UGANDA'S ENERGY TRANSITION PLAN: GEM OR STUMBLING BLOCK?



Photo source: Africa Energy Portal

A simple guide to and critique of Uganda's Energy Transition Plan

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List of acronyms

CO2	Carbondioxide
DLG	District Local Government
ET	Energy Transition
ETP	Energy Transition Plan
GBV	Gender Based Violence
GoU	Government of Uganda
GHG	Green House Gases
ICS	Improved Cook Stove
IEA	International Energy Agency
IMF	International Monetary Fund
ISO	International Organisation for Standardisation
LPG	Liquid Petroleum Gas
MoFPED	Ministry of Finance, Planning and Economic Development
MEMD	Ministry Of Energy and Mineral Development
NDCs	Nationally Determined Contributions
MW	Megawatt
CSOs	Civil Society Organisations
JET	Just Energy Transition
SDGs	Sustainable Development Goals
SHS	Solar Home Systems
UBOS	Uganda Bureau of Statistics

INTRODUCTION

Africa Institute for Energy Governance (AFIEGO) is a Ugandan non-profit that undertakes research, public policy advocacy and mobilises stakeholders to participate in the making as well as implementation of policies in the energy and related sectors.

In line with the above mandate, AFIEGO has reviewed Uganda's Energy Transition Plan (ETP) and produced this simplified guide of the plan. The purpose of the guide is to raise stakeholder awareness of the strengths and weaknesses in the ETP.

It is hoped that enhanced stakeholder awareness will promote advocacy to enable implementation of the ETP, while promoting reforms in the plan, which has various weaknesses.

EXECUTIVE SUMMARY

On December 5, 2023, the Government of Uganda (GoU) through the country's energy minister, Hon. Ruth Nankabirwa, launched Uganda's Energy Transition Plan (ETP) (Natural Resources Governance Institute, 2024) at COP28 in Dubai. The launch was supposed to signal Uganda's commitment to achieving carbon neutrality by 2050 and ensuring universal access to electricity by 2030.

The ETP was launched at a time when Uganda was characterised by energy poverty, with access to grid electricity standing at 20% in 2024 (Ministry of Finance, Planning and Economic Development, 2024) and only 15% of Uganda's population having access to clean cooking technologies (Ministry of Energy and Mineral Development, 2023). Over 90% of the population relies on biomass fuel, largely wood and charcoal, for cooking (Ministry of Energy and Mineral Development, 2023).

In addition, Uganda has one of the world's lowest per capita electricity consumption rates with available information indicating that in 2021, the electricity consumption per capita was 82kwh (Ministry of Energy and Mineral Development, 2023). In other words, on average, a Ugandan consumed only 82 units of power in a year.

The ETP was also launched at a time when various countries across the globe are seeking to transition their energy and economic systems from being dependent on fossil fuels including oil, gas, and coal to renewable energy sources such as wind and solar, as well as lithium-ion batteries among others (Magara, 2022).

Transitioning to low carbon energy and economic systems is key in tackling climate change challenges in line with the United Nations Sustainable Development Goal (SDG) 13 on climate action and the 2015 Paris Climate Change Agreement.

Objectives of the ETP

Through the ETP, the GoU set five goals to enable Uganda to transition to the use of modern energy. These include: To provide universal access to electricity and cleaner cooking by 2030; To modernise and diversify Uganda's energy mix and promote its efficient use across all sectors to support industrial growth, poverty reduction and socioeconomic transformation; and To ensure secure affordable energy supply;

Others include: To mitigate energy emissions in line with Uganda's conditional climate commitments, which imply a 20% reduction compared to baseline emissions in 2030; and To position Uganda as an energy hub for the East African region.

Key targets in the ETP

Energy access targets: To attain the above goals, the GoU set a number of targets in the ETP. For instance, to enable universal access to modern energy by 2030, the GoU projected that in 2030, 45% of the population would have access to grid power. The rest of the population would meets their modern energy needs through access to mini-grids, solar home systems (SHs) and transitional mult-light systems.

However, by 2050, government projected that more than 90% of the population would have electricity access either via the main grid (82%) or a mini-grid (10%). The remaining most remote populations, standing at 10%, would meet their energy needs through larger Solar Home Systems (SHSs).

To attain the above targets, the ETP noted that between 5.5% to 7% of the population needs to gain access to power each year. Of these, 1.5% have to gain access through off-grid solar.

Clean cooking targets: In relation to clean cooking, the ETP is seeking to ensure that access to clean cooking moves from 15% in 2023 with Ugandans gaining universal access to clean cooking through Improved Cook stoves (ICS), LPG stoves, biogas, bio-ethanol and electricity by 2030.

The ETP projects that almost 40% of those that will gain access to clean cooking by 2030 will do so via an Improved Cook stove (ICS), while more than one-third (over 33%) will gain access via LPG stoves, which will be increasingly domestically supplied as the development of the Tilenga and Kingfisher oil fields advances in 2025.

It is expected that electricity will be the main cooking choice for more than 15% of those gaining access by 2030 while 10% of the population will gain access to clean cooking through biogas and bio-ethanol.

The ETP notes that beyond 2030, improved cookstoves gradually disappear. The plan observes as follows: by 2040 all remaining ICS are of ISO Tier 4 and above, and by 2050 every household in the country cooks with a modern fuel or stove. More than half of the population is cooking with electricity by 2050. The reliance on fossil LPG declines, with only about one-quarter of the population using it by 2050, down from 40% in 2040.

It is noted in the ETP that to attain the above targets, clear and reliable national regulations mirroring international standards will be fundamental for clean cooking companies to access finance. **Policy targets:** The ETP observes that to enable universal access to modern energy including clean cooking, and "considering the significance of the off-grid component, robust and transparent policies and regulations are essential to encourage the mini-grid developers and SHS distributors involvement in electricity access."

Industry: The ETP observes that industry will be the main driver of Uganda's energy demand growth as consumption increases 2.5-fold by 2050, when the sector is set to account for over one-third of total final consumption. The industries that will drive the increase in energy use include light industries such as food production, machinery, textiles, timber, as well as construction and mining. Energy intensive industries such as cement and steel production are also expected to drive up energy demand.

The ETP envisions that electricity will be the fastest growing fuel that will drive Uganda's industrialisation. Its share in the fuel mix will rise from just over 5% in 2021 to around 50% in 2050, with electrification taking hold after 2030.

The ETP however observes that in the medium term, fossil fuel use will expand, especially in heavy industries. By 2030, its share in the overall industry fuel mix will more than double to 30%. Coal, oil and gas are expected to power Uganda's industrialisation efforts, with oil and coal use expected to plateau around 2035 but natural gas consumption will increase. Natural gas growth is expected to increase through 2050 in industry, overtaking oil consumption. The ETP lists natural gas as a transition fuel. The production of energy transition minerals is also expected to contribute to the use fossil fuels in the industry sector.

Oil refinery and petrochemical industry: The ETP notes that Uganda's new oil production and refining operations will create a jump in energy demand when they come online. Some of this energy will be electric, as is the case with heating pipes, pumps and compressors, and some refining operations. However, some refinery operations will rely on burning various by-products to power the refining processes in auxiliary units. Accompanying chemical production sectors are also expected to be developed alongside the refinery, many of which make use of the chemical by-products. The chemical operations will also rely on natural gas from Tanzania, the ETP notes.



growth, industrialisation and improved living standards.

Industrialisation is expected to increase Uganda's use of fossil fuels. Renewables can power this industrailisation, however. Source of graph: ETP

Strengths of the ETP

The ETP possesses certain strengths, including the fact that it recognises that by 2030, offgrid electrification is the most feasible path to ensuring that the majority of Ugandans gain access to clean energy. The ETP also rightly identifies the need to put in place strong policies, laws and regulations to attain set targets. In addition, the ETP is realistic when it notes that Uganda's clean cooking targets have not been realised anywhere on the African continent, and strong efforts involving government, the private sector, international partners and civil society organisations (CSOs) must be made for attainment of the targets.

Weaknesses of the ETP

Despite the above strengths, weaknesses exist. The strongest critique of the ETP is that for a plan that is seeking to promote an energy transition, its reliance on fossil fuels to promote 'clean' cooking and industrialisation among others is unconscionable. As discussed above, coal, oil and gas are expected to power transition mineral mining and refining, oil refining, petrochemical industrial processes, as well as steel and cement manufacturing among others.

LPG from Uganda and Tanzania is also expected to play a huge role in promoting 'clean' cooking. Critics of LPG note that the fossil fuel is not as clean as projected, and contributes to global warming.

In addition to its promotion of fossil fuels, the ETP lacks gender targets and is gender blind in various aspects, as is discussed in section 5 of this guide. This could further exacerbate energy poverty among women, a pitfall that must be avoided.



Emissions grow less rapidly than modern energy supply, indicating a decoupling between energy use and emissions driven by the rise of clean energy.

Uganda's energy-related carbon emissions are projected to grow in the ETP due to the reliance on fossil fuels Source of graph: ETP

Key recommendations

To promote a genuine energy transition that will promote climate action and sustainable economic development, the Ministry of Energy and Mineral Development (MEMD) must reform the ETP. The plan must be revised to ensure that Uganda's cooking, industrialisation and transport processes are based on renewables as opposed to fossil fuels. The plan, which does not set gender targets, also needs to be reformed to set these targets to promote gender equity.

1. BACKGROUND

On December 5, 2023, Uganda's energy minister, Hon. Ruth Nankabirwa, launched the country's Energy Transition Plan (ETP) at COP28 in Dubai (Natural Resources Governance Institute, 2024). The launch was supposed to signal Uganda's commitment to achieving carbon neutrality by 2050 and ensuring universal access to electricity by 2030. The launch of the plan came at a time when various countries across the globe are seeking to transition their energy and economic systems. Energy transition refers to the global energy sector's shift from fossil-based systems of energy production and consumption — including oil, gas, and coal — to renewable energy sources like wind and solar, as well as lithium-ion batteries among others (Magara, 2022). Transitioning to low carbon energy and economic systems is key in tackling climate change challenges in line with the United Nations Sustainable Development Goal (SDG) 13 on climate action and the 2015 Paris Climate Change Agreement.

It is important to note that fossil fuels are the main contributor to climate change as they produce around 75% of greenhouse gases (GHG) (United Nations, Undated). Renewable energies are key players regarding world energy supply security and the reduction of fossil fuel dependency and harmful emissions to the environment.

2. UGANDA'S ENERGY SITUATION

Worth noting is the fact that the ETP was developed amidst the following conditions: Uganda grapples with acute energy access challenges, marked by one of the world's lowest per capita electricity consumption rates and low electricity access rates. Available information indicates that in 2021, the electricity consumption per capita was 82kwh. In other words, on average, a Ugandan consumed only 82 units of power in a year.

In addition, access to grid electricity stands at 20% (Ministry of Finance, 2024) and only 15% of Uganda's population has access to clean cooking technologies (Ministry of Energy, 2023). Over 90% of the population relies on biomass fuel, largely wood and charcoal, for cooking (Ministry of Energy, 2023).

A study by Vincent Fred Ssenono et al, (2021), also indicates that 66% of Ugandans are multidimensionally energy poor, 33% are severely energy poor and the average deprivation score is 51%. Multidimensional energy poverty refers to a situation where a household or individual experiences deprivation across multiple aspects of energy access, including not just affordability but also availability, reliability, and quality of energy services.

Severely energy poor means a household or individual lacks sufficient access to affordable and reliable energy sources, to the point where it significantly impacts their basic needs like lighting, cooking, heating, and overall quality of life, often due to a combination of low income, high energy costs, and inefficient housing conditions.

Average deprivation refers to the calculated mean level of lack of access to basic necessities like energy services, and other essential services within a particular geographic area.

The distribution of the energy poverty also shows that there are more deprivations in rural areas and among female headed households as compared to male headed ones. For instance, while only 5.2% rural households used grid electricity for lighting in 2019/2020, 51% urban households used grid power for lighting (Uganda Bureau of Statistics, 2019/2020).

Furthermore, while 19.4% male-headed households relied on grid power for lighting in 2019/2020, only 18.5%4 female-headed ones relied on the same. Moreover, more female-headed households (2.1%) also used paraffin candles for lighting, compared to 1.9% male-headed households in 2019/2020 (Uganda Bureau of Statistics, 2019/2020). Paraffin is a fossil fuel that is not only harmful to health, but also poses climate change risks.

It is amidst the above situation that Uganda's Ministry of Energy and Mineral Development (MEMD) launched the country's ETP at COP 28 in Dubai in December 2023. The MEMD was supported by the International Energy Agency (IEA) to develop the ETP.

3. PURPOSE AND KEY OBJECTIVES OF UGANDA'S ETP

The ETP was developed to provide a roadmap to enable Uganda's energy systems to modernise and expand rapidly to meet the country's development ambitions.

The goals of the plan, as stated in the ETP, are:

- (i) To provide universal access to electricity and cleaner cooking by 2030;
- (ii) To modernise and diversify Uganda's energy mix and promote its efficient use across all sectors to support industrial growth, poverty reduction and socioeconomic transformation;
- (iii) To ensure secure and affordable energy supply;
- (iv) To mitigate energy emissions in line with Uganda's conditional climate commitments, which imply a 20% reduction compared to baseline emissions in 2030; and
- (v) To position Uganda as an energy hub for the East African region.

4. TAKING A DEEP DIVE INTO THE GOALS OF THE ETP

A number of economic and energy targets were considered in the development of the ETP. Some of these were pre-existing targets, others new, and in some cases supplant previous ones, reflecting shifting trends and priorities. While many detailed priorities were explored in the ETP, these were distilled into the above-stated five guiding goals. These goals were reaffirmed in the 2023 National Energy Policy.

The steps to be taken to enable realisation of the ETP goals, which are captured in section 3 above, are discussed hereunder. It is hoped that by sharing the targets set by the Ministry of Energy and Mineral Development (MEMD), this guide will raise public awareness to enable citizens to hold government accountable for implementation of the ETP.

This guide also provides a critique of the ETP to support advocacy aimed at reforming the ETP to promote a genuine clean energy transition that is not based on fossil fuels and is not gender blind.

Below, this guide discusses key goals of the ETP and the targets set by MEMD to enable their attainment.

4.1. Goal 1: Providing universal energy access by 2030

Information in Uganda's ETP shows that as at 2021, 20% of Uganda's population had grid electricity access. Other sections of the population had access to solar home systems, transitional multilight systems (off-grid solar), solar lanterns and others.

The Ugandan government is seeking to ensure that all Ugandans have access to modern energy by 2030. Consequently, through the ETP, government has set the following targets for attaining universal modern energy access:

- In 2030, 45% of the population has access to grid power, while the rest of the population meets their modern energy needs through access to mini-grids, solar home systems (SHs) and transitional mult-light systems.
- By 2050 more than 90% of the population has access, either via the main grid (82%) or a mini-grid (10%), up from 55% in 2030, while the remaining most remote 10% benefit from larger SHSs.

More can be seen in the graphic below.



Reaching SDG7 requires a rapid rollout of solar PV access solutions. Over time, households will switch to larger off-grid systems or connect to the grid.

Note: MLS = multi-light systems (off-grid solar). Sources: IEA analysis based on data from the <u>IEA SDG7 database</u> and Uganda Bureau of Statistics. Through the ETP, the Ministry of Energy and its partners undertake an analysis to determine the percentage of households that need to be added to the grid per year to attain the above-stated electrification targets.

Available information in the ETP shows that between 5.5% to 7% of the population needs to gain access to power each year to attain the above stated targets. Of these, 1.5% have to gain access through off-grid solar.

The ETP also observes that "considering the significance of the off-grid component, robust and transparent policies and regulations are essential to encourage the mini-grid developers and SHS distributors involvement

in electricity access. Pilot projects and pre-feasibility studies, led by government and international partners, are vital to demonstrate the viability of investments in areas where, due to lower incomes and limited payment capacities, returns on investment might appear challenging."

When it comes to growth in per capita consumption, it is envisioned that per capita electricity consumption will almost triple by 2030, reaching around 230 kWh per year. Per capita residential demand is expected to reach around 560 kWh per year by 2050.

More can be seen in the graphic below.



4.2. Goal 1: Promoting universal access to clean cooking by 2030

The ETP places emphasis on promoting clean cooking with information in the plan showing that as at 2023, only 15% of Uganda's population had access to cleaner cooking technologies. Around 95% of the population primarily cook with solid biomass such as wood, charcoal or other vegetal and animal residues, the ETP states. It further notes that only one in ten (1%) of the households that rely on biomass for cooking use improved biomass cookstoves. The remainder rely on traditional, harmful and inefficient

stoves such as the three-stone cooking fires (ekyooto).

The ETP notes that affordability concerns are very important for clean cooking access, especially since around 90% of the population cooking with firewood (three-quarters of the country) do not have to pay for it. The ETP is seeking to ensure that every household has access to clean cookstoves by 2030.

For the above target to be attained, around 6.5% of the population needs to gain access each year to modern cooking fuels and stoves.

The ETP also notes that to attain the aforementioned universal access target, more than 10% of the population needs to switch from the traditional use of biomass to cleaner technologies every year between today and 2030.

It is envisioned that almost 40% of those gaining access to clean cooking by 2030 do so via an Improved Cook stove (ICS), while more than one-third (over 33%) gain access

via LPG stoves, which will be increasingly domestically supplied as the development of the Tilenga and Kingfisher oil fields advances in 2025. Electricity is the main cooking choice for more than 15% of those gaining access by 2030. In addition, 10% gain access to clean cooking through biogas and bio-ethanol, per the ETP.

Below is a graphic showing the clean cooking targets that Uganda hopes to attain.



4.2.2. Feasibility of clean cooking access targets

The ETP notes that the projected rate of improvement in access to clean cooking is unprecedented in the African continent, but a similar level was reached in Indonesia during the last decade through the deployment of LPG programmes combined with end-use incentives. The success in Indonesia was also driven by strong policy and public funding heavily incentivising LPG, which attracted significant private and state-backed capital, the ETP states.

Replicating the same acceleration model in Uganda would require a high share of international development and climate financing, as well as regional co-ordination to develop the fuel delivery infrastructure, supply chains and a strong local distribution capacity. However, maintaining this rate of improvements over a long period, especially when relying on steep incentives, will be challenging and too demanding on the government budget, the ETP notes.

Critics of the ETP indicate that plans to deploy LPG to replace cooking with biomass are not climate smart. This is because LPG, which contains propane and butane, can worsen global warming as improper combustion of LPG can result in the release of carbon and methane emissions (Frost, 2024).

Below is a graph showing the clean cooking targets that Uganda hopes to attain.



LPG, shifting towards electric cooking by 2050 to achieve 100% modern cooking.

Notes: ICS = improved biomass cookstove. Other bioenergy include biogas, bio-LPG and bio-ethanol. Sources: IEA analysis based on data from the <u>IEA SDG7 database</u> and Uganda Bureau of Statistics.

4.2.3. Clean cooking post 2030

The ETP notes that beyond 2030, improved cookstoves gradually disappear: by 2040 all remaining ICS are of ISO Tier 4 and above, and by 2050 every household in the country cooks with a modern fuel or stove. ISO tier 4 cookstoves have the highest performance standards relating to efficiency, emissions and safety. The ETP further notes that more than half of the population is envisioned to cook with electricity by 2050 while the reliance on fossil LPG declines, with only about onequarter of the population using it by 2050, down from 40% in 2040. It is noted in the ETP that to attain the above targets, clear and reliable national regulations mirroring international standards will be fundamental for clean cooking companies to access finance.

4.3. Goal 2: Modernising the energy system to support economic growth

Uganda's growth is forecast to move apace, underpinning the urgency of the ETP. Population growth trends are projected to continue over the next several decades, almost doubling to 88 million in 2050. Urbanisation will increase the share of towns and cities' inhabitants to almost 45% by midcentury, up from around 25% today. Over the same period, economic growth is expected to increase sevenfold. The ETP observes that Uganda's energy systems must be developed in lockstep with these emerging trends.

Below are the targets that the ETP has set to promote an energy transition in the industry sector.

4.3.2. Industry

The ETP notes that industry currently accounts for nearly 30% of the country's GDP and around a fifth of energy demand and energy-sector CO2 emissions. Around half of today's industrial energy consumption is in light industries, which comprises food production, machinery, textiles, timber, as well as construction and mining.

Cement and other non-metallic minerals make up over one-third and steel around 10% of the sector's energy demand. However, cement and steel production are rapidly expanding, and several other energy-intensive industries are set to come online in the coming decade such as mining extraction and mineral processing, the ETP notes. Accordingly, the ETP observes, industry is foreseen as the main driver of Uganda's energy demand growth as consumption increases 2.5-fold by 2050, when the sector is set to account for over one-third of total final consumption. Light industries maintain a dominating role, but steel and non-metallic minerals production, including cement, are the main source of growth, accounting for one-quarter each of this increase, the ETP observes.

The ETP envisions that electricity will be the fastest growing fuel that will drive Uganda's industrialisation. Its share in the fuel mix will rise from just over 5% in 2021 to around 50% in 2050, with electrification taking hold after 2030.

The ETP however observes that in the medium term, fossil fuel use will expand, especially in heavy industries. By 2030, its share in the overall industry fuel mix will more than double to 30%. Afterwards, stronger efforts to develop alternative industrial processes that can use low-emissions fuel substitutes begin to erode fossil fuel's share, the ETP notes, affirming that the use of oil in industry peaks by 2035, increasingly replaced by natural gas.

The ETP envisions that the use of coal will plateau around 2035 but natural gas consumption will increase. Natural gas growth is expected to increase through 2050 in industry, overtaking oil consumption. The ETP lists natural gas as a transition fuel.

Below is a graphic showing the energy types that are expected to fuel industrial growth in Uganda.

30% of the industry sector energy demands will be met by fossil fuels including coal, oil etc by 2030 50% of the industry sector demands will be met with electricity by 2050 Gas will continue to play a role in meeting the industry sector's energy demands beyond 2050

Below is another graphic showing the projected energy demand in the transport sector.



Energy demand in the transport sector is expected to grow by 50% to 2030

Oil products are projected to meet the energy demand in the transport sector



The share of electricity demand in the transport sector is expected to rise from 3% in 2030 to over 20% in 2050.

4.3.3. Refining, chemicals, and fertilisers

The ETP notes that Uganda's new oil production and refining operations will create a jump in energy demand when they come online. Some of this energy will be electric, as is the case with heating pipes, pumps and compressors, and some refining operations. However, some refinery operations will rely on burning various by-products to power the refining processes in auxiliary units. Accompanying chemical production sectors are also expected to be developed alongside the refinery, many of which make use of the chemical by-products. The chemical operations will also rely on natural gas from Tanzania. In total, the sector's energy consumption is expected to reach around 4% of industrial energy demand by 2050.

Below is a graph that shows the projected use of fossil fuels in the industry sector.



Natural gas helps first curb the use of coal, and then oil in industry, largely in the steel and cement sectors.

4.4. Goal 3: Improve energy security and affordability

Improving energy security and affordability are key priorities for the government. All oil products sold today in Uganda are imported. The ETP notes that this dependence has increased over the past two decades, with per capita imports rising consistently from 145 thousand barrels (kb) per million people in 2000, to around 320 kb per million people in 2021, with a notable annual rise in LPG (9%) followed by diesel oil (5%) and gasoline (5%). Domestic consumption in 2021 consisted of approximately 18 kb/d each of petrol and diesel, which combined accounted for almost all imported oil products. Smaller quantities of jet fuel, kerosene, and an even smaller amount of LPG (which accounts for around 1% of total product imports) were also consumed. The Ugandan government proposes to replace the oil and gas import through oil extraction and refining in Uganda. Gas is also expected to be imported from Tanzania as well however.

4.5. Goal 4: Mitigate emissions from the energy sector

Meeting Uganda's existing climate and energy security goals requires keeping an eye toward managing emissions growth. As a signatory of the Paris Agreement on climate change, Uganda has committed to implement policies to curb emissions growth and meet its Nationally Determined Contribution (NDC). At the same time, the country needs to significantly expand energy access, infrastructure and demand to unlock economic growth development, the ETP notes. To balance these two goals, the ETP prioritises approaches which curb emissions growth without negatively impacting development, while creating opportunities for attracting international climate finance.

To mitigate energy sector emissions in an energy transition plan, the primary focus is on replacing fossil fuels with renewable energy sources like solar, wind, and hydro power, alongside strategies like improving energy efficiency across all sectors, electrifying transportation, and implementing carbon capture and storage technologies where necessary.

4.6. Goal 5: Position Uganda as a regional energy hub

Uganda recognises that its energy resources and strategic location in the East Africa region means that its energy sector development could support rising demand in neighbouring countries. This includes its build out of its electricity sector, exports of oil products from the refinery, including LPG production for cooking, and possibly critical minerals for other countries that have operations and demand for them. Accordingly, steps are taken in the ETP to position Uganda to play a larger role in the region's energy systems.

5. WEAKNESSES OF THE ETP

As earlier discussed in this guide, the Energy Transition Plan has several strengths including the fact that it recognises that by 2030, off-grid electrification is the most feasible path to ensuring that the majority of Ugandans gain access to clean energy. The ETP also rightly identifies the need to put in place strong policies, laws and regulations to attain set targets in the plan. In addition, the ETP is realistic when it notes that Uganda's clean cooking targets have not been realised anywhere on the African continent, and strong efforts involving government, the private sector, international partners and civil society organisations (CSOs) must be made for attainment of the targets.

However, the plan also has weaknesses. Key among these is the fact that Uganda is scheduled to begin commercial oil production in 2027 (Financial Times, 2024) from discoveries made in the Lake Albert basin. Uganda's recoverable oil resources are estimated at around 1.7 billion barrels. Uganda's neighbor to the south, Tanzania, is also expected to commence gas production (CGTN, 2024). Uganda expects to use the country's oil and gas as well as gas from Tanzania to promote 'clean' cooking and industrialisation. This is problematic. Why is this the case?

Climate change risks and environmental degradation: Fossil fuel exploration and extraction harm ecosystems and contribute to climate change as well as environmental damage. Oil and gas production, transportation, and combustion release significant amounts of CO2, methane, and other greenhouse gases, contributing to climate change. Climate change harms countries' capacity to provide clean energy for their citizens. For instance, available information shows that Uganda loses up to USD 5.9 billion (UGX 21.5 trillion) per year due to climate change impacts with losses in agriculture, water, energy and infrastructure being experienced (New Vision, 2025). These losses see government efforts to provide clean energy being hampered. Moreover, oil extraction, refining, and burning of fossil fuels pollute air, water, and soil, harming human health and ecosystems. With harm to ecosystems arise impacts such as increased poverty, which negatively impacts citizens' capacity to purchase and use clean energy technologies.

Front loading expenditure in lieu of fossil revenues causing severe debt burden: In addition, Uganda has continuously front loaded its expenditure in form of debt in anticipation of oil revenues. Consequently, as of September 2024, Uganda's debt levels were UGX 107 trillion (Oketch, 2025). Uganda's debt-to-GDP ratio was 53% in the 2022/2023 fiscal year, which is above the International Monetary Fund's (IMF) recommended threshold of 50% which points to lingering debt sustainability concerns. The IMF estimates that Uganda has a moderate risk of external and overall public debt distress. An indebted country is hard pressed to invest in clean energy and other initiatives to promote an energy transition.

Stranded assets: Investing in fossil fuels may lead to uneconomical assets. As renewable energy becomes more competitive, oil and gas assets may become uneconomical, hence stranding investments.

Lock-in effect: There is also a possibility of "lock-in effect". This is where investing in oil and gas infrastructure can lock countries into fossil fuel dependence, hindering transition to cleaner energies. **Resource curse:** Oil and gas wealth can lead to economic instability, corruption, and social inequality . Many oil-, gas- and mineralrich countries have failed to reach their full potential as a result of their natural resource wealth. In general, resource rich countries are also more authoritarian, more prone to conflict, and less economically stable than countries without these resources. When used well, these resources can create greater prosperity for current and future generations; but when used poorly, or squandered, they can cause economic instability, social conflict, and lasting environmental damage (Natural Resources Governance Institute, 2015).



A rig being erected to kickstart oil production in Uganda; oil production could lock Uganda into fossil fuel dependence and use up revenues that could have been used to provide citizens with clean energy Photo source: Uganda Radio Network

6. GENDER RESPONSIVENESS OF THE ETP

Gender and energy poverty are critical concerns. Available information shows that more women than men face energy poverty in Uganda, which puts women at risk of poverty, gender-based violence, poor health and other impacts. The ETP should seek to address energy poverty among women. But, does it? An analysis of the ETP shows that the plan does not specifically address energy access disparities between men and women. Below, this guide discusses key gender gaps in the ETP.

Lack of gender targets: The ETP does not have gender targets. No targets are set in relation to the percentage of femaleheaded households that will gain electricity access, clean cooking and others. This lack of gender-sensitive targets is a significant gap as it means that in the efforts to scale up electricity access, clean cooking and others, women and youth, who face economic poverty more than men, could be left behind.

Oil exploitation impacts on women: The ETP places strong emphasis on using Uganda's oil and gas reserves to drive the energy transition in the country, while promoting Uganda as an energy hub in East Africa. Oil and gas exploitation activities disproportionately affect women by harming their access to land, decreasing agricultural productivity, negatively impacting access to income and increasing violence against women (AFIEGO, 2023). Moreover, the burning of fossil fuels and attendant climate change impacts negatively impact women more than men (UN Women, 2022). In recognition of this and other harms of continued reliance on fossil fuels, the ETP should have prioritised clean energy over oil, gas and coal.

Focus on the grid could negatively impact women: Further, the ETP primarily focuses on national grid expansion and access to large solar home systems by 2050, neglecting smaller off-grid solutions for rural women in the long term. More women than men face income poverty (World Bank, 2006), which undermines women's capacity to access grid electricity as well as large solar home systems. If government fails to place emphasis on ensuring access through small affordable off-grid solar alternatives for the most poor and vulnerable even by 2050, then women's access to clean energy could be undermined. Neglect of women's economic empowerment: The ETP also does not prioritize women's economic empowerment through energy access and entrepreneurship. One focus of the gender, energy, and poverty narrative has been that since women play a significant role in energy systems as part of their subsistence and productive tasks, they are disproportionately affected by energy shortages. While setting scenarios on energy as a driver of key industries, the ETP fails to demonstrate how clean energy will be used to drive women's economic empowerment.

Inadequate attention to gender - based violence: In addition, oil and gas extraction as well as mining for transition minerals are key to driving the energy transition in Uganda, per the ETP. As earlier discussed, the reliance on oil and gas to drive an energy transition could undermine Ugandans' including women's access to clean energy. This fact is not acknowledged in the ETP. In addition, the ETP does not address energyrelated gender-based violence (GBV), such as sexual exploitation near extractive sites. GBV is often seen near extractive sites (Mishra, Sravan and Mishra, 2024) and to avoid, minimise or mitigate it, it is important to acknowledge this fact while providing mitigating measures.



Photo source: Wikimedia

7. RECOMMENDATIONS

To promote a genuine clean energy transition while ensuring effective implementation of the ETP, the following should be done.

i. The MEMD should reform the ETP to place emphasis on the use of renewable energy as driver of clean cooking and industrialization, as opposed to placing emphasis on coal, oil and gas as a driver of the above. Coal, oil and gas should not be listed as transition fuels. Instead, focus should be placed on powering Uganda with renewables.

ii. In addition, government should redirect the funds that are being invested in the oil and gas industry to renewable energy to avoid worsening of the climate crisis, stranded assets and locking Uganda into a fossil fuel economy.

iii. Furthermore, the MEMD should reform the ETP to integrate gender considerations into Uganda's ETP. Without addressing gender vis-à-vis energy poverty concerns, the ETP's targets may not be achieved.

iv. In addition, the MEMD should urgently address existing electricity sector challenges such as weak grid infrastructure, frequent power outages, slow expansion to rural areas and others. This is because under goal 1 of the ETP, the MEMD is seeking to connect 45% of the population to the grid by 2030 and more than 90% to the main and mini grids by 2050.

v. The MEMD should also provide subsidies for off-grid options especially in the solar sector to address the high initial setup costs which limit individual purchases.

vi. In addition, government should support the MEMD to establish a dedicated energy transition (ET) unit and a comprehensive energy transition law. The ET unit will enhance coordination among government agencies and facilitate adequate planning and budgeting for masterminding a just energy transition for Uganda . An Energy Transition Law for Uganda would provide a comprehensive binding framework for the country's transition to a sustainable, lowcarbon country. vii. Furthermore, to enable implementation of the ETP, government should decentralise the coordination of renewable energy services to district and local government (DLG) levels. The MEMD should establish energy officers at DLG levels and the Ministry of Finance, Planning and Economic Development (MoFPED) should allocate funds to DLGs to support the promotion of renewable energy at the grassroots levels.

viii. In addition, government should reduce electricity tariffs and support awareness raising programmes on renewable energy alternatives targeted at citizens, especially rural poor communities.

ix. There is also need to create awareness among end-user markets especially poor rural communities on available off-grid financing opportunities. Information on financing instruments such as mobile payment, MFI, PAYG, solar kiosks and others should be provided by government, the private sector and CSOs. Off-grid payment platforms should also be improved with multiple language options, transactions security and others being enhanced by the private sector.

x. Finally, CSOs should advocate for the above recommendations to be implemented, including advocating for the enactment of pro-poor energy policies and plans.



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