda.

**Figure 7: Uganda’s energy efficiency ecosystem**



This ecosystem can be divided among input providers, suppliers and end users. Energy efficient technologies, lighting and appliances are imported exclusively from foreign technology providers. No local supply chain exists. Equipment suppliers and distributors operate primarily on a small scale and are usually present in urban centres.

Uganda recognizes the multiple benefits of energy efficiency, beyond its contribution to mitigating GHG emissions. Those benefits include saving on electricity costs, improving supply reliability, reducing peak demand and deferring the need for additional generation capacity. Several energy efficiency efforts have been achieved at various levels in Uganda. These focus mainly on the distribution of energy efficient equipment, such as CFL lighting, solar water heaters and other such equipment for industrial applications. Other energy efficiency mitigation actions listed in Uganda’s BUR as having been implemented include its energy efficiency programme. This involves energy efficiency improvements in industry and households through energy audits and distribution of LED lamps.

#### 4.2.1.1 GAPS AND CHALLENGES FOR THE ENERGY EFFICIENCY VALUE CHAIN

##### LACK OF POLICIES AND REGULATIONS

Strategies and plans that address energy efficiency issues in Uganda are mentioned in existing policies, such as the REP and Energy Efficiency Roadmap. However, processes and procedures to enforce and prioritize

energy efficiency requirements have not been put in place. An energy efficiency policy is needed. Enacting the Energy Efficiency and Conservation Bill, currently in development, would provide the legal basis to enforce energy efficiency in Uganda.

The Minimum Energy Performance Standards have been developed to cover appliance efficiency, including refrigerators, air conditioners, motors, lighting and freezers. However, the reach of those standards should be expanded.

## LACK OF CONFIDENCE IN ENERGY EFFICIENCY INVESTMENT

Decision-makers with purchasing power often lack confidence in the technical performance of energy efficient technologies, which could be attributed to the lack of clear understanding of the benefits of investments in energy efficiency. Programmes need to be developed to inform private sector decisions and promote investments in energy efficiency. This could be done through awareness campaigns, appliance labelling, incentivized audits and other initiatives.

## HIGH COSTS ASSOCIATED WITH ENERGY EFFICIENT TECHNOLOGIES

Energy efficient technologies are generally associated with higher costs, which limits the ability to scale up their adoption for industrial, commercial and public building applications. The government has conducted energy audits, which have identified potential energy saving opportunities in the sector. Innovative models need to be considered to scale up private sector participation in providing energy efficiency services, such as energy service companies (ESCOs). This would benefit both energy solution providers and end users.

### RECOMMENDATION AND POINT OF ENTRY 2

#### **Establish an enabling environment for energy efficiency**

**Policies and regulations** – The importance of establishing an enabling environment is paramount for the development of the energy efficiency subsector in Uganda. The Energy Efficiency and Conservation Bill should be adopted. It would pave the way for other policies and regulations, including energy efficiency standards, labelling and certification of appliances, and development of programmes and incentives for energy efficiency.

**Awareness campaigns** – Ugandans lack confidence in energy efficiency investments, among both smallholder end users, such as households, and larger end users, such as commercial and industrial facilities. Awareness should be enhanced to highlight cost savings and the associated environmental and social benefits of investing in energy efficiency measures and technologies. This effort should be designed to convince key stakeholders of the long-term financial gains and net cost reductions resulting from energy efficiency investments, with the aim of shifting consumer behaviour towards better and more sustainable preferences in electricity use.

**Appliance labelling** – The energy efficiency labelling of appliances is an effective way to raise public awareness of appliance energy savings. Under such a scheme, energy efficient appliances are labelled with information about the product's electricity consumption and energy efficiency. This allows end users to consider energy efficiency performance factors when they purchase an appliance.

#### **Best practice example: ECOWAS Energy Efficiency Policy**

The Economic Community of West African States (ECOWAS) has taken action to adopt and implement the regional ECOWAS Energy Efficiency Policy (EEEP) to address the challenge of making the most efficient use of the region's energy resources. The EEEP framework contributes to creating a favourable environment for private investment in energy efficiency and spurring industrial development and employment through energy savings. Specific EEEP targets include phasing out incandescent bulbs, establishing energy efficiency standards and labelling for major energy equipment, implementing capacity building and awareness raising for energy users and multiple decision makers, and creating financing instruments for sustainable energy.<sup>21</sup>

21 ECOWAS Centre for Renewable Energy and Energy Efficiency. **ECOWAS Energy Efficiency Policy**. Available at: <http://www.ecreee.org/page/ecowas-energy-efficiency-policy-eeep>

<b>Main implementer</b>	Government, through the development of the required enabling environment such as policies, regulations, programmes and incentives.
<b>Private sector involvement</b>	The demand for energy efficient measures and appliances will likely increase with the establishment of the enabling environment. As a result, the private sector would invest more in energy efficient technologies.
<b>Financial benefits</b>	Increased savings in electricity consumption costs.
<b>Mitigation outcomes</b>	Decreased use of energy and decreased GHG emissions.

#### RECOMMENDATION AND POINT OF ENTRY 3

### Providing ESCO services to C&I

The Energy Efficiency Roadmap for Uganda identified incentivized audits as an opportunity to address lack of information and knowledge on the benefits of energy efficiency. The MEMD has conducted preliminary energy audits in industries and commercial buildings. However, the implementation of energy efficiency recommendations following these audits remains limited. This presents opportunities for private investment through private sector-led mechanisms such as ESCOs, which provide both technical and financial services, simplifying the approach for end users. ESCOs would take on the responsibility of proposing appropriate energy efficiency measures adapted to the client's needs, finance the purchase and installation of equipment, and, in some cases, operate and maintain it. The client would then be billed based on the energy savings achieved. ESCOs can provide energy efficiency measures based on energy audits conducted by MEMD, as well as conduct its own energy audits for clients that have not yet been audited.

#### Best practice example: ESCO industry in China

The development of China's ESCO industry stemmed from the Energy Conservation Promotion Project jointly implemented in 1998 by the World Bank and GEF. It provided technical and financial assistance to introduce and develop energy performance contracting. The project established three pilot ESCOs in Liaoning, Shandong and Beijing. By 2006, the three had implemented 475 projects for 405 clients, with investments totalling CNY 420 million, and achieving emission reductions of approximately 5.32 million tCO<sub>2</sub>e annually. China's ESCO industry developed rapidly. By the end of 2017, 6,137 enterprises were providing energy-saving services. ESCO industries had a total value of CNY 414.8 billion and had invested CNY 111.34 billion in energy performance contracting, resulting in annual emission reductions of more than 100 MtCO<sub>2</sub>e.<sup>22</sup>

<b>Main implementer</b>	ESCO service providers will lead the development of energy efficiency in the commercial and industrial space.
<b>Private sector involvement</b>	ESCOs are expected to be the main driver for this entry point, providing technical and financial services for C&I.
<b>Financial benefits</b>	ESCOs can expect increased and sustainable revenue streams from C&I demand. This will also increase savings in electricity consumption costs for end users.
<b>Mitigation outcomes</b>	Decreased energy use and decreased GHG emissions.

#### RECOMMENDATION AND POINT OF ENTRY 4

### Providing affordable energy efficient appliances to households and SMEs

Providing affordable energy efficient appliances will encourage households to replace appliances with more energy efficient equipment. Developing asset-based lending for appliances such as refrigerators and air-conditioning could reduce the initial cost of investment. One option is for technology providers offering SHS to operate on a distributed energy service company (DESCO) model. SHS providers then become the distributors of energy efficient appliances.

<sup>22</sup> International Finance Corporation. 2012. China Energy Service Company (ESCO) Market Study; and International Energy Charter. 2018. China Energy Efficiency Report: Protocol on Energy Efficiency and Environmental Aspects.

In the longer term, affordability can be achieved by developing a manufacturing plant for energy efficient appliances in Uganda. This would address a major challenge for distributors of efficient appliances, which must find international suppliers and manufacturers that can produce high-quality products.

**Best practice example: Financing DESCOs: AfDB’s DESCOs Financing Program<sup>23</sup>**

In 2019, the AfDB approved a financing programme aimed at DESCOs in Africa. It promotes securitization financing techniques to address barriers to accessing finance for DESCOs, as well as the use of local currency financing. The objective is to help offset some of the risks that both local banks and international investors perceive in financing in the sector, which include lack of familiarity with the technology, currency risk and limited information about consumers’ credit history.

<b>Main implementer</b>	Energy efficient appliance importers and distributors will be the main implementers in the short term. They may partner with SHS providers to follow a DESCO model.
<b>Private sector involvement</b>	The private sector, through appliance importers, distributors and SHS providers, is expected to be the driver for this entry point.  Financial service providers, including commercial banks and non-banking organizations, may also be involved by providing financing to service providers and/or households.
<b>Financial benefits</b>	By supporting demand, providers can expect additional and sustainable revenue streams from sustainable appliances.
<b>Mitigation outcomes</b>	Decreased use of energy and decreased GHG emissions.

### 4.3 CLEAN COOKING

Uganda targets the promotion and wider uptake of energy efficient cooking stoves as part of its mitigation actions on efficient use of energy resources.

Mitigation actions laid out in Uganda’s first BUR relevant to clean cooking include interventions such as nationally appropriate mitigation actions (NAMA) registered under the UNFCCC. This includes the NAMA on Greening Schools through the uptake of Improved Institutional Cook Stoves in Uganda. Although this initiative has been listed as a mitigation project undertaken in the country, it has not yet been implemented due to lack of financing.

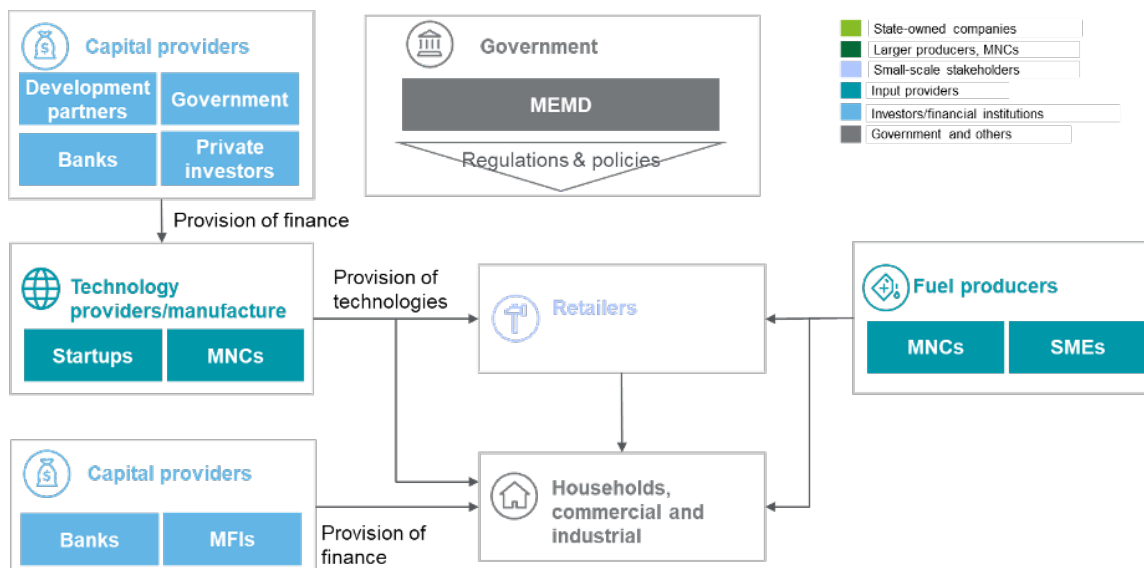
Stakeholders involved in Uganda’s clean cooking ecosystem and value chain include cookstove manufacturers, fuel producers, distributors, retailers and end users.

<sup>23</sup> <https://www.afdb.org/en/news-and-events/african-development-bank-approves-new-financing-program-energy-providers-45-mln-people-sub-saharan-africa-benefit-grid-power-2025-25545>

### 4.3.1 ECOSYSTEM ANALYSIS

Figure 8 illustrates the country’s clean cooking ecosystem.

**Figure 8: Uganda’s clean cooking ecosystem**



The clean cooking ecosystem can be divided among input providers, technology providers, manufacturers, retailers and end users. Depending on their business model, technology providers may act as input providers, by providing the technology to manufacturers, or directly as manufacturers, by producing the product and distributing it directly to end users.

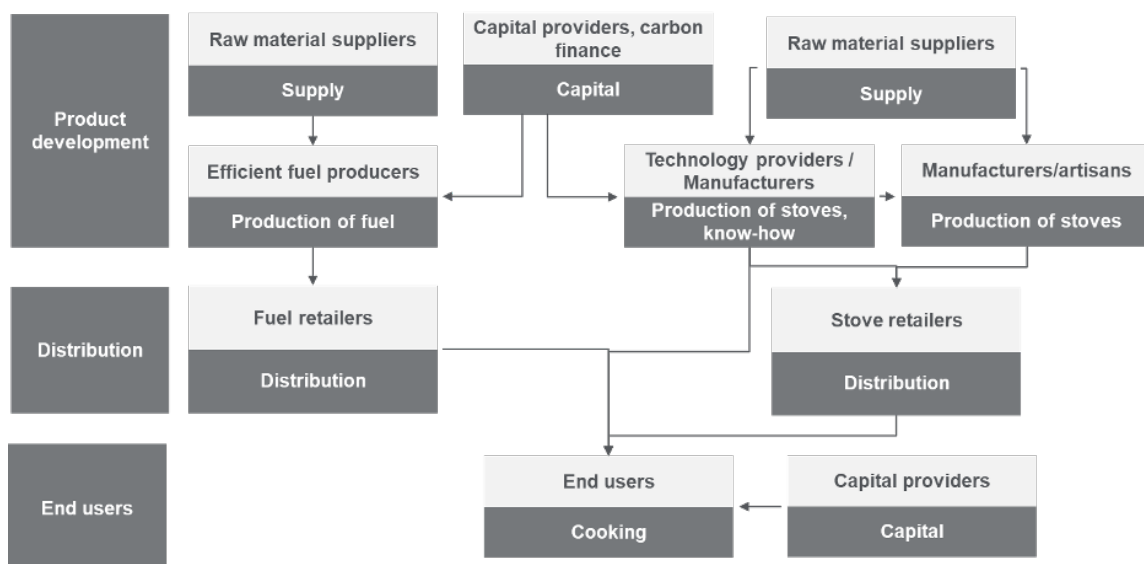
Input providers include raw material providers, such as fuel producers, which provide fuel to retailers for distribution, and capital providers. End users are usually households. Other users, such as schools and other institutions, also use clean cooking solutions. The government can influence the ecosystem by establishing standards and regulations.

Private sector stakeholders constitute the bulk of value chain players in the subsector. End users - household, commercial and industrial entities - are key demand drivers for clean cooking technologies.

### 4.3.2 ANALYSING THE VALUE CHAIN, MAPPING PRIVATE SECTOR ACTORS AND IDENTIFYING BARRIERS TO CLEAN COOKING

Figure 9 shows the value chain for Uganda’s clean cooking subsector.

**Figure 9: Value chain for clean cooking stoves and efficient fuel**



The value chain for the clean cooking subsector is structured around end users - households, commercial and industrial institutions - who are the main drivers for product providers. Products in this value chain include clean cooking technologies, such as improved biomass cookstoves, biofuels cookstoves, electric cookstoves and induction cookers, and efficient fuels, such as sustainably sourced fuelwood, efficiently produced charcoal, briquettes, biofuels (ethanol) and LPG.

Clean and energy efficient cookstoves are produced through two business models. Some enterprises have centralized their production of stoves, which are then distributed to retailers, while others provide the technology but rely on local artisans to manufacture and distribute the equipment. Stoves are then distributed directly or through retailers.

Raw material suppliers, usually informal private sector stakeholders, supply to efficient fuel producers. The fuel producers manufacture briquettes, pellets and more efficient charcoal, which is then distributed to end users directly or through retailers. Without efficient fuel, the full potential of efficient stoves cannot be leveraged.

### COOKSTOVE MANUFACTURERS

Cookstove manufacturers are responsible for the production of efficient technologies and/or efficient cookstoves.

Uganda’s clean and efficient cookstove market consists of a large number of small-scale artisanal producers, a few large-scale domestic manufacturers and some foreign manufacturers. The stoves are distributed through a network of retailers. Carbon finance through the carbon market has been made available in Uganda, which has helped to reduce the sales price of stoves.

### FUEL MANUFACTURERS

Fuel manufacturers are responsible for the production of efficient fuel. In Uganda, they produce carbonized and non-carbonized briquettes and pellets. These replace firewood and charcoal for household and institutional cooking and heating. Some cookstove manufacturers also produce and distribute fuel in the form of briquettes and pellets for their products. However, the number of commercial fuel manufacturers in the country is quite limited, but fuel manufacturing is becoming more feasible as charcoal prices increase and firewood supplies decrease.

**Figure 10: Selected improved fuel manufacturers in Uganda**



### STOVE AND FUEL DISTRIBUTORS AND RETAILERS

Efficient distribution and retail networks for the clean cooking subsector is cited as a main challenge to increasing the adoption of clean cooking and fuel technologies. Large-scale distributors in Uganda include UpEnergy, Living Goods and BRAC.

#### 4.3.2.1 GAPS AND CHALLENGES FOR THE CLEAN COOKING VALUE

##### HIGH COST OF TECHNOLOGIES

Higher quality cookstoves and fuels are much more expensive than traditional and less efficient cooking options. Although the use of more efficient cookstoves and fuels generates greater cost savings in the long term, customers

continue to see them as unaffordable because of their high initial cost. Better business models are needed to scale up the dissemination of these technologies, including providing efficient cookstoves and appropriate efficient fuel as part of a financing package option and enhancing public awareness of the economic and health benefits.

## LACK OF AWARENESS OF EFFICIENT COOKSTOVES AND EFFICIENT FUELS

Ugandans in general are unaware of efficient cookstove technologies and efficient cooking fuels. It is important for end users to understand the long-term economic and health benefits that these technologies provide, in contrast to traditional and less efficient cooking practices. Awareness campaigns should be carried out to increase the acceptance and uptake of clean cooking technologies.

### RECOMMENDATION AND POINT OF ENTRY 5

#### Developing business models that focus on achieving scale

Private sector investment in clean cooking solutions focuses on providing efficient cookstoves and efficient fuel. The cost of efficient and clean cooking technologies in Uganda is significantly greater than their traditional counterparts. Those high investment costs thus limit opportunities to scale up their implementation. Banks and other investors also have limited interest in small investments, which offer low margins. Creating innovative business models that would decrease initial investment costs and build on running costs could help enterprises scale up their production and become commercially viable.

Achieving scale is crucial if investors are to become more interested in projects and enterprises in the clean cooking ecosystem. The private sector therefore needs to consider models that will generate greater revenues by increasing the customer base or increasing affordability.

Some models to be explored include those that integrate stoves and associated fuels (tool and fuel models). They have a stronger revenue stream from fuel sales and could take advantage of the linkages between the stove and improved fuel to reduce the upfront cost of stoves.

These models can also be paired with SHS solutions. Clean cooking solutions would then become part of an overall “green model” for rural homes, which can be based on a pay-as-you-go (PayGo) basis.

In Uganda, Fenix International, a major SHS provider, has already started offering efficient stoves from another company, EcoZomm, through a DESCO model. Other SHS providers could replicate this innovative business model.

#### Best practice example: Tool and fuel models

Some companies have already tested providing tools and fuels in an integrated manner. The Rwandan company, Inyenyeri, leased customers an efficient biomass cookstove at no cost. In return, customers agreed to buy pellet fuel from the company. The solution was paired with fuel delivery and use of mobile money. This Cooking Power Purchase Agreement cuts monthly cooking cost almost in half, compared to charcoal. Other companies, such as Yeneri Cooking Stoves, have also tested this business model. Tool and fuel models are characterized by a significant initial investment by the company, which has to provide the stove to the end user as part of production costs. As margins on fuel remain limited, it is important that companies can ensure scale and reach a large number of customers.

<b>Main implementer</b>	Clean cooking and SHS providers would lead the development of new business models.
<b>Private sector involvement</b>	Through clean cooking and SHS providers, the private sector is expected be the driver for this entry point.  Financial service providers, including commercial banks and non-banking organizations, may also be involved by providing financing to service providers and/or households.
<b>Financial benefits</b>	By reaching scale, solution providers can achieve additional revenues and decrease production costs, which would support growth.
<b>Mitigation outcomes</b>	Decreased use of biomass for cooking and decreased GHG emissions.

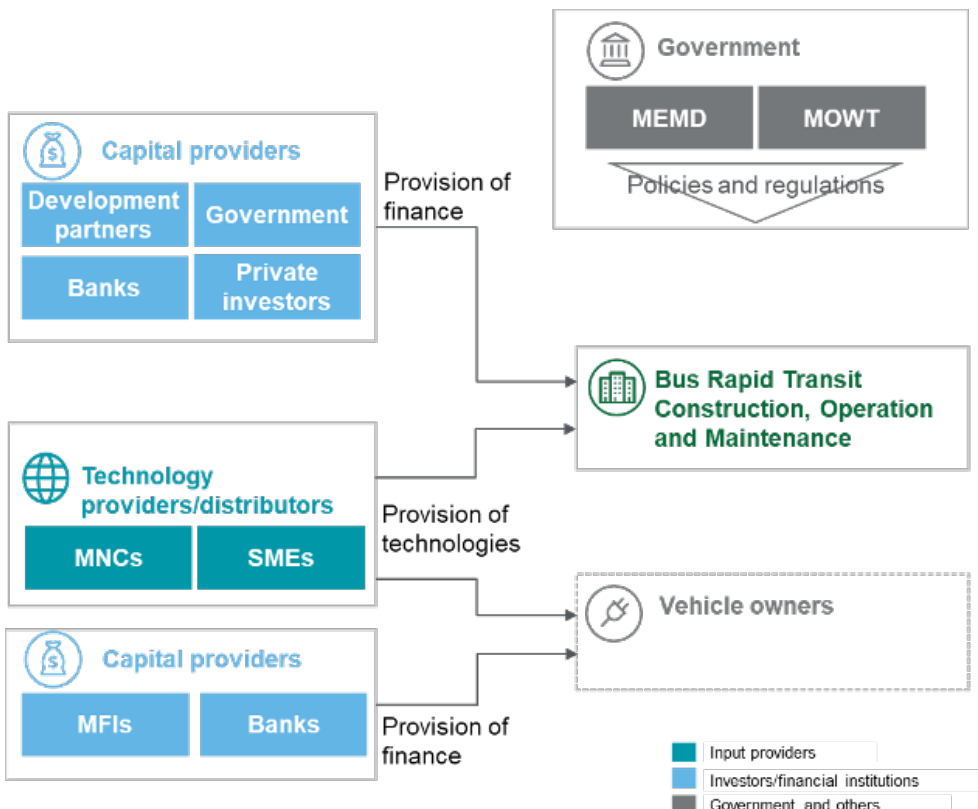
## 4.4 TRANSPORT

The private sector is not currently investing in the transport subsector in ways that are relevant to achieving Uganda's NDC targets. However, the BUR notes mitigation actions under the subsector that have been undertaken and registered under the UNFCCC, including the NAMA on Vehicle Fuel Efficiency Initiative in Uganda and the NAMA on Bus Rapid Transit for Greater Kampala. Both involve catalysing investments and private sector participation in their implementation design.

### 4.4.1 ECOSYSTEM ANALYSIS

Figure 11 shows the transport subsector ecosystem in Uganda.

**Figure 11: Transport subsector ecosystem in Uganda**



There is currently no local supply chain in the subsector.

Private sector investment in the transport subsector is typically initiated through public-private partnerships (PPP) with the government. For bus rapid transit (BRT), the involvement of private sector players will depend on the PPP arrangement reached with the Ministry of Works and Transport (contracting authority). The five PPP models are summarized below.

- **Operations and management contract:** All maintenance and operation of public infrastructure are outsourced to a private party through a management contract. The contractor does not invest in its own facilities, but operates the authority's facilities.
- **Design, build, finance, operate and maintain contract:** Both these services and the asset financing are procured through a single integrated contract, rather than by outsourcing the engineering, construction, maintenance and operations of an asset through separate contracts. The contractor sells its services to the contracting authority, rather than directly to the end user. The revenues from fees, such as performance fees, availability fees and/or shadow fees, are used to cover costs and earn a return on investment.
- **Concession/lease, develop and operate:** The contracting authority finances and builds the infrastructure through a conventional public procurement procedure. Once built, the facilities are leased or given in concession to a private operator for a specified period. The operator operates the facilities on a commercial basis, selling the infrastructure services directly to the end user.



- **Build, operate and transfer concession:** The private party finances, designs and builds the public infrastructure. Once built, that party maintains and operates the facilities on a commercial basis, selling the infrastructure services directly to the users.
- **Build, own and operate agreement:** a private contractor builds a new infrastructure and then owns and operates the facility at its own risk and for its own profit. Although the facility is private, the government is a party to the contract and may provide support through subsidies or a commitment to buy a certain volume of services at an agreed tariff.

As part of the fuel efficiency initiative, the government is working with a private company that invests in the equipment needed to conduct mandatory vehicle inspections. Investments are recovered from charges for each vehicle inspected. The government, led by the MEMD and Uganda National Bureau of Standards, is developing fuel standards for gasoline and diesel.

New technologies, such as electric mobility and clean energy transport development, are adopted relatively slowly in Uganda. The government is exploring the option of electric vehicles for public transport, particularly buses. For the private sector, uptake of electric vehicles remains a challenge because of lack of infrastructure, such as charging facilities.

## 4.5 FINANCIAL INSTITUTIONS PROVIDING GREEN FINANCING RELEVANT TO THE ENERGY SECTOR

Table 10 presents a mapping of institutions providing green financing and the financial products and services that these organizations offer Uganda's energy sector.

**Table 10: Financial institutions providing green financing to the energy sector**

FINANCIAL INSTITUTIONS		SUBSECTOR SERVED	PRODUCTS AND SERVICES	DETAILS
Type	Example			
COMMERCIAL BANKS	Centenary Bank	Renewable energy (SHS)	Consumer finance (debt)	Interest rate: 24% Tenor: 6 months to 5 years
	Post Bank	Renewable energy (SHS)	Subsidy, consumer finance (debt)	Individuals will pay only up to 70% of the cost of the solar system; REA will pay 30%
MFIS AND RURAL BANKS	FINCA Uganda Limited	Renewable energy (SHS), clean cooking	Consumer finance (debt)	Interest rate: 33.8% - 37.0% Tenor: 4 to 24 months
IMPACT INVESTORS, VCS AND CVCS	Acumen Fund, DOB Equity, ACTIS	Renewable energy	Venture capital (debt, equity)	Significant ticket size Foreign based
TECHNOLOGY PROVIDERS (ASSET-BASED FINANCING)	Fenix, Envirofit	Renewable energy (SHS), clean cooking	Asset finance/asset-based lending	Provided directly or through partners
CARBON CREDIT BUYERS	Impact Carbon	Clean cooking (improved cookstoves)	Carbon credit purchases	Reduce costs for manufacturers and consumers
DFIS	AFD – French Development Agency	Renewable energy and energy efficiency	Credit line to commercial banks	SUNREF East Africa
	GIZ – German Development Cooperation	Renewable energy	Grants	Promotion of Renewable Energy and Energy Efficiency Programme (PREEEP) - offers 50% grant if 50% is matched by the private sector
	United Nations Capital Development Fund	Renewable energy, clean cooking	Risk capital grants and concessional refinancing	CleanStart programme
	SNV Netherlands Development Organisation	Renewable energy (pico-scale), clean cooking	Project finance	Uganda Domestic Renewable Energy Solutions (UDRES)

FINANCIAL INSTITUTIONS		SUBSECTOR SERVED	PRODUCTS AND SERVICES	DETAILS
Type	Example			
CROWDFUNDING	TRINE	Renewable energy (SHS)	Crowd sourced finance	Offers flexible credit options: pay upfront or credit with payment plan of up to 24 months

## 4.5.1 COMMERCIAL BANKS

The Government of Uganda has taken significant steps to enhance the participation of the country's financial institutions in providing financing for the renewable energy, energy efficiency and clean cooking subsectors. Through the Uganda Energy Credit Capitalisation Company (UECCC) and its development partners, several programmes have been implemented that provide credit support to microfinance deposit-taking institutions, commercial banks and credit institutions to extend financing of off-grid solutions such as SHS. Commercial banks that offer financial products such as solar loans include Centenary Bank Uganda, Finance Trust Bank, Post Bank Uganda Limited and Pride Micro Finance Ltd.

Table 11 provides details on specific products provided by Centenary Bank and general financing conditions.

**Table 11: Centenary Bank's products provided to Uganda's energy sector**

GENERAL			
TYPE OF PRODUCT OFFERED	BUSINESS LOAN		NON-BUSINESS LOAN
Description	Working capital (including micro and SME loans; maximum loans are UGX 30M and UGX 20B, respectively)		Salary loans, housing loans; housing loans include micro housing loans up to UGX 50M and micro mortgage up to UGX 300M
<b>Centenary Bank also offers leasing for equipment and machinery and trade finance.</b>			
TARGETED SEGMENTS			
TYPE OF PRODUCT OFFERED	CENTESOLAR LOAN	POWER CONNECTION LOAN	IMPROVED INSTITUTIONAL COOKSTOVES
Description	Installation and purchase of solar systems	Electricity connection and wiring	Finances schools to build cookstoves, schools pay on termly basis. Bank also works with selected cookstove vendors
Maximum loan amount	Up to UGX 50M	Up to UGX 50M or higher	Up to UGX 50M
Expected financial returns	24% p.a. on reducing balance	15% p.a. on reducing balance	18% p.a.
Typical tenor	5 years		
Lending/ financing requirements	Client should have a reliable source of income to pay loan instalments, national ID, CRB card and an account with the bank. Loans are insured against death and other calamities.		
RISK PERCEPTIONS	Most clients lack collateral, poor quality equipment, lack of electricity equipment for power connection, and other credit risks that affect loan repayments.		

Interest rates associated with renewable energy loans, specifically SHS loans, are still very high in Uganda. They are driven mainly by the high cost of capital and high overhead associated with the banks' operational costs. The interest rate set by the BoU in April 2020 is 8 percent, with commercial bank lending rates at 18.83 percent in December 2019. The prime lending rates that commercial banks charge their most creditworthy customers for new loans range between 21 percent and 24 percent. The risks associated with renewable energy technologies, such as high capital cost and technical constraints, drive interest rates even higher. The financing tenor is relatively short, at up to five years. The high interest rates and short tenors are limiting

factors for most private sector stakeholder investment. Furthermore, the requirements to access finance from commercial banks and financial institutions are limiting factors for smaller stakeholders, particularly in rural areas where small-scale off-grid solutions, such as SHS, are needed most.

#### 4.5.2 MFIS AND RURAL BANKS

MFIs and rural banks provide debt financing and consumer finance, especially in rural areas, albeit at high interest rates. Specific financial products available for supporting renewable energy technologies include solar loans from FINCA Uganda Limited and its BrightLife programme for clean cooking technologies.

In line with financial products developed for commercial banks, UECCC also developed financing solutions that provide funding on concessionary terms to savings and credit cooperative organizations (SACCOs) and member organizations not regulated by the BoU to increase the availability of financing for off-grid solar PV solutions for rural electrification. SACCOs that provide this financing product to extend solar loans to households and commercial enterprises at the grassroots level include Tujijenge Uganda Limited, Hofokam Limited, EBO SACCO Limited and Buyanja SACCO Limited.

#### 4.5.3 IMPACT INVESTORS, VENTURE CAPITAL AND CORPORATE VENTURE CAPITAL FIRMS

Impact investors and venture capital firms could play a key role in scaling up investments in renewable energy, energy efficiency and clean cooking technologies in Uganda. Although impact financing has a limited presence in the energy sector, the renewable energy space is considered an attractive strategic sector that could catalyse significant impacts. Active impact investors include Acumen Fund, Root Capital, Grofin, DOB Equity, ONII and ICCO Investments. Active venture capital firms include ACTIS, TBL Mirror Fund and Abraaj Group.

#### 4.5.4 ASSET FINANCE AND ASSET-BASED LENDING (TECHNOLOGY PROVIDERS)

Asset finance and asset-based lending is an important financial service in Uganda. Asset finance allows consumers to access equipment while repaying their loan. The asset (equipment) usually serves as the collateral for the financing institution. This type of financing is referred to as PayGo.

Fenix International is one of the technology providers in Uganda offering its products under the PayGo model.

#### 4.5.5 CARBON CREDITS

Uganda has benefited from sales of carbon credits through the clean development mechanism (CDM) of the UNFCCC. Nineteen projects have registered under the CDM in Uganda to date. They include large-scale hydropower, biomass and biogas, and improved cookstoves for institutions projects. The list of registered CDM projects in Uganda and their carbon credit (certified emission reductions, CER) issuance status as of January 2020 is detailed in Table 12.

**Table 12: CDM projects in Uganda**

PROJECT NAME	ESTIMATED ANNUAL CERS (tCO <sub>2</sub> e)	CERS ISSUED TO DATE (tCO <sub>2</sub> e)
Bujagali Hydropower Project	858,173	5,234,813
West Nile Electrification Project (WNEP)	36,210	49,262
Institutional Improved Cook Stoves for Schools and Institutions in Uganda	31,286	8,457
Production of biodiesel from non-food oil seeds	40,120	0
Mpanga 18 MW Run-of-River Hydropower Project	36,839	52,530
Nakivubo Wastewater Treatment Plant Methane Capture and Utilisation Project	27,591	0

PROJECT NAME	ESTIMATED ANNUAL CERS (tCO <sub>2</sub> e)	CERS ISSUED TO DATE (tCO <sub>2</sub> e)
Nuru Lighting Project - Uganda	14,839	0
Anaerobic digestion and heat generation at Sugar Corporation of Uganda Limited	46,974	139,121
Namwasa Central Forest Reserve Reforestation Initiative	11,328	0
Ishasha 6.6 MW Small Hydropower project	19,621	44,502
Buseruka Mini Hydro Power Plant	31,468	28,276
Mpererwe Landfill Gas Project	18,261	0
Uganda Nile Basin Reforestation Project No 4	3,969	0
Uganda Nile Basin Reforestation Project No 2	4,861	0
Uganda Nile Basin Reforestation Project No 1	5,881	0
Uganda Nile Basin Reforestation Project No.5	5,925	20,171
Kachung Forest Project: Afforestation on Degraded Lands	24,702	345,164
Bugoye 13.0 MW Run-of-River Hydropower Project	51,074	98,524
Uganda Nile Basin Reforestation Project No.3	5,564	4,732

Projects that have been issued carbon credits under the CDM were able to take advantage of its benefits by reducing incremental costs associated with implementing more advanced technologies. However, because the carbon market is in decline, private sector investors cannot take full advantage of this mechanism. Once the new mechanisms under the Paris Agreement are established, the carbon market is expected to grow and continue to support the development of clean technologies.

It is also important to note that carbon credits, and result-based financing in general, remain temporary and are not a permanent source of cash flow. They are linked to specific and measurable results and as such, are better suited to a project than to a sustainable business model. Businesses that use carbon credits should therefore leverage the cash flow that the credits provide to support the development of a sustainable business model that does not require additional subsidies.

#### 4.5.6 RECOMMENDATIONS FOR THE FINANCIAL SECTOR

Investments in low-carbon technologies, such as those for the renewable energy generation, energy efficiency and transport subsectors, face significant barriers from the financial sector due to the perceived risks associated with these types of investments. A simple average of annualized interest rates that commercial banks charge their most creditworthy customers on new loans (denominated in the national currency) shows Uganda's commercial bank prime lending rate at 21.28 percent and 23.89 percent in 2017 and 2016, respectively.<sup>24</sup> This limits the private sector's capacity to invest in projects, as well as for households to invest in the technologies.

The lack of long-term financing, such as long-term debt and equity, is another important limiting factor, specifically for infrastructure projects such as on-grid utility scale projects.

Uganda currently benefits from increased access to finance in the form of climate financing from the Green Climate Fund (GCF). It has been a benefactor country of several multi-country programmes under the GCF and has implemented a GCF adaptation programme. Uganda also has a direct access accredited entity of the GCF through the Ministry of Water and Environment. Climate financing through the GCF is a potential option for addressing this barrier.

<sup>24</sup> Central Intelligence Agency. *The World Factbook: Commercial Bank Prime Lending Rate Listing*. Accessed at: <https://www.cia.gov/library/publications/the-world-factbook/fields/231.html>

**Providing capital at affordable conditions for blending and de-risking in commercial finance**

Commercial banks in Uganda cannot access affordable capital for projects with high overhead costs. Therefore, they provide less favourable financing conditions to the private energy sector. However, commercial banks have shown interest in partnering with international organizations to provide products at an improved interest rate.

Blended finance is therefore a potential option for the country's commercial banks. Blended finance transactions should address the risks perceived by investors as they represent a significant de-risking option for emerging markets and developing countries through the use of instruments such as guarantees and grant funding. It is also an opportunity to increase returns on a specific investment. Blended finance mechanisms address specific risks perceived by investors, such as macroeconomic and technical risks.

The interest rates and tenors offered to loan applicants reflect the risks that commercial banks perceive. One of the main drivers of high interest rates in Uganda is the high cost of capital. Commercial banks also perceive energy-related businesses to be high risk. Significant drivers behind this involve credit risks associated with the probability of default by the loan recipient, as well as technical risks explained by a lack of understanding of innovative models in the energy sector.

Commercial banks could leverage the support extended by international organizations. This could be achieved by providing concessional finance or guarantees to commercial banks to cover part of the risk perceived, thereby lowering interest rates significantly compared with current conditions.

Some of the instruments that could be leveraged to achieve this include direct investments, concessional financing for lines of credit and guarantees. For example, direct investments may target significant infrastructure investments in the energy sector and increase the confidence of other investors. Credit lines may support commercial banks to target specific segments of the energy sector, such as SMEs in the SHS and clean cooking space. Finally, guarantees can provide the coverage that a loan recipient needs to improve its credit rating and decrease risks.

Blended finance programmes should be bundled with capacity-building programmes aimed at commercial banks. Commercial banks will have to assess business models with which they may not be experienced or comfortable.

**Best practice example: Sustainable Use of Natural Resources and Energy Finance (SUNREF) Programme**

The objective of the SUNREF initiative, developed by the Agence Française de Développement (AFD),<sup>25</sup> is to support financial institutions and their clients to boost financing for sustainable natural resource management projects, with a focus on clean energy. SUNREF offers long-term concessional financing instruments to banks and contributes to building the technical capacities of financial intermediaries. Capacity-building programmes include helping banks to identify innovative green projects and appraising the corresponding loan applications. In Uganda, SUNREF partners include Diamond Trust Bank Uganda.

<b>Main implementer</b>	The main implementers should be providers of concessional capital, such as climate finance funds (GCF), international organizations, multilateral development banks and bilateral donors. This will require close discussions with local financial institutions and the government.
<b>Private sector involvement</b>	The private sector will be involved through the development of credit lines and specific instruments. This could target primarily commercial banks as well as investment funds (VCs, PE funds) that ready to invest in innovative business models (related to point of entry 7).  Ultimately, private sector stakeholders in the energy sector should be able to benefit from concessional financing, as well as end users such as C&I and households.
<b>Financial benefits</b>	Financial institutions will benefit from risk mitigation instruments. This may be achieved through reduced cost of capital, guarantees and other instruments.  Private sector stakeholders and end users will benefit from reduced interest rates, thereby reducing the cost of the project to be implemented.
<b>Mitigation outcomes</b>	Decreased GHG emissions in the energy sector overall.

#### RECOMMENDATION AND POINT OF ENTRY 7

### De-risking innovative social models

To further support innovation in energy access and other energy business models, adequate financing conditions should be offered to innovative enterprises. Social ventures and enterprises require capital early on to develop their business model, proof of concept and prototypes, and to grow at scale. This requires financial and technical support.

Incubation and acceleration services need to be strengthened in Uganda to further support entrepreneurs. Capital also needs to be provided before investors become involved. Given the current status of the innovation ecosystem, pre-seed and seed funding are required to further support innovation. This can be achieved by providing grants or other concessional finance to acceleration services and/or investors (impact investors/VCs).

#### Best practice example: Impact investors and GCF

GCF has provided financing to Acumen, an impact investment fund, to develop an investment fund, KawiSafi, to drive off-grid solar power in East Africa. The fund aims to advance a low-carbon paradigm shift and leapfrog fossil fuel grids to clean energy, using equity capital from GCF to leverage investment and grant capital to set up a technical assistance facility.

#### Best practice example: Acceleration services and funding throughout the investment cycle

Kenya Climate Innovation Center (KCIC) provides holistic, country-driven support to accelerate the development, deployment and transfer of locally relevant climate and clean energy technologies. KCIC provides incubation, capacity-building services and financing to Kenyan entrepreneurs and new ventures that are developing innovative solutions in energy, water and agribusiness to address climate change. KCIC was the first incubation centre under the InfoDev Climate Technology Program.

KCIC also provides a number of financing options along the investment cycle. At seed level, it provides grants to entrepreneurs. After this stage, it provides loans. When companies become investable, KCIC can also invest through its Venture Capital firm, Kenya Climate Ventures (KCV).

Regional integration through the East African Community allows markets in the interlinked countries to expand thanks to its intra-regional trade agreement. As innovative solutions in Kenya are developed, established and deployed, Uganda’s market presents opportunities to scale them up through replication by Ugandan entrepreneurs or by opening up the market for Kenyan innovations to enter Uganda.

<b>Main implementer</b>	The main implementers should be stakeholders in the innovation space, including providers of concessional capital, the government and acceleration service providers.
<b>Private sector involvement</b>	The private sector will be involved through the development of innovation support models, such as acceleration programmes for innovative business models.  This could also target investment funds (VCs and PE funds) that are ready to invest in innovative business models.
<b>Financial benefits</b>	Acceleration service providers will benefit from concessional financing and technical support. This will be extended to entrepreneurs benefitting from the programmes, which will have access to these services at a reduced cost.
<b>Mitigation outcomes</b>	Decreased GHG emissions in the energy sector overall.

Private sector stakeholders have been involved in Uganda’s energy sector in the renewable energy, energy efficiency and clean cooking value chains. Uganda has attracted private sector investment in electricity generation, attributable to the enabling policy environment established by the government. However, investment in new capacity lacked the corresponding investment in transmission and distribution networks, resulting in the current electricity evacuation situation. This limits investment opportunities in on-grid renewable electricity generation in the short term. On the other hand, mini-grid and off-grid renewable energy power generation is a growing market in Uganda and is served by the private sector. Private sector players in this subsector, such as technology providers, have developed business models that enhanced their presence in the market. The availability of asset-based lending and similar solutions has been important for the ecosystem’s development to date.

Energy efficiency is an important opportunity for the private sector, but pricing- and incentive-related barriers may still hinder the development of local value chains. In the longer term, providing more affordable appliances should support the development of the value chain and private sector investment. This can be achieved by developing partnerships or a local manufacturing line.

Stove and fuel manufacturers are already active in the clean cooking subsector value chain. However, they have not been able to reach scale. Achieving scale and reaching a larger number of customers in more rural areas will require developing distribution networks and alternative business models; this could be based on partnerships within the value chain or between value chains.

For the transport subsector, private sector opportunities via implementation of the fuel efficiency initiative and BRT are presented in the form of PPPs with the government.

Finally, to further support the private sector, it will be important to support the development of concessional financing schemes by creating blended finance with commercial banks or by developing impact investing funds, targeting more innovative enterprises.

## 5. PRIVATE SECTOR INVESTMENT POTENTIAL

Under its NDC, Uganda aims to reduce about 22 percent of its national GHG emissions in 2030 compared to BAU levels. As such, the NDC identified potential emission reduction actions for all sectors and acknowledged the importance of private sector involvement, particularly in the energy sector.

This section provides an estimate of private sector investment potential in the energy sector in general, as well as in each of the related subsectors.

### 5.1 DATA SOURCES

The Government of Uganda provided a number of mitigation actions and targets in its NDC. Its first BUR reemphasized those targets. Uganda's energy sector targets that are directly relevant to private sector involvement opportunities are detailed in Table 13.

**Table 13: Uganda's NDC targets**

MITIGATION ACTIONS	NDC TARGET
Renewable energy power supply	3,200 MW total RE capacity by 2030
Solar energy systems	1.5 million tCO <sub>2</sub> e reduction by 2030
Energy efficient cooking stoves or induction cookers	40% savings over traditional stoves
NAMA fuel efficiency	2 million tCO <sub>2</sub> e/yr; 24-34% reduction by 2030

This analysis does not include mitigation actions mentioned in the NDC and the first BUR that do not include detailed targets and that are likely to be implemented through public sector funding, such as sustainable energy solutions in public buildings. In addition, mitigation actions identified in both Uganda's NDC and BUR do not offer details on these mitigation actions. They provide only brief descriptions because of lack of reporting capacity and capacity to plan the mitigation actions.

Baseline data is presented in section 4.1, which addresses the current status of private investment in renewable energy in the energy sector. Investment costs used to estimate private sector investment potential were based on local context data. In particular, investment costs per MW for large hydropower plants were obtained from the Energy Efficiency Roadmap for Uganda. Investment costs for small hydro and other renewable energy sources, such as solar and biomass, were obtained from the GETFiT annual report. However, the NDC and other relevant supporting documents do not provide details on sectoral targets. For example, the NDC identifies its target of achieving 3,200 MW in renewable energy generation by 2030, but does not break that figure down into large hydro, small hydro, solar, biomass and other renewable energy sources.

### 5.2 INVESTMENT POTENTIAL

The private sector investment potential for each subsector of the energy sector is assessed based on Uganda's mitigation targets in the energy sector, baselines and investment costs.

#### 5.2.1 RENEWABLE ENERGY

The Government of Uganda has provided a suitable enabling environment to engage the private sector in developing renewable energy in the country. Information from the ERA, as detailed in Table 8 in section 4.1.2, shows that renewable energy capacity as of 2018 at 882 MW. The planned additional capacities, as detailed in Table 9 under section 4.1.2, which are marked as being developed and scheduled for commissioning,



amount to a total combined capacity of 1,688 MW. In total, these will total 2,570 MW in renewable energy generation capacity when completed.

Under its NDC, Uganda aims to achieve renewable energy power generation capacity of 3,200 MW by 2030. This represents about 630 MW in generation capacity of renewable energy investment potential for private sector participation and is estimated at between \$882 million to \$2,268 million. The calculation of investment potential for renewable energy generation is presented in Table 14.

**Table 14: Calculation of investment potential in renewable energy**

ITEM	DATA	INFORMATION SOURCE
Renewable energy (RE) target	3,200 MW	NDC
Current RE installed capacity (including under construction)	2,570 MW	ERA, Energy Efficiency Roadmap, GETFiT Annual Report
RE investment capacity potential	630 MW	Calculated
RE investment cost range	\$1.4 million per MW to \$3.6 million per MW	Energy Efficiency Roadmap, GETFiT Annual Report
RE investment potential	\$882 million to \$2,268 million	Calculated

Uganda also has a rapidly growing market for SHS served by the private sector. National sales of these systems are reported to reach approximately 10,000 annually for residential, institutional and industrial uses. Private investment potential for SHS is estimated at \$1.08 million to \$4.17 million annually. The calculation of investment potential for these systems is presented in Table 15.

**Table 15: Calculation of investment potential in solar home systems**

ITEM	DATA	INFORMATION SOURCE
SHS market uptake	10,000 units annually	Energy Efficiency Roadmap
SHS investment cost	\$108 for plug and play kits \$158-420 for component-based systems	Uganda Off-Grid Energy Market Accelerator, Fiscal Policy Analysis
SHS investment potential	\$1.08 million to \$4.17 million annually	Calculated

## 5.2.2 ENERGY EFFICIENCY

The Energy Efficiency Roadmap for Uganda identified achievable energy-saving, cost-efficient options to help meet the country's growing electricity demand. The roadmap also emphasized the generally low level of investment in energy efficiency, despite the strong business case and significant untapped potential to improve efficiency.

Private sector actors are expected to play an important role in achieving demand-side energy efficiency. The roadmap suggests a technical potential of 2,224 gigawatt hours (GWh) of energy savings by 2030. These potential savings are distributed across demand-side subsectors, with the greatest opportunities in industrial (948 GWh), residential (784 GWh) and commercial (491 GWh). Measures that offer the most cost-effective opportunities include industrial motor improvements, on-grid residential lighting and commercial water heating. Implementing energy audits and installing energy management systems in the industrial sector was also identified as the opportunity with the greatest potential savings.

Uganda's BUR identifies energy efficient cooking stoves as one of the strategic action areas for the implementation of its national REDD+ interventions. Although it does not provide specific targets in terms of the number of cooking stoves, it highlighted the more efficient use of fuelwood and charcoal to reduce pressure on natural forests. The BUR estimates that \$62.7 million of financial support is needed to address financial, technical and capacity-building needs. Thus, it does not provide the expected amount to be leveraged from the private sector.

### 5.2.3 TRANSPORT

Transport subsector mitigation actions identified in the NDC include implementation of the NAMA on Vehicle Fuel Efficiency Initiative in Uganda. The estimated private sector investment that could be leveraged totals \$301.0 million, which includes opportunities to establish a vehicle recycling and vehicle assembly industry in the country. The BUR also supplements mitigation actions in the transport subsector and includes implementation of the NAMA on Bus Rapid Transit for Greater Kampala. The investment required for its implementation is estimated at \$612.06 million.<sup>26</sup> Public sector financing will likely be used for the project's infrastructure components and private sector participation will follow a PPP approach. However, the estimated amount to be leveraged from the private sector is not provided. This would depend on the PPP arrangements for the different BRT components.

Opportunities for private sector investment in Uganda's energy sector can be leveraged mainly from renewable energy generation, estimated at \$882 million to \$2,268 million of potential investments in large hydro, small hydro, solar, biomass and other renewable energy technologies. Significant private sector opportunities also exist in the transport subsector and, to a certain extent, in energy efficiency and other demand-side renewable energy technologies. The estimate of investment costs represents direct investment in these energy subsector technology solutions and measures. It is important to note that the extent of private sector involvement potential extends well beyond just these direct investments and involves participation throughout the value chain of the energy subsectors.

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26 Uganda Investment Authority. 2019. *Bankable Projects, 3rd Edition: Viable investment opportunities 2019/20*.

## **6. REPORTING FRAMEWORK TO ALIGN BUSINESS OPPORTUNITIES WITH NDC IMPACT TARGETS IN UGANDA'S ENERGY SECTOR**

Encouraging the private sector to invest in NDC actions is important if Uganda is to achieve its climate goals. It also constitutes a significant business opportunity for the private sector. The private sector can further capitalize on these opportunities by better aligning with the objectives detailed in the NDC and the SDGs.

This section details the rationale for private sector alignment with NDC targets and the SDGs, and provides a reporting framework for the private sector.

### **6.1 RATIONALE FOR PRIVATE SECTOR ALIGNMENT WITH NDC IMPACT TARGETS**

Governments and international organizations engage the private sector to leverage stakeholder investments in the NDC. The NDC can offer the private sector additional business opportunities, but it is often unaware of those opportunities. It is therefore important to highlight and translate them into clear reporting frameworks, which the private sector can then leverage to enhance its understanding of the added value that climate investments bring.

A clear understanding of this alignment, or the extent to which the private sector can align with NDC actions, offers potential merits. It enables the private sector to clearly identify actionable actions, which can be translated into business opportunities.

From a longer-term, perspective, adopting reporting frameworks is also the first step towards reporting and disclosing impacts on climate objectives and SDGs. For the private sector, this can improve valuation and credit scores. Impact investors and climate finance sources may also be more comfortable providing financing to private stakeholders with established reporting frameworks and understand the impact their business has on the country's climate challenge.

### **6.2 REPORTING FRAMEWORKS**

The NDC and SDGs have been chosen as the main reporting frameworks for this report. Business opportunities in the energy sector identified here are linked to NDC objectives and SDG targets in the following tables. To provide the businesses more in-depth information, clear metrics representing measurable key performance indicators are also included.

The reporting frameworks are intended to be leveraged and tailored by individual businesses, depending on specific characteristics of each. For example, SHS providers providing financial services, such as asset-based lending, may use impact metrics related to access to finance.

## 6.2.1 RENEWABLE ENERGY: ON-GRID UTILITY-SCALE POWER GENERATION

On-grid utility-scale power generation-related businesses, such as IPPs and developers, have a direct impact on the amount of clean energy available. They also offer important co-benefits, such as in health and education, and contribute to the larger and longer-term goal of reducing energy costs and increasing the ratio of renewable energy available on the grid.

BUSINESS OPPORTUNITY	CLIMATE FRAMEWORK		SDG FRAMEWORK		METRICS
	NDC target	NREAP Specific action	SDGs	Outcomes (SDG target or equivalent)	
DEVELOPING ON-GRID RENEWABLE ENERGY POWER GENERATION PLANTS (IPPS)	Achieve at least 3,200 MW renewable electricity generation capacity by 2030	Increase renewable energy capacity by at least 1,100 MW compared to BAU by 2030	7 – Sustainable energy	7.1 Ensure universal access to affordable, reliable and modern energy services  7.2 Increase substantially the share of renewable energy in the global energy mix	<b>Reduced cost of energy (\$)</b>  <b>RE ratio in the energy mix (%)</b>  # of households connected  # and value (\$) of investments  Total capacity installed (by energy source) (MW)
			13 – Climate action	3.9 Substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	Direct emission reduction achieved through installation of renewable energy capacity (tCO <sub>2</sub> e)
			3 – Good health	4.1, 4.2, 4.3 Improved access to education for all girls and boys	Reduced ratio of fossil fuels used in the energy mix (total % of the energy mix)
			4 – Quality education	4.1, 4.2, 4.3 Improved access to education for all girls and boys	School attendance rate (increased # of students)

### KEY

Direct impact

Long-term industry impact

Co-benefits

## 6.2.2 RENEWABLE ENERGY: OFF-GRID ENERGY GENERATION IN SOLAR PV

Project developers and technology providers of off-grid renewable energy technologies for commercial, industrial and household use have a direct impact on providing access to clean energy at reduced cost, especially for low-income households. The developers and providers contribute to the decarbonization of C&I and household sectors. Some developers and technology providers also provide financing to C&I and household customers, thereby contributing directly to improving their access to finance.

BUSINESS OPPORTUNITY	CLIMATE FRAMEWORK		SDG FRAMEWORK		METRICS
	NDC target	Specific action	SDGs	Outcomes (SDG target or equivalent)	
PROVIDING SOLAR PV SOLUTIONS TO COMMERCIAL, INDUSTRIAL, SMES AND HOUSEHOLDS	Emission reduction of about 1.5 million tCO <sub>2</sub> e by 2030	Promotion and wider update of solar energy systems	7 – Sustainable energy	.1 Ensure universal access to affordable, reliable and modern energy services  7.2 Increase substantially the share of renewable energy in the global energy mix  Improved access to energy, especially in rural areas	<b>Reduced cost of energy (\$)</b>  Reduced need for diesel generators (litres of diesel used)  # and value (\$) of investments  Capacity installed with C&I customers (MW)  # of SMEs and other productive enterprises with SHS kit  Average capacity installed by SME (W)  # of households with a SHS kit in rural areas  # of households with a SHS kit in urban areas  Average capacity installed by household (W)  Total capacity installed (MW)
			1 – No poverty	1.2 Reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions  1.4 Ensure that all men and women, in particular the poor and the vulnerable, have equal access to basic services, appropriate new technology and financial services, including microfinance	# of low-income households with SHS kit  # and value of loans (\$) (asset financing) developed directly by SHS providers (households/SMEs)  # and value of loans (\$) provided by local financing organizations
			9 – Innovation and infrastructure	9.3 Increase the access of SMEs to financial services, including affordable credit, and their integration into value chains and markets	

BUSINESS OPPORTUNITY	CLIMATE FRAMEWORK		SDG FRAMEWORK		METRICS
	NDC target	Specific action	SDGs	Outcomes (SDG target or equivalent)	
			2 – No hunger	2.1 End hunger and ensure access by all people to safe, nutritious and sufficient food all year round.  2.3 Double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.	# of water pumps using SHS kits
				2.4 Ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production	Direct carbon reduction achieved through installation of renewable energy capacity (tCO <sub>2</sub> e)
			9 – Innovation and infrastructure	9.4 Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes	
			13 – Climate action	Accelerated decarbonization of the energy sector	
			3 – Good health	3.9 Substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.	Reduced use of fossil fuels (diesel generators, etc.) (litres of diesel)
			4 – Quality education	4.1, 4.2, 4.3 Improved access to education for all girls and boys	School attendance rate (increased # of students)
			5 – Gender equality	5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	Increased # of women with stable income generation activity

**KEY**

Direct impact

*Long-term industry impact*

Co-benefits

## 6.2.3 ENERGY EFFICIENCY

Businesses providing energy efficiency solutions can have direct impact on decreasing energy costs. Depending on the business model, these businesses can also impact C&I, SMEs and, especially, low-income households by providing better access to finance.

BUSINESS OPPORTUNITY	CLIMATE FRAMEWORK	SDG FRAMEWORK		METRICS
	Energy Efficiency Roadmap target	SDGs	Outcomes (SDG target or equivalent)	
<b>DISTRIBUTING EFFICIENT APPLIANCES, LIGHTING AND EQUIPMENT</b>  <b>PROVIDING ENERGY AUDITS AND ENERGY MANAGEMENT SYSTEMS</b>	Energy savings of 2,224 GWh by 2030 (948 GWh from industrial, 784 GWh from residential, and 491 GWh from commercial)	7 – Sustainable energy	7.3 Improved access to energy efficient appliances	# of LEDs deployed
		9 – Innovation and infrastructure	9.4 Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes	# of efficient refrigerators deployed # of other efficient appliances deployed Amount of energy savings realized due to the products/services provided (MWh)
		13 – Climate action	Accelerated decarbonization of the energy sector	Direct carbon reduction achieved through the use of efficient appliances (tCO <sub>2</sub> e)
		1 – No poverty	1.4 Ensure that all men and women, in particular the poor and the vulnerable, have equal access to basic services, appropriate new technology and financial services, including microfinance	# and value of loans (\$) developed directly by DESCOS (households and SMEs) # and value of loans (\$) provided by local financing organizations (MFIs, banks)
		3 – Good health	3.9 Substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.	Reduced ratio of fossil fuels used in the energy mix (total % of the energy mix)

### KEY

Direct impact

Long-term industry impact

Co-benefits

## 6.2.4 CLEAN COOKING

Clean cooking-related businesses, such as stove manufacturers and fuel producers, have a direct impact on providing clean energy for cooking. They also help to decrease deforestation. These businesses have a significant impact on poverty levels and on improving access to finance for clean cooking. They offer significant co-benefits for health, gender equality and education.

BUSINESS OPPORTUNITY	CLIMATE FRAMEWORK		SDG FRAMEWORK		METRICS
	NDC target	Specific action	SDGs	Outcomes (SDG target or equivalent)	
<b>MANUFACTURING ENERGY EFFICIENT COOKSTOVES</b>  <b>MANUFACTURING EFFICIENT FUELS</b>  <b>DISTRIBUTING CLEAN COOKING SOLUTIONS</b>	Promotion and wider uptake of energy efficient cookstoves	Approximately 40% savings over traditional stoves	7 – Sustainable energy	7.1 Ensure universal access to affordable, reliable and modern energy services	# of efficient stoves deployed
			13 – Climate action	Accelerated decarbonization of the energy sector	# of households serviced in rural areas for efficient fuel
			15 – Life on land	15.2 Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	Direct carbon reduction achieved through the use of efficient fuels (pellets, briquettes, LPG) (tCO <sub>2</sub> e)
					Volume of wood fuel/ inefficient charcoal used for cooking decreasing (tons)
					Additional ha of forest preserved
			1 – No poverty	1.4 Ensure that all men and women, in particular the poor and the vulnerable, have equal access to basic services, appropriate new technology and financial services, including microfinance	# and value of loans (\$) (asset financing) developed directly by clean cooking solution providers (households)
					# and value of loans (\$) provided by local financing organizations (MFIs, banks)
3 – Good health	3.9 Reduced deaths and illnesses from household pollution	# of related illnesses and deaths			
		Reduced use of biomass (wood fuel) for cooking (tons)			
5 – Gender equality	5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate	Time spent collecting fuel (hours per week)			
		Time spent cooking (hours per week)			
		Increased # of women with stable income generation activity			
4 – Quality education	4.1, 4.2, 4.3 Improved access to education for all girls and boys	School attendance rate (increase in the # of students)			

### KEY

Direct impact

Long-term industry impact

Co-benefits



## 6.2.5 TRANSPORT

Fuel efficient vehicles and mass transport services have a direct impact on decreasing the amount of fuel used for personal vehicles. This generates significant health benefits by reducing air pollution.

BUSINESS OPPORTUNITY	CLIMATE FRAMEWORK	SDG FRAMEWORK		METRICS	
	NDC and BUR target	SDGs	Outcomes (SDG target or equivalent)		
<b>ESTABLISHING VEHICLE RECYCLING AND VEHICLE ASSEMBLY PLANTS</b>  <b>DEVELOPING INFRASTRUCTURE FOR AND OPERATING BRT LINES</b>	Promote cleaner fuels and more fuel-efficient vehicle technology  Introduction of mass rapid transport (BRT)	8 – Decent work and economic growth	8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors	# of jobs created # of vehicles recycled # of fuel-efficient vehicles introduced to the fleet # of old, inefficient vehicles replaced	
			8.4 Improve progressively global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation		
			8.5 Achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value		
		9 – Industry, innovation and infrastructure	9.1 Develop quality, reliable, sustainable and resilient infrastructure to support economic development and human well-being, with a focus on affordable and equitable access for all	9.1.2 Provide access to safe, affordable, accessible and sustainable transport systems for all	# of lines Kms of BRT operational # of users Decrease in personal vehicle traffic (# of vehicles per day)
		7 – Sustainable energy	Promoting the use of energy efficient transportation systems	Reduced use of fossil fuels for personal vehicles (litres of diesel used)	
		13 – Climate action	Accelerated decarbonization of the transport subsector	Direct carbon reduction achieved through use of fuel-efficient vehicles (tCO <sub>2</sub> e)  Direct carbon reduction achieved through installation of BRT lines (tCO <sub>2</sub> e)	
3 – Good health	3.9 Substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.	Reduced ratio of fossil fuels used in the energy mix (total % of the energy mix and litres of diesel for personal vehicles)			

### KEY

Direct impact

Long-term industry impact

Co-benefits

To better leverage the reporting framework, private sector stakeholders are recommended to use additional tools. For example, to calculate GHG emissions reductions and better mainstream the NDC and SDGs into their operations, private companies may consider leveraging the following tools.

### **Calculating GHG emissions: Greenhouse Gas Protocol<sup>27</sup>**

Calculating GHG emissions can be challenging for businesses. It requires following specific and complex methodologies, which may not be easy to approach without appropriate guidance.

The GHG Protocol provides standards, guidance, tools and training for business and government to measure and manage climate-warming emissions. It provides online tools related to measuring and managing GHG emissions, as well as related trainings. The platform builds on a long-term partnership with international stakeholders, including the World Resources Institute and the World Business Council for Sustainable Development.

The Protocol has published the Project Protocol, which provides an accounting tool for quantifying the greenhouse gas benefits of climate change mitigation projects. It provides specific principles, concepts and methods for quantifying and reporting GHG reductions - i.e., decreases in GHG emissions or increases in removals and/or storage - from climate change mitigation projects.

The Protocol also provides extensive guidance on developing business-level emission inventories, measuring emissions from purchased/acquired electricity and estimating avoided emissions.

### **Aligning with and mainstreaming the SDGs/Sustainability: Impacti Solutions<sup>28</sup>**

Aligning with the SDGs and integrating sustainability goals into operations can be an important step for enterprises. The SDGs and sustainability provide new business opportunities that the private sector can explore. However, businesses may find it complex to understand where they fit in the scope of the SDGs.

Impacti Solutions provides tools that can help the private sector understand the SDGs and impact areas where businesses can have the greatest impact. The Rapid SDG Opportunity Finder Tool provides personalized recommendations on priority SDGs and impact areas suited to specific businesses. After businesses choose their priority SDGs, the tool introduces them to thematic areas within each SDG. Businesses receive a personalized SDG business profile with chosen priorities at the end of the assessment. This supports them in identifying strategies to better integrate SDGs in their operations.

Impacti Solutions also provides an online platform, to view and update an SDG business profile and connect with like-minded businesses, and an Impact Data Management Tool, which makes it possible to streamline data management, track and manage impact, and create reports.

<sup>27</sup> <https://ghgprotocol.org/companies-and-organizations>

<sup>28</sup> <https://impacti.solutions/>

## 7. CONCLUSION

GHG emissions in Uganda accounts for only 0.099 percent of the global total of such emissions. The country's GHG emissions per capita are among the lowest in the world. Although a relatively low emitter, Uganda has taken measures to ensure that it contributes to addressing the global issue of climate change. This is evident in the country's policies, strategies and plans, which take into consideration a low-carbon sustainable economic growth in Uganda's development planning framework.

Uganda's NDC presents the country's proposed policies and measures that could reduce national GHG emissions by approximately 22 percent by 2030, compared to business-as-usual levels. In the energy sector, mitigation actions focused on the power generation subsector, while additional mitigation actions were identified in the energy demand and transport subsectors. The NDC also acknowledges the key role that the private sector will play in implementing climate change-related activities. In particular, it will be involved in promoting renewable energies and energy efficiency, as well as participating in public-private partnerships.

The Government of Uganda has provided an enabling environment that promotes private sector participation in achieving the country's sustainable development targets. In the energy sector, the establishment of feed-in tariffs encourages and supports greater private sector participation in power generation from small-scale renewable energy technologies (maximum installed capacities of 20 MW). The adoption of the Public-Private Partnership Framework Policy and the PPP Act paved the way for private sector investment in large infrastructure projects, such as hydropower projects in the renewable energy subsector and mass transit projects in the transport subsector.

Private sector actors have a strong presence in Uganda's energy sector and are taking full advantage of the existing enabling environment. The private sector is investing in both large-and small-scale renewable energy power generation projects through the PPP programme, supported by the feed-in tariff system. Similarly, the planned Bus Rapid Transit for Greater Kampala will also involve private sector investment through the PPP programme.

Although the ongoing COVID-19 pandemic has had a severe impact on Uganda's economic growth due to global supply chain disruptions and the national lockdown measures imposed to control the outbreak, the economy is expected to recover slowly. The government remains committed to pursuing sound macroeconomic policies to restore macroeconomic stability, ensure fiscal and debt stability, and bolster inclusive growth once the crisis fades.

As Uganda aims to transform to a competitive upper middle-income country by 2040 and recognizes that the sustainable and low-carbon development of the energy sector will be key to achieving its objectives, great potential exists for private sector investment in the sector.

Private sector investment potential in the renewable energy subsector is estimated at between \$882 million and \$2,268 million in the required additional 630 MW of renewable energy generation capacity to meet the NDC target.

The development of renewable energy-based mini-grids and off-grid applications for rural electrification presents significant opportunities for private sector investment. Innovative business models will be crucial to development in this space. This could be further supported by developing incentive schemes, such as grants, subsidies, minimum revenue guarantees and result-based financing.

Investment potential also exists in the growing SHS market, estimated at between \$1.08 million and \$4.17 million annually.

Energy efficiency offers substantial potential for private sector investment in implementing energy efficiency measures across the demand-side subsectors. These include measures such as industrial motor

improvement, on-grid residential lighting and commercial water heating, and implementing energy audits and energy management systems in the industrial sector. Establishing the enabling environment for energy efficiency is important for the subsector's development. Enactment of the Energy Efficiency and Conservation Bill is expected to pave the way for that. The uptake of energy efficiency measures could be supported by implementing awareness campaigns and evidence-based information dissemination drives to transform consumer behaviour towards more efficient electricity use. This could also be supported by encouraging the provision of affordable appliances to the market. Uganda could consider developing manufacturing plants for appliances in the long term. In the shorter term, DESCOs are expected to become distributors of energy efficient appliances and provide financing conditions similar to those on the SHS market.

Significant potential also exists in the efficient use of biomass for household, institutional and industrial use. Although the BUR does not provide information on the amount to be leveraged from the private sector, it estimates that \$62.7 million in financial support is needed to address financial, technical and capacity-building needs. It is crucial that the private sector take the lead in developing innovative business models, such as tool and fuel models and DESCO models, to resolve the subsector's distribution and scale issues.

Investment potential in the transport subsector primarily involves implementing the NAMA on Vehicle Fuel Efficiency Initiative in Uganda and Bus Rapid Transit for Greater Kampala. The estimated private sector investment that could be leveraged from opportunities in building a vehicle recycling industry and vehicle assembly totals \$301.0 million. The estimated investment amount required to implement the BRT is \$612.06 million, with participation of the private sector through PPP.

These represent significant potential for private sector investment in Uganda's energy sector that would contribute to achieving the country's climate change mitigation targets and national economic growth towards a low-carbon and sustainable pathway.

The financial sector should support private sector investment. Local financing is characterized by high interest rates and relatively short tenors. Venture capital and impact investing activities remain limited. Providing better financing conditions by leveraging blended finance, with instruments such as guarantees, credit lines and concessional financing, could be an option for local banks.

Uganda has gained access to the GCF through implementation of a GCF adaptation programme and as a benefactor country for several multi-country programmes. Uganda also has a Direct Access Accredited Entity of the GCF through the Ministry of Water and Environment, which may provide more opportunities for concessional financing in the energy sector.

Finally, it is crucial that Uganda support innovation, which is a main driver of investment for venture capital firms, especially in models targeting low-income customers. It will be important to drive innovative business models in the climate and energy space by providing enhanced incubation and acceleration services.

# UNDP NDC SUPPORT PROGRAMME

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