

Stand Alone Solar (SAS)

MARKET UPDATE

Malawi

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Africa Clean Energy
Catalysing Africa's Solar Markets



TETRA TECH
International Development





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ABBREVIATIONS AND ACRONYMS

Acronym	Definition
EGENCO	Electricity Generation Company of Malawi
EnDev	Energising Development
ESCOM	Electricity Supply Corporation of Malawi
EU	European Union
EUR	Euro
GIZ	German Corporation for International Cooperation
GDP	Gross Domestic Product
IMF	International Monetary Fund
IPP	Independent Power Producers
MAREP	Malawi Rural Electrification Programme
MAMN	Malawi's Microfinance Network
MBS	Malawi Bureau of Standards
MERA	Malawi Energy Regulatory Authority
MFIs	Microfinance Institutions
MoE	Ministry of Energy
MPC	Malawi Posts Corporation
MRA	Malawi Revenue Authority
MWK	Malawian Kwacha
NEP	National Energy Policy
PAYG	Pay-As-You-Go
PPA	Power Purchase Agreement
PUE	Productive Use of Energy
PV	Photovoltaic
RBM	Reserve Bank of Malawi
REIAMA	Renewable Energy Industries Association of Malawi
SACCOs	Savings and Credit Cooperative
SAS	Stand-alone Solar
SHS	Solar Home System
SMEs	Small and Medium Enterprises
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
USD	United States Dollar
VAT	Value Added Tax



EXECUTIVE SUMMARY

Malawi's economic resurgence has been interrupted by the COVID-19 pandemic, which saw socioeconomic restrictions and border closings that resulted in inaccessible markets, job losses and price hikes that have the potential to send up to 2.2 million people into poverty temporarily.¹

Agriculture is the mainstay of Malawi's economy, being the primary economic activity for over 80 per cent of the 18.6 million population. Infrastructure development, manufacturing and adoption of new technology are low, while corruption levels remain high – Transparency International ranked Malawi at position 123 out of 180 in 2019. On the other hand, the country's Ease of Doing Business score improved from 59.59 in 2019 to 60.9 in 2020.

Though Malawi has one of the lowest electricity access rates in the Southern Africa Development Community (SADC) region at 18 per cent,² it has been gradually rising over the last decade due to, among other factors, expansion of the Malawi Rural Electrification Programme (MAREP) and the proliferation of solar technologies. But the current annual population growth rate of 2.8 per cent is outstripping the pace of electrification at an average of 0.82 per cent over the last five years.³

Rural customers, who form 82.8 per cent of the population, remain an important market for stand-alone solar (SAS) products. Over the last two years, the SAS market in Malawi has nearly quadrupled in size and seen solar companies changing business models through customer and product diversification. Some importers like Kumudzi Kuwale and Zuwa Energy have established partnerships with retailers to promote franchise models. There has also been an increase of pay-as-you-go (PAYG) financing, and use of productive solar energy products such as solar irrigation pumps and cold storage.

The Renewable Energy Industries Association of Malawi (REIAMA) has been revived and has registered a number of achievements, including lobbying for value added tax (VAT) exemption, which was gazetted in 2019.⁴ While most government focus has been on extending the grid, the energy sector framework is gradually being expanded to mini-grids and SAS.

The most common feature of SAS companies in Malawi is the use of agents, with distribution done through school teachers, associations, petrol stations, bus companies and last-mile entrepreneurs. With about 51 per cent mobile phone coverage,⁵ a growing mobile phone market, and supportive mobile money regulation, there seems every prospect that mobile money (with about 7.6 million subscribers by December 2020)⁶ will support the growth of the SAS sector.

On the demand side, challenges include low quality products, high prices that are unaffordable to potential customers, limited access to finance and changes in priorities among households due to the effects of the COVID-19 pandemic. On the supply side, barriers include lack of standards enforcement resulting in proliferation of cheap substandard products, high lending rates averaging around 25 per cent, high cost of distribution in rural areas where demand is concentrated, lack of proven business models for productive use solar and difficulty attracting new investors.



Though Malawi has one of the lowest electricity access rates in the Southern Africa Development Community (SADC) region at 18%,² it has been gradually rising over the last decade due to, among other factors, expansion of the Malawi Rural Electrification Programme (MAREP) and the proliferation of solar technologies.

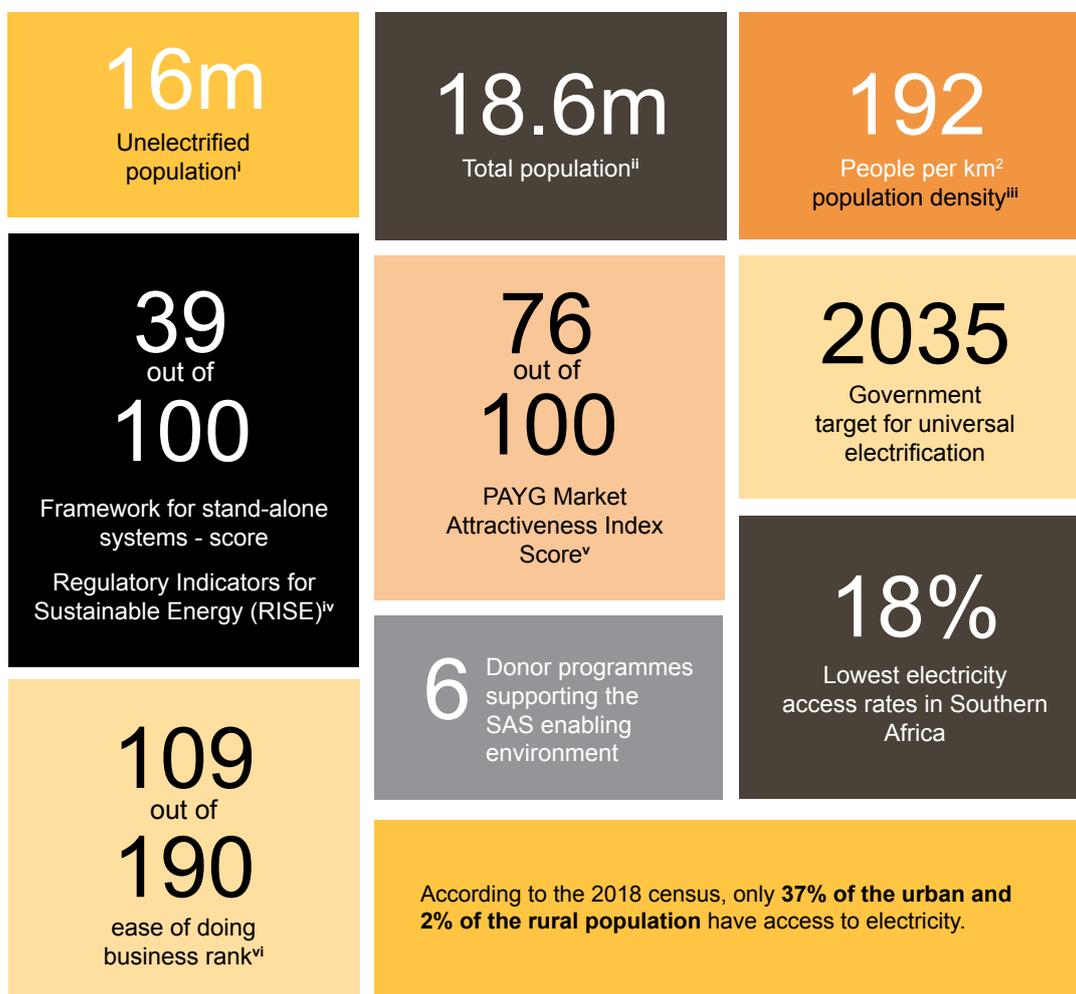


Figure 1: Malawi at a glance

- i. International Energy Agency (2019)
- ii. World Bank (2018)
- iii. World Bank (2019)
- iv. ESMAP (2019)
- v. Lighting Global (2019)
- vi. World Bank (2020)

1. NATIONAL OVERVIEW

1.1 Current Context

Malawi's three-year pathway of economic growth has been interrupted by the COVID-19 pandemic. The economy grew by 4.4 per cent in 2019, a marked increase from 3.5 per cent in 2018.⁷ Future growth prospects are uncertain as the pandemic continues to unfold.

Although a full lockdown was never implemented in Malawi, borders were closed in some instances. The negative effects of the disruption in supply chains, rising trade and logistics costs and a decrease in remittances are already being felt by the country's population of 18.6 million (as of 2019).⁸ Imports declined by 26 per cent year-on-year in the second quarter of 2020 and gross tax revenues fell by 13 per cent in third quarter of 2020.⁹ By year-end the country's economy was projected to grow at 1 per cent in 2020, down from earlier projections of 4.8 per cent.

Malawi is heavily dependent on agriculture, which contributes 27 per cent of the USD6.3 billion Gross Domestic Product (GDP) and employs nearly 80 per cent of the population. Poverty has been declining slightly over the last five years, but it is expected to rise due to low productivity in the agriculture sector, economic contraction, rapid population growth and limited coverage of safety net programmes. Repeated high fiscal deficits have contributed to an accumulation of domestic debt with public debt remaining at 59.4 percent of GDP between 2018 and 2019. While this is good for domestic capital markets, it exerts pressure on interest rates and crowds out small borrowers, including those in the solar business.

The country's headline inflation decelerated through 2020, but it is facing seasonal pressure from maize prices. Annual inflation decelerated to 7.1 per cent in September 2020 from 9.2 per cent in September 2019, with benchmark interest rates reaching 12 per cent in October 2020, the lowest on record. Due to fiscal

interventions to manage the impact of COVID-19, it is anticipated that inflation will continue to decline in 2021.

Malawi has had stable governments since independence in 1964, and this is projected to continue. Presidential elections held on June 23, 2020 saw opposition leader Lazarus Chakwera elected president. The new government has established a Cabinet committee on public-private partnerships (PPPs) and private sector growth, signaling a desire to increase private sector participation in economic activities. Moreover, the government has announced new energy reforms, including opening the sector to more private investors and facilitating new tariff structures.

Infrastructure development, manufacturing and adoption of new technology remain low, while corruption levels remain high – Transparency International ranked Malawi position 123 out of 180 in 2019.¹⁰ On the other hand, Malawi's Ease of Doing Business score improved from 59.59 in 2019 to 60.9 in 2020.¹¹

The general economic and political outlook has the following implications for stand-alone solar (SAS) companies: decrease in demand for SAS products as households prioritise expenditures for survival; supply chain disruptions due to closure of borders and lockdowns in major trading partner countries; and high interest rates making it expensive to source capital.

1.2 Energy Access

As per the most recent (2018) census, only 37 per cent of the urban and 2 per cent of the rural population have access to electricity.¹² Though Malawi has one of the lowest electricity access rates in the Southern Africa Development Community region, it has been gradually rising over the last decade due to, among other factors, the success of the Malawi Rural Electrification Programme (MAREP) and the proliferation of solar technologies.

⁸ *ibid.*

⁹ *Year on year.*

¹² NSO (2019). *2018 Malawi population and housing census: Main report.*

There is conflicting data on energy access in Malawi, with the official government figure at 18 per cent and Power Africa citing 15 per cent.¹³ Both figures include off-grid solutions. Malawi has a high population density, and the current population growth rate of 2.8 per cent

is outpacing the rate of electrification.¹⁴ The country's heavy reliance on large hydro is often constrained by drought and low water levels resulting in insufficient power for its existing customers. These conditions provide potential for SAS.

Table 1: Electricity access in Malawi

Grid connections (%)	12.02%
Population without electricity access	16 million ¹⁵
Grid tariff per kWh	USD0.12/kWh
Average per capita kWh usage	93kWh per annum



Malawi is heavily dependent on agriculture, which contributes **27%** of the **USD6.3 billion** Gross Domestic Product (GDP) and employs nearly **80%** of the population.



Malawi has a high population density, and the current population growth rate of **2.8%** is outpacing the rate of electrification.

¹⁴ 0.82 percent on average in the past five years.

¹⁵ International Energy Agency (2020). World energy outlook 2020.

2. DEMAND-SIDE: CONSUMER INSIGHTS

Malawi's high population growth, together with a low electrification rate and a gradual increase in incomes would suggest that there is a growing demand for electricity. Demand for electricity is projected to increase at an annual rate of 1.2 per cent and reach 5,160 kilotonnes of oil equivalent (ktoe) in 2030.¹⁶ The relatively densely distributed population could also be attractive to solar companies since it minimises distribution and marketing costs. Nevertheless, the impact of COVID-19 on disposable income could be a setback.

At 82.8 per cent¹⁷ of the population, rural customers remain an important market segment for SAS products, though they typically represent lower income market segments. On the other hand, population growth (2.15 per cent) in urban and peri-urban areas may put pressure on already stretched grid services. While a smaller

segment, these consumers with greater ability and willingness to pay for medium-sized energy solutions present a good opportunity, particularly for pay-as-you-go (PAYG) products.

2.1 Willingness and Ability to Pay

Table 2 presents estimates of the SAS market size published by the World Bank in 2019.¹⁸ Taking into consideration the number of off-grid households (3.7 million) and their ability to pay for different sizes of products, there is a potential USD265 million market. Of the off-grid population, 24 per cent could afford pico and solar home system (SHS) with multiple lights and phone charging, 9 per cent could afford SHS (>10W) with multiple lights and other basic appliances, and only 1 per cent could afford Tier 2 SHS (>50W) equipped with TV and other appliances.

Table 2: SAS market size estimates (Source: World Bank, 2019)

Household income range (MWK, thousands per month)	% of households	No. of off-grid households	Average household expenditure on lighting (MWK per month)	Total expenditure over 2 years	Affordable solar product (USD per unit)	Total per category (USD)
<10	40	1,505,205	362	6,680	12	17,971,889
10-20	26	950,656	1,805	26,041	36	34,052,000
20-50	24	91,045	2,532	60,762	84	76,144,055
50-250	9	316,885	10,850	260,408	358	113,506,666
>250	1	39,611	18,084	434,073	579	23,647,222
Total		3,723,457				265,321,832

2.2 Impact of COVID-19

Having registered its first COVID-19 cases in April 2020, the country's numbers picked up considerably from June to August, but dropped through the end of the year, averaging less than 10 per day. As of December 31, 2020, the cases had started to rise again. Malawi has one of the lowest testing rates in the world.¹⁹

In April, the government took steps to minimise transmission through restriction of some social and economic activities, but movement within the country was allowed. Though economic relief measures were later introduced, including the slashing of fuel prices

and introduction of targeted tax waivers, the restrictions have resulted in substantial loss jobs and business, and loss of markets for agricultural produce. Broadly, the International Food Policy Research Institute (IFPRI) estimated that the COVID control measures would cause GDP to decline by between 4 and 5.2 per cent in 2020. This would lead to between 1.1 million and 2.2 million people, the majority in rural areas, temporarily falling into poverty.²⁰ A United Nations Development Programme (UNDP) study established that 58 per cent of respondents experienced income loss while 3 per cent experienced income gain.²¹ Men experienced higher losses than women, with urbanites experiencing higher losses than those in rural areas.

¹⁷ NSO (2019). 2018 Malawi population and housing census: Main report.

3. SUPPLY-SIDE: STAND-ALONE SOLAR COMPANIES

3.1 Pico-solar and Solar Home Systems (SHS)

In the first half of 2020, certified SAS sales in Malawi dropped to 37,000, 28 per cent less than the second half of 2019 but still a big jump year-on-year. Programmes like USAID’s SHS KickStarter and World Bank’s ACCESS may have influenced sales. Other factors could include: new companies entering the

market (M-PAYG, Yellow Solar, ZUWA); relatively lower cost SHS compared to the pricing trend in the last two to three years; and increasing availability of credit (through any type of instalment payment) and digitised PAYG.

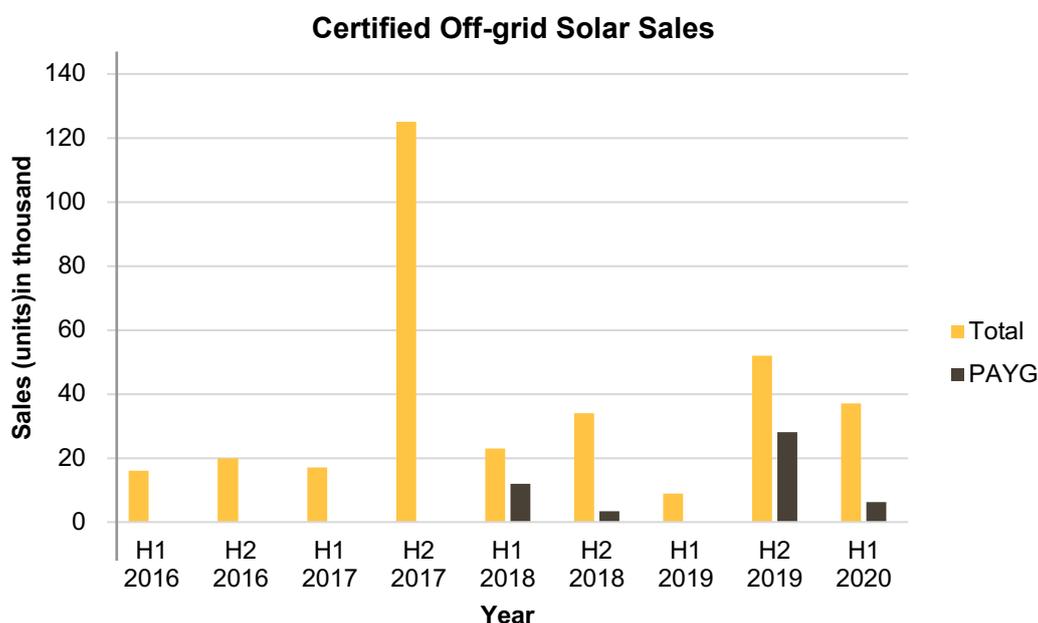


Figure 2: Certified off-grid solar sales (Source: GOGLA, 2020)

As the market grows, some solar companies have begun changing their approaches through customer and product diversification, and how they reach customers. Over the last year, the SAS sector has seen importers like Kumudzi Kuwale and Zuwa Energy establish partnerships with retailers and promote franchise models. Other companies sell through agents who then use targeted marketing techniques including school teachers, associations, petrol stations, community groups, agricultural stores, Malawi Posts Corporation (MPC), bus companies and last-mile entrepreneurs. For last-mile entrepreneurs to make a lasting impact, they need training on the products, as well as build their capacity to manage finances, stocks and customer relations (focusing on after-sales service). The World

Bank ACCESS programme is expected to support companies to distribute to new areas and upgrade their product lines.

Due to COVID-19, retailers have reduced their agent numbers nationwide and closed non-performing outlets as a way of managing costs.²² Pandemic restrictions have increased operational costs and hampered importation of solar equipment and components, resulting in low supplies particularly of batteries. Some suppliers that had existing stocks of solar increased their prices. It should however be noted that no company has gone bankrupt or withdrawn from the market in the last two years.²³

²² There was no lockdown in Malawi, but there were border closures.

²³ Interview with Zuwa Energy, REIAMA.

Table 3: Major SAS suppliers

Company	Business model	Brand/product focus	Comments
Kumudzi Kuwale	Retail cash & credit	Pico, SHS, larger systems and components.	Two retail outlets and > 20 rural charging stations where customers can rent, buy and/or charge solar-powered equipment. Implementing the "No one should be left in the dark" project with €342,000 / USD414,000 funding from the Energy and Environment Partnership (EEP) (2019-2021).
Solar Works!	Retail and PAYG	Range of SHS kits and component-based systems + appliances.	Sells through agricultural shops/ agents. Over the last two years, the firm has opened a new shop in Mchinji and has set up a call centre for customer support. It has also partnered with TNM and Airtel Money to integrate PAYG with mobile money.
Green Impact Technologies	Retail and PAYG	Sun King and Biolite.	Sells through agents, has a mobile money integrated PAYG. Has recently received awards from UNDP, the Applied Research Innovation Window grant and SEED initiative.
M-PAYG	Retail and PAYG	Sun King, X-Solar.	Mobile money integrated PAYG. Partnered with Total Land Care to implement an SHS project with €1.3 million (USD1.6 million) from the Nordic Climate Facility.
Powered by Nature	Retail cash & credit	SHS (Sun King) and larger systems including solar thermal systems and water pumps.	
Sunny Money	Retail, wholesale and PAYG	Sun King pico-solar and OV multi-light systems.	Social enterprise sales through agent model, both individuals and shops. As part of COVID-19 support, the company has installed plug and play SHS in hospitals located in the COVID-19 hotspot districts of Karonga, Mzuzu, Lilongwe, Mchinji, Dedza, Zomba, Blantyre and Mwanza.
RECAPO	Retail and PAYG	Indigo and Azuri.	Has been implementing a rural electrification project over the last two years to reach 3,000 households with SHS, with funding from the Africa Enterprise Challenge Fund (AECF).
Yellow Solar	Retail cash & credit	SHS	Sells in rural areas through agent network. Recruiting agents in 20 districts.
Zuwa Energy	Retail cash & credit	Zuwa brand SHS and large systems.	Sells through own shops. Recently partnered with Malawi Posts Corporation (MPC) for distribution and agent model. Partnered with TNM Mpamba and Airtel Money for mobile payment solutions.
Team Planet Solar Solutions	Retail and PAYG	Initially pico-solar products, but has now moved to larger systems.	Sells through own shop and agents.
Kuwala Energy	Retail cash and credit, PAYG	SHS, solar pumps.	Retail through own outlet and agents. Mainly in Nkhata Bay but planning to reach whole northern region in 2021. Partnered with Sunny Money Malawi for distribution.
Total Malawi	Retail	Sun King pico-solar, d.light and Sundaya T-lite 2.	Sells through Total filling stations. Recruited Solar Project Coordinator and promoting a Total Solar brand.

3.2 Productive Use Systems

The last two years have seen an increase in the number of off-grid productive use of energy (PUE) products in the market, including solar irrigation pumps, millers, incubators, cooling units and cold storage.²⁴ More established companies, such as Team Planet, Powered by Nature, Kumudzi Kuwale, Solar Works, Zuwa Energy, Kuwala Energy, Blue Zone/Grundfos, RECAPO and PowerAid have diversified the products and services they provide to include PUE equipment. More recently, Zuwa Energy has piloted PUE systems in clinics through PAYG and plans to scale up to schools. The World Bank ACCESS programme is geared toward providing incentives for products with agricultural productive uses (for example irrigation, drying and cooling) with potentially more beneficial terms for the promotion of these technologies.

While there is a lot of interest in productive use, the following factors still need to be addressed: enhanced access to micro-credit; facilitation of business development services and training; support for the upgrading of infrastructure and offering of after-sales service.

3.3 Renewable Energy Industries Association of Malawi (REIAMA)

REIAMA draws its membership (now 75) from individuals, companies and projects. Among these, 80 per cent are solar companies while the rest are engineers (individuals). The association has six paid staff including an executive director, and though it was dormant for some time, has been revived over the last three years. It continues to face financial and staff turnover challenges, as well as backlash from members for not meeting their expectations. Recent achievements include partnerships with UNDP and Flame Tree Initiative, and lobbying for VAT exemption, which was gazetted in 2019.²⁵ The association has further managed to get funding from the Humanist Institute for Cooperation with Developing Countries (HIVOS) and German Corporation for International Cooperation (GIZ) for capacity building and continues to look for support elsewhere.

3.4 Workforce capacity

COVID-19 has resulted in an economy-wide loss of employment, with service and manufacturing sectors hardest hit. Some SAS companies laid off staff as business slowed, especially between June and August 2020. One company executive reported that they had retrenched 14 staff in June 2020 after their sales dropped by almost 10 per cent. As of December 2020, some businesses have begun to stabilise and operate more normally due to improved consumer confidence and declining COVID-19 cases.

“

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²⁴ The World Bank (2019). *Electricity access project (P164331)*.
<https://projects.worldbank.org/en/projects-operations/project-detail/P164331>

²⁵ MRA (2019). *Amendments to the Customs and Excise (Tariffs) Order*.

4. POLITICAL FRAMEWORK

4.1 Government Institutions

The mid 2020 elections resulted in a new political administration, but did not change the institutional environment for SAS as the role of regulators and policy making remains the same. Below are the key government institutions in Malawi's power sector that are relevant to SAS.

Table 4: Government institutions in the SAS sector

Institution	Description and Recent Activity
Electricity Generation Company (ENGECO)	ENGECO has a new board of directors. It has recently commissioned a 1.3MW solar power plant in Likoma district.
Ministry of Energy (MoE)	The former Ministry of Natural Resources, Energy and Mining is now the Ministry of Energy. The ministry is recruiting District Energy Officers who will advocate use of alternative energies, including SAS.
Department of Energy Affairs (DoEA)	Sits within the MoE. Has three main divisions, with the Alternative Energy Division (AED) overseeing the implementation of alternative, clean and renewable energy, and energy efficiency and conservation technologies. Said to be planning energy access research in 2021 with support from UNDP.
Malawi Rural Electrification Programme (MAREP)	Its mandate extends to mini-grid and off-grid technologies, but it lacks capacity (in policy and quality control) as this component has just been newly introduced. Over the last two years, the programme has reached rural dwellers who pay a subsidised fee to connect. Now, 336 rural centres have been electrified, with an additional 270 rural centres set to be connected by 2022.
Malawi Revenue Authority (MRA)	Responsible for tax collection and checking on the quality of imports, though it lacks capacity to fulfil this mandate.
Malawi Energy Regulatory Authority (MERA)	With the new government, MERA has a new board of directors.
Malawi Bureau of Standards (MBS)	It has adopted an international test standard for photovoltaic (PV) modules but it does not require documented proof of compliance with this standard for solar products imported into the country. ²⁶ MoE is procuring equipment for MBS to use in testing the quality of solar products.

4.2 Energy Policy and Regulation

Malawi's electricity regulatory environment has been largely focused on grid power, though the framework is being extended to encompass mini-grids and SAS – with targets shifting over time (see Table 5). In March 2020, MRA, MBS and MERA signed a memorandum of understanding to coordinate monitoring of quality standards.²⁷ For SAS, the main regulatory provisions are:

- ♦ Mandatory licensing by MERA of energy businesses as well as the importation, sale, installation and maintenance of solar products.
- ♦ Quality standards certification by MBS.
- ♦ Zero-rating of solar products and components from import duty, excise duty and 16.5% VAT.²⁸

Despite these regulatory provisions, delays in importing products, licensing fees and the lengthy time required to process a business license deter expansion of the renewable energy sector. .

²⁷ Interview with Chief Energy Officer, Ministry of Energy (2020).

²⁸ Letter from MRA to REIAMA clarifying the zero rating status dated January 8, 2021.

Table 5: Recent policies/regulations governing the SAS sector

Policy/Regulation	Description and Relevance
National Energy Policy (NEP), 2018	Governs the sector. From a 9% electrification baseline, targets 80% electricity access by 2035: 35% Tier 4-5 access (from the grid), 45% with Tier 1-2-3 access (from mini-grids and pico-solar).
Malawi Renewable Energy Strategy (MRES), 2017	2030 targets: 45% reachable by grid, 10% by mini-grids and 45% by off-grid devices.
SE4ALL Action Agenda, 2017	2030 targets: 1.51 million (25%) grid connections, 13,500 (0.2%) mini-grid connections, 75,000 (1%) SHS, 4.5 million (74%) pico-solar.
Electricity (Amendment) Act, 2016	ESCOM was unbundled into two state-owned power utilities: EGENCO and ESCOM. In May 2019, 14 PPAs – 10 with EGENCO and four with IPPs – were signed.

4.3 E-waste Regulation

There is no regulation on e-waste management in Malawi, though there is growing concern regarding the impact this type of waste can have on the environment and public health. The Environmental Management Act, 2017, established the legal framework for management of hazardous waste, which paved the way for specific e-waste management regulations, yet to be developed but believed to be under consideration.²⁹ The Malawi National Waste Management Strategy (2017–2022) recognises e-waste as a significant emerging waste stream.

4.4 Financial and Mobile Payment Regulation

The Malawi constitution guarantees basic freedom to invest, to own property and to fair compensation in the event of expropriation. There are no restrictions on the size of investment, sources of funding or whether products are destined for the domestic or export market. The World Bank ranked Malawi 79 out of 190 in minority investor protection.³⁰

Mobile money systems are regulated under the Payment Systems Act, 2016, and E-Money Regulations, 2018. In 2018 the Reserve Bank of Malawi (RBM) issued a policy direction that phone companies that want to operate

mobile money services should register mobile money services under a separate company. This is because mobile network operators (MNOs) are regulated by the Malawi Communications Regulatory Authority while mobile money companies are regulated by RBM. This regulation clarity earned Malawi a score of 81.99 on GSMA's Mobile Money Regulatory Index and placed it at position 14 out of 81 countries assessed. This policy move is expected to enhance confidence among users of mobile money thereby increasing adoption and usage of the services.³¹

Commercial lenders, microfinance institutions (MFIs) and savings and credit cooperatives (SACCOs) lending to SAS companies and end-users in Malawi are regulated by RBM under the Financial Services Act, 2010, and the Microfinance Act, 2010.

4.5 Gender and Social Inclusion Mainstreaming

The NEP commits to equal opportunity, social and gender integrated planning, gender sensitive resettlement action plans and/or compensation packages, and rural electrification interventions that target low income, male, female, child and elderly headed households. The USAID SHS Kick-Starter project is promoting gender mainstreaming as a key component of its support to the government.

5. FINANCING

5.1 Supply Chain Financing

The COVID-19 pandemic has resulted in the reduction of tax revenue and increased expenditure on health and economic responses. USD20 million (0.25 per cent of GDP) is being spent on healthcare and targeted social assistance programmes. One of the key policy responses has been to reduce the domestic currency Liquidity Reserve Requirement (LRR) by 125 basis points to 3.75 per cent. An Emergency Liquidity Assistance (ELA) framework has also been introduced to support banks in the event of worsening liquidity conditions.

Some companies, such as Zuwa Energy, have largely relied on their own funds while others have managed to secure grants. While the number of local investment deals is difficult to ascertain, it is likely to be low since the cost of borrowing in Malawi is high, with an average of 25 per cent interest over the last two years.

None of the commercial banks in Malawi have specific products for SAS companies, but some lend to these companies just like any other businesses. Such banks include National Bank, FDH Bank, NBS Bank and FINCA.

5.2 Consumer Financing

Access to credit remains one of the biggest challenges for customers, mostly due to the cost of credit (the base

lending rate in December 2020 was 12.1 per cent).³² Financial institutions are reluctant to provide loans for purchase of household solar products, which they regard as consumer items that will not lead to increased incomes and for which loans are unlikely to be repaid.

Microfinance Institutions (MFIs)

Although there are some MFIs in the country, their ability and willingness to lend to households for SAS products seems to be limited. Interest rates are as high as 10 to 20 per cent per month.

The Malawi Microfinance Network (MAMN) has 26 members, with the 10 largest MFIs lending about USD20 million to about 340,000 borrowers (2 per cent of the population) per year.³³ There are 47 SACCOs in the country with a member base of 116,000, all of which are affiliates of the Malawi Union of Savings and Credit Cooperatives (MUSCC). Of note are:

- ◆ Fincoop and Microloan Foundation provide low-cost loans for small solar lanterns.
- ◆ Most of the 47 SACCOs³⁴ buy solar PV products in bulk and then sell on credit to their members.
- ◆ Community Finance is offering soft loans for solar products.

Table 6: MFIs lending to SAS customers

MFI / Lender Name	Description
FINCA	Offers Individual and group loans: USD27 to USD1,333 for individuals and USD670 to USD10,000 for groups.
FINCOOP	The maximum loan granted to a member at any point in time is up to 200 per cent of the member's share balance. Loans on offer include group and individual business loans, personal loans and agricultural loan. Had a loan portfolio of USD369,230 as of December 2019.
CUMO	Total loan portfolio is USD600,000. Its Masika loan targets small-scale entrepreneurs and can be accessed by SAS customers.

Mobile money networks

With extensive mobile network coverage, a growing mobile phone market, and mobile money regulation in place, mobile money is poised to support the growth of the SAS sector. That said, Malawi currently has a relatively low level of mobile phone penetration at 51 per cent. The total subscriber base for non-bank mobile money services grew to 7.6 million by the end of the fourth quarter of 2020.³⁶ Geographical distribution of agents remains a challenge as the majority are located in urban and semi-urban areas.³⁶ Despite this challenge, the growth in subscriber base is a positive development

for PAYG as it integrates mobile money payments. The three main mobile money operators in the country are Airtel, TNM and Zoona.

Remittances

Remittances, which have averaged 1.5 per cent of GDP over the last five years, fell 30 per cent year-on-year to USD150.4 million in October 2020.³⁷ Over the last two years, mobile money solutions such as Mukuru, Paisa and Mpamba have been configured to receive money from South Africa.



Selling micro-solar systems at Uliwa market, Malawi. Photo credit. Richard (Haggis) Turner

³⁶ Reserve Bank of Malawi.

³⁷ The surge in authorized dealer bank remittances from March to June 2019 was due to the response to tropical cyclone Idai.

6. MARKET SUPPORT

Malawi has received good support for the energy sector from development partners. Funding for grid expansion has been provided by MCC, World Bank and China, while UNDP, the Scottish Government and the European Union (EU) have funded mini-grids. The World Bank, GIZ EnDev and USAID are supporting private sector delivery of SAS.

Coordination among energy sector development partners has improved in the past two years. The Malawi Renewable Energy Partners Group (MREPG) had been the go-to forum but it did not have active participation

from government. The focus has since shifted to a newly established Energy Donor Working Group,³⁸ which despite also having little engagement with government, has 18 members who coordinate funding activities. UNDP is the secretariat.

As part of COVID-19 related assistance to the SAS sector, the USAID SHS Kick-Starter programme has given Zuwa Energy a USD225,000 grant to install solar systems in clinics. The World Bank has also indicated that it plans to support clients in rebuilding from the crisis.³⁹ Table 7 lists development partners and the support they are providing.

Table 7: Key development partners

Development Partner	Type of Assistance ⁴⁰	Objective/Target
United States Agency for International Development (USAID): Solar Home System Kick-Starter for Malawi	Grant, technical assistance	Implementation is underway until end of 2021. Targets: Stimulating the sale/provision of 150,000 new SHS off-grid connections. Increase access to working capital; debt and equity. Raise consumer awareness. Policy and regulatory reform, including strengthening fiscal incentives and support, like VAT and duty exemptions.
Energy and Environment Partnership (EEP) Africa	Grants	Supporting SolarWorks! (SHS and solar appliances, EUR 310,590), Yellow (SHS, EUR 852,292), Kumudzi Kuwale (local company, solar lamps, EUR 200,000) and Wala (local & women-led company, solar irrigation, EUR 200,000).
EU: External Investment Plan	Technical assistance	To attract or crowd in private investors in a number of sectors, including sustainable energy, with €5.1 billion (USD6.2 billion) of investments already identified. Provide financing advice to private sector on renewable energy and clean cooking and support some community-based solar energy projects.
World Bank: Malawi Electricity Access Project	Grant, loan	Includes a USD15 million off-grid component – 70 per cent will be channelled through a debt facility and the remainder will go to results-based grants to distributors. ⁴¹ Roll out expected in 2021.
Scottish Government: Rural Energy Access through Social Enterprise and Decentralisation Project (EASE)	Grant	£1.3 million (USD1.8 million) to address energy poverty in marginalised rural communities in Dedza and Balaka districts. The project runs from 2018–2023.
UNDP: Access to Clean and Renewable Energy Project	Grant	Aims to develop clean energy mini-grids that promote productive uses of energy. Runs January 2015 to December 2021 with a value of USD4.8 million.
BMZ/KfW/GIZ: Energising Development (EnDev)	Grant	Jointly funded by Netherlands, Norway, UK, Sweden and Switzerland (€263 million / USD318 million), working with SAS companies to reach rural areas. The project was to end in 2019 but has been extended to 2021.

³⁸ It was preceded by the Malawi Renewable Energy Partnership Group (MREPG).

⁴⁰ In 2021, we're contracting 9 new SAS grant projects in Kenya, Rwanda, Tanzania, Uganda and Zimbabwe.

⁴¹

6.1 Training Institutions and Incubators

There are more institutions offering solar training and support in Malawi over the last two to three years. The Technical, Entrepreneurial and Vocational Education and Training (TEVET) Authority developed a solar PV apprenticeship programme in January 2019 offering foundation, intermediate and advanced certificates. There is a shortage of skilled technicians, but Malawi University of Science and Technology, and Mzuzu University only offer degree level courses. Chancellor College, from 2020, started offering a PV installations and maintenance course. Most technical colleges and vocational schools (both public and private), including Zayed Energy and Ecology Centre, provide electrical installation qualifications.

Malawi has few incubation centres that include the newly launched Polytechnic Business Incubation Centre in Blantyre, Small and Medium Enterprise Development Institution (SMEDI) Business Incubation Centre in Dowa, and Mzuzu E-Hub and M-Hub. The Beehive Centre for Social Enterprise also runs the Bee Biz incubation centre in Blantyre.

6.2 Market Data

Some recent information published on the SAS sector in Malawi includes:

- Eales, A. et al. (2020). Assessing the market for solar PV microgrids in Malawi.
- Borgstein, E. et al. (2019). Malawi sustainable energy investment study. Summary for decision makers.
-
- Frame, D. (2018). Pay-as-ou-G and Mmbile money services for off-grid solar PV
- Dauenhauer, P.M. et al. (2020). Sustainability evaluation of community-based,
- Smith, K., Eales, A., Frame, D. & Galloway, S. (2019). Techno-economic analysis of PAYG productive uses of energy in Malawi.

The 2018 Malawi Population and Housing Census study established that 6.6 per cent of the population uses solar for lighting, but more granular information is lacking⁴². In order to gain insight, the government is planning a study on energy access in 2021.

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There is a shortage of skilled technicians, but Malawi University of Science and Technology, and Mzuzu University offer degree level courses. Chancellor College, from 2020, started offering a PV installations and maintenance course.

⁴² NSO (2018). *Population and housing census – Main report*.



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