

# Stand Alone Solar (SAS)

MARKET UPDATE

Sierra Leone

February 2021



**Africa Clean Energy**  
Catalysing Africa's Solar Markets



**TETRA TECH**  
International Development





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## Foreign, Commonwealth and Development Office (FCDO) Africa Clean Energy Technical Assistance Facility

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The Sierra Leone Stand-Alone Solar Market Update is one of a series of 14 national briefings published by the Africa Clean Energy (ACE) Technical Assistance Facility (TAF) to give stakeholders a snapshot of recent developments in the stand-alone solar sector, including those arising from the COVID-19 pandemic.

The Africa Clean Energy (ACE) Technical Assistance Facility (TAF) is a 4-year programme aiming to catalyse a market-based approach for private sector delivery of renewable energy electrification technologies, with a focus on high-quality stand-alone solar (SAS) systems. Funded by the UK Government through the Foreign, Commonwealth and Development Office (FCDO), and implemented by Tetra Tech International Development, ACE TAF is working in 14 African countries:

**East Africa:** Ethiopia, Kenya, Rwanda, Somalia, Tanzania, Uganda

**West Africa:** Ghana, Nigeria, Senegal, Sierra Leone

**Southern Africa:** Malawi, Mozambique, Zambia, Zimbabwe

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## ABBREVIATIONS AND ACRONYMS

Acronym	Definition
ACE TAF	Africa Clean Energy Technical Assistance Facility
BSL	Bank of Sierra Leone
DFIs	Development Finance Institutions
EDSA	Electricity Distribution and Supply Authority
EGTC	Electricity Generation and Transmission Company
FDI	Foreign Direct Investment
FCDO	Foreign, Commonwealth and Development Office
FSA	Financial Service Associations
GOGLA	Global Off-Grid Lighting Association
GST	General Sales Tax
IDA	International Development Association
MCCU	Millennium Challenge Corporation Unit
MoE	Ministry of Energy
PAYG	Pay-As-You-Go
REASL	Renewable Energy Association of Sierra Leone
SAS	Stand-alone Solar
SE4ALL	Sustainable Energy for All
SHS	Solar Home Systems
SLSB	Sierra Leone Standards Bureau





## EXECUTIVE SUMMARY

The COVID-19 pandemic has impacted the daily life of Sierra Leoneans in many ways. **Businesses, airports, borders and schools were shut down as stay-at-home orders were issued** in efforts to stop the spread of the virus. The population living in rural off-grid areas or served by unreliable grid networks were hardest hit by the effects of the pandemic as they lacked electricity, water and fuel for domestic use. At the same time, the pandemic has shown that it is much harder to sustain measures needed to fight such outbreaks without adequate electricity.

**Stand-alone solar (SAS) companies have taken steps to shore up their finances**, including deferring loan payments and cash expenses, reducing sales promotions and new installations, drawing down available credit, conducting cash sales and tapping development partners and banks for emergency funding.

Although there are several donor and development finance institutions (DFIs) that have funded the development of the country's SAS market, particularly in the recent past, **these funds have not provided direct financing into the SAS supply chain**. Similarly, although the government recently provided grants to various businesses (including hotels) through the Bank of Sierra Leone (BSL), none of the grants targeted SAS companies. Large SAS suppliers like Easy Solar are therefore forced to mobilise their own resources, while smaller ones like Smiling Through Light are curtailing their activities.

While recent data points to a slow recovery of the sector, job losses and shutdowns continue to cause delays in the distribution of SAS products. The introduction of new distribution channels by some companies (mainly retail sales outlets) and a payroll deduction scheme have increased financial inclusion as well as access to reliable and affordable energy services during the pandemic.<sup>1</sup> The entry of a new market player, Felicity Solar Technology, in spite of current uncertainties, has been encouraging.

**Recent policy and institutional measures have also increased the prospects of a more coordinated sector** post-COVID-19. The Ministry of Energy (MoE), for example, requested support from ACE TAF to develop an Off Grid Strategy and monitoring mechanism in response to the lack of a unified national strategy for deploying SAS systems. The Millennium Challenge Corporation Unit (MCCU) is also developing an Integrated Energy Resource Plan, building upon the National Electrification Plan 2017–2030 Roadmap, reflecting all energy solutions including SAS. MoE is also reviewing and updating the 2009 National Energy Policy. A corporate tax relief for businesses engaged in the provision or supply of renewable energy from solar mini-grids and an exemption from Goods and Services Tax (GST) for SAS equipment and services have been proposed by government in its 2021 budget. There are also ongoing efforts to mainstream gender issues in energy access initiatives implemented by the sector and to support the Sierra Leone Standards Bureau (SLSB) in establishing quality standards.

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<sup>1</sup>Easy Solar (2020). Key informant interview.




5.8m  
Unelectrified  
Population<sup>i</sup>

7.8m


 Total  
Population<sup>ii</sup>

 105  
People per km<sup>2</sup>  
Population  
Density<sup>iii</sup>

69   
out of  
100

Framework for Stand-alone Systems  
Score  
Regulatory Indicators for Sustainable  
Energy (RISE).<sup>iv</sup>

48  
out of  
100  
PAYG Market  
Attractiveness  
Index (Score)<sup>v</sup>

92% by  
2030  
 Government  
target for universal  
electrification.

163   
out of  
190  
Ease of doing  
business rank<sup>vi</sup>

 2  
Donor Programmes  
supporting SAS



Analysis shows that  
**585,908 households (42.1% of the  
population)**  
would be best reached by off-grid stand-alone systems by 2023<sup>v</sup>.  
The country currently has 100MW of installed capacity mainly  
from hydropower and a number of solar mini-grids that are  
coming up.



**Development  
partners**  
are supporting the  
deployment of various  
productive uses of solar –  
including for business,  
institutional and agricultural  
uses.



**Stand-alone solar sales merthan doubled**  
from 16,000 units in January-June 2019 to 38,456 over the same  
period in 2020 – though the reason for this jump is not clear  
sales are thought to account for over 70% of sales.

**Microfinance Institutions  
(MFIs)** have a significant market share  
in Sierra Leone (44%) and could be helpful  
in enhancing affordability of SAS products  
among consumers.

Figure 1: Sierra Leone 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

The COVID-19 pandemic has had a tremendous impact on the people of Sierra Leone. Travel restrictions were introduced in March 2020 as one of the measures to stop the spread of the coronavirus. Prior to the new measures, the country had implemented mandatory quarantine for passengers from China and imposed two consecutive four-day lockdowns. These restrictions disrupted trade and brought economic hardship to traders and households across the country.

The pandemic has proved to be a major challenge to economic growth and has led to the **revision of forecasts for domestic revenue generation, expenditure, fiscal deficit, inflation, and Foreign Direct Investment (FDI)**. For instance, the economy was projected to grow at 4.2 per cent in 2020 down from 5.1 per cent in 2019, but real Gross Domestic Product (GDP) growth is projected to drop to -3.1 per cent.<sup>2</sup> Furthermore, total expenditure net lending is now projected to increase from SLL9.35 trillion to SLL10.5 trillion (USD93.5 billion to USD105 billion) to meet the increased costs associated with COVID-19 response and recovery.<sup>3</sup>

The fiscal deficit, which was estimated to increase from -2.8 per cent in 2019 to -3.3 per cent in 2020, has now been revised to -6 per cent because of the pandemic.<sup>4</sup> Panic buying, especially during the days close to the lockdowns, combined with the depreciation of the leone, drove prices upwards. Therefore, inflation, which was about 13.9 per cent per cent in December 2019 and was projected to be single digit in 2020 (prior to the pandemic), is expected to reach 15.6 per cent in 2020.<sup>5</sup>

Increased poverty due to the Covid-19 pandemic threatens to derail a clean energy transition.

**A 40 per cent global decline in FDI is also projected**, with flows into the country expected to decrease. Accordingly, the FDI which was initially projected to increase to USD235.3 million in 2020 is expected to fall to USD117.15 million in 2020.<sup>6</sup> Similarly, exports are projected to decline by 53.8 per cent compared to the initial projected growth rate of 28.1 per cent, while imports are projected to drop by 8.3 per cent compared to the 4 per cent initially projected.<sup>7</sup> The trade deficit resulting from this will increase to USD788 million from the USD406 million initially projected. Due to this financial situation, access to capital has been further constrained, new sales have declined, customer spending has reduced and SAS companies face liquidity challenges that are making it difficult to maintain or establish new infrastructure.

The impacts of the pandemic have also had **disproportionate consequences on vulnerable and disadvantaged households**. The movement restrictions have affected livelihoods and directly impacted ability to meet basic needs. For instance, as at July 2020, 5.1 million people were considered food insecure, which is 15 per cent more compared to 3.9 million people in January 2020.<sup>8</sup> Moreover, the proportion of households resorting to more livelihood coping measures to survive increased to 20 per cent in June 2020 from 14 per cent in January. Also, the proportion of households spending more than 65 per cent of their household expenditure on food increased to 60 per cent<sup>9</sup> in June 2020 from 58.5 per cent in January 2020. This upward trend in food insecurity and poverty not only puts the national goal of reducing extreme poverty by 2030 in jeopardy, but also derails efforts to achieve a clean energy transition.

<sup>2</sup>World Bank (2020). Sierra Leone Economic Update.

<sup>3</sup>Government supplementary budget 2020.

<sup>4</sup>ibid.

<sup>5</sup>IMF projects inflation to reach 17.5% by year end.

<sup>6</sup>UNCTAD (2020). *World Investment Report*.

<sup>7</sup>Ministry of Finance (2020). Quick Action Economic Recovery Programme.

<sup>8</sup>IGC Survey 2020.

<sup>9</sup>UNDP (2020). Assessment of the socio-economic impact of COVID-19 in Sierra Leone.



## 1.2 Energy Access

The International Energy Agency estimates that nearly six million people in Sierra Leone are currently without access to electricity.<sup>10</sup> Some recent actions towards this end include the current preparation of a National Grid Development Plan. An Energio

Verda Africa geographic information system (GIS) analysis<sup>11</sup> estimates that 8,064 settlements (585,908 households), or 42.1 per cent of the population, are suitable for SAS systems by 2023, with a potential decrease to 2,939 settlements (216,581 households) or 13 per cent of the population by 2030<sup>12</sup>.



<https://www.eqmagpro.com/easy-solar-reaches-milestone-with-300000-users-in-sierra-leone/>

<sup>10</sup>International Energy Agency (2020). World Energy Outlook 2020.

<sup>11</sup>UNDP (2020). Assessment of the socio-economic impact of COVID-19 in Sierra Leone.

<sup>12</sup>ECREEE (2019). Off-grid solar market assessment and private sector support facility design.

## 2 DEMAND-SIDE: CONSUMER INSIGHTS

The SAS sector has grown rapidly over the years and was a USD102.5 million market serving hundreds of thousands of users in 2018 with further growth predicted. A 2020 study estimates off-grid solar (stand-alone and mini-grid) markets within the productive use sector at USD80.2 million, households at USD19.1 million and institutions at USD3.2 million annually.<sup>13</sup>

**Willingness and ability to pay for SAS equipment and services is constrained by poverty.** Ability to pay for energy is estimated to be in the range of USD1.7/month for low-income households and USD21/month for middle- and high-income households. The cost of lighting is thought to take up 10–15 per cent of household incomes, with households using generators spending a greater proportion of their income (upward of 20 per cent). Whereas the financial feasibility of SAS depends largely on the ability and willingness of users to pay, access to more information such as whether SAS provide a more superior level of service (in terms of reliability, hours of electricity, less indoor pollution, etc) is essential to increasing uptake.<sup>14</sup> This conclusion should be taken cautiously, however, as the willingness to pay for SAS services has not been extensively researched in Sierra Leone.

**The economic toll of COVID-19** has led to a significant reduction in the average disposable income of Sierra Leonean households. The rising prices and expenditure on energy services has led to an increase in the proportion of disposable income spent on energy. The most affected have been the poorest households, which have seen a rise in poverty levels over the past two years. A recent monitoring report shows 20 per cent more people being food

insecure, and more female-headed households with a higher multidimensional poverty index (66 per cent) compared to male-headed households (64 per cent). This indicates a rise in poverty levels in rural and urban areas, and a continued lack of even the most basic access to electricity among female-headed households.<sup>15</sup>

Despite this, no interventions have been implemented to cushion consumers against the impacts of the pandemic. The indirect impacts of the pandemic have been more onerous for women as their domestic responsibilities have increased and economic hardships worsened with intra-country travel restrictions.<sup>16</sup> However, men have borne the brunt of the health effects of COVID-19 as they outnumber women among the infected, and generally have a higher mortality rate from the disease. Men are also most likely to be counted for continued support because female-headed households are 2.5 percentage points less likely to report receiving government support.<sup>17</sup>

**The reputation and awareness of SAS remains low.**<sup>18</sup> Consumers have a general awareness that SAS can economically replace generators and batteries but are still largely uninformed about specifics such as where to buy, payment options, quality, and operations and maintenance. There are geographic disparities in consumer awareness of SAS systems, with households in urban centres being better informed. Marketing messages are mixed and overpromising, and consumers are generally disappointed with the after-sales support provided by vendors – inadequate maintenance, limited operation guidance, etc.<sup>19</sup>

<sup>13</sup>SEFA (2020). Mini-grid market opportunity assessment: Sierra Leone.

<sup>14</sup>ECREEE (2019). Off-grid solar market assessment and private sector support facility design.

<sup>15</sup>UNDP (2020). Assessment of the socio-economic impact of COVID-19 in Sierra Leone.

<sup>16</sup> <https://reliefweb.int/sites/reliefweb.int/files/resources/policy-brief-the-impact-of-covid-19-on-women-en.pdf>

<sup>17</sup>2020 IGC survey.

<sup>18</sup>Easy Solar (2020). Key informant interview.

<sup>19</sup>ECREEE (2019). Off-grid solar market assessment and private sector support facility design.

### 3 SUPPLY-SIDE: STAND-ALONE SOLAR COMPANIES

The pandemic has had varied impacts on the SAS sector. Large companies that suffered losses during the lockdowns now show signs of recovery whereas it is feared that smaller companies will not survive beyond the development support they are currently

receiving.<sup>20</sup> There was a 64 per cent jump in certified solar sales between the second half of 2019 and first half of 2020, likely connected to a one-off bulk procurement (see Figure 1).<sup>21</sup> Sales data provided by GOGLA excludes pay-as-you-go (PAYG) revenues.

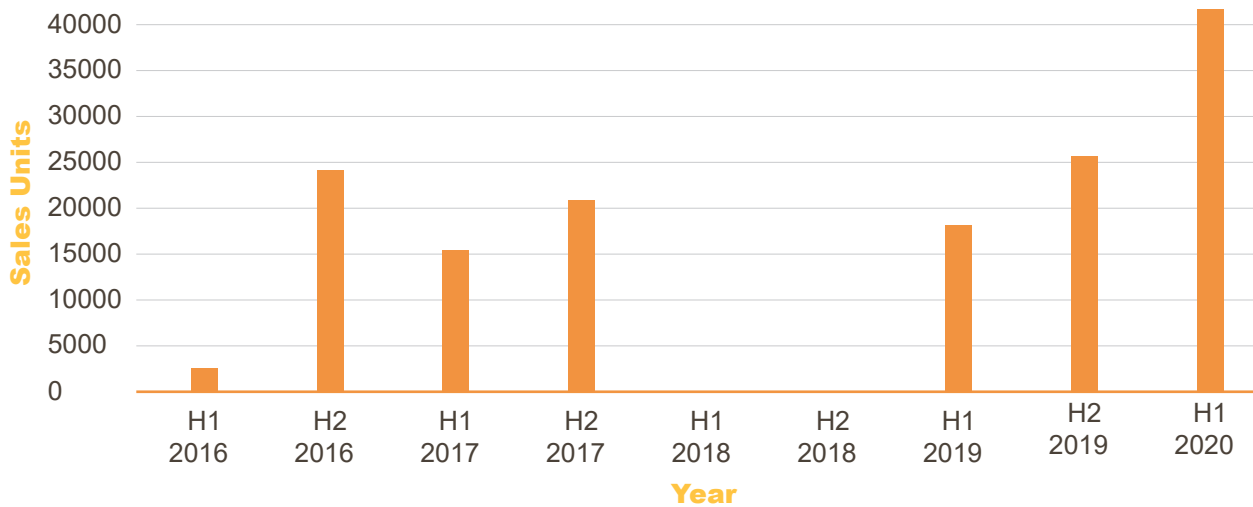


Figure 1: Certified solar sales

Source: GOGLA reports, 2016-2020

**Most SAS companies in Sierra Leone started as suppliers of pico-solar and solar home systems (SHS).** The major suppliers currently include Easy

Solar, Energen WAO, Helios, Sinergy Sierra Leone, Solar Era and Greenlight Planet.<sup>22</sup> Recent activities include:



Easy Solar launched an online sales platform in April 2020 to make energy services affordable and accessible.



Over-the-counter cash sales account for over 70 per cent of market share in terms of cash value. PAYG companies are reported to have client bases that number in the tens of thousands.<sup>23</sup>



There are claims of two solar companies shutting down sales outlets due to pandemic-related financial pressures.<sup>24</sup> The impact of COVID-19 on the SAS workforce has been difficult to determine, but is likely to include reduction of provincial workforce.



The country has one new market entrant, Felicity Solar Technology, a Chinese company dealing in solar panels, solar inverters, MPPT controllers, solar lithium batteries, gel batteries, and all-in-one solar streetlights.<sup>25</sup>

<sup>20</sup>REASL (2020). Key informant interview.

<sup>21</sup>GOGLA (2020). Global OGS market report H1 2020.

<sup>22</sup>Energypedia.info

<sup>23</sup>ECREEE (2019). Off-grid solar market assessment and private sector support facility design.

<sup>24</sup>Easy Solar (2020). Key informant interview.

<sup>25</sup>REASL (2020). Key informant interview.

**Distribution of SAS is through three main channels:** non-governmental organisations (NGOs), aggregators and retailers. NGOs (local and international) purchase and distribute small solar systems such as lanterns and small SHS. Aggregators operate in a barter system where they swap agricultural produce (such as cocoa) for SAS products and services. Retailers, mainly located in urban centres, sell lighting products, including solar, pico systems and large panels. There are large retailers who import their products and small to medium retailers who buy from the large retailers at wholesale prices.<sup>26</sup>

Retail sales outlets (kiosks) have also been used

during the pandemic by companies like Easy Solar to distribute their products in various parts of the country. In the second half of 2020, Easy Solar introduced a payroll deduction scheme as a PAYG model tailored to the budgets of various employee categories.<sup>27</sup>

**The government and its partners continue to support the productive use of energy (PUE),** but it is not immediately clear whether systems are procured from local companies. The local market for PUE can be divided into four main segments: rural water supply, healthcare facilities, primary and secondary schools, and public town centre lighting.<sup>28</sup> Examples include:



Solar water pumps for decentralised water supply funded by the Foreign, Commonwealth and Development Office (FCDO), Oxfam, Concern, Save the Children and Action Against Hunger.



Solar charging centres in biodiversity conservation hotspots funded by the Global Environment Facility (GEF)/World Bank.



SHS for financial service associations and community banks funded by the International Fund for Agricultural Development (IFAD).



Solar electrification of health facilities and schools funded by the German Corporation for International Development (GIZ).



Solar refrigerators installed in health centres funded by the United Nations International Children's Emergency Fund (UNICEF).



Solar refrigerators for fish vendors funded by the Food and Agriculture Organization (FAO)<sup>29</sup>.

**The Renewable Energy Association of Sierra Leone (REASL) currently has 40 subscribed members,** including SAS suppliers. The association tried to get SAS services declared essential

services so as to enable members to continue with their distribution and project operations during the pandemic, but this was not successful.<sup>30</sup>

<sup>26</sup>Sierra Leone Opportunities for Business Action (2016). *Small solar market analysis*.

<sup>27</sup>Easy Solar (2020). *Key informant interview*.

<sup>28</sup>ECREEE (2019). *Off-grid solar market assessment and private sector support facility design*.

<sup>29</sup>Sierra Leone energy situation.

<sup>30</sup>REASL (2020). *Key informant interview*.

## 4 POLITICAL FRAMEWORK

### 4.1 Government Institutions

The energy sector remains the focus of the current government's development agenda, as it was for the previous government, and steps are being taken to improve access to reliable power. With assistance from the Millennium Challenge Coordinating Unit (MCCU), an Energy Resource Planning Unit (ERPU) was established in mid-2020 to strengthen the Ministry of Energy (MoE)'s institutional capacity and support the development of grant proposals in accordance with the Millennium Challenge Corporation (MCC) Compact eligibility that the government recently attained. Dr Alhaji Bahddie Caulker was appointed in late 2020 as head of the ERPU.

MCCU, FCDO and other donors are also working with the Electricity Distribution and Supply Authority (EDSA) and Electricity Generation and Transmission Company (EGTC) to support institutional strengthening, expansion planning and policy design and implementation. An additional International Development Association (IDA) financing of USD50

million was approved in 2019 to improve the performance of EDSA by scaling up urban electricity supply, improving the grid distribution network and connecting new residential, commercial and industrial users in Freetown. Both EDSA and EGTC have new directors-general in the persons of Dr Joe Sormana Lahai and Ing. Milton Ngegbai, respectively.

### 4.2 Policy and Regulatory Environment

**Government effort to establish a supportive policy and regulatory framework for SAS is progressing.**

As promoted in the current government's New Direction manifesto and recognised in the 2018 Medium-Term National Development Plan (MTNDP), MoE prioritises investment in renewable energy to increase the availability and affordability of power, but the country has lacked a unified national strategy. The following are efforts intended to address this gap.



In May 2020, ACE TAF supported MoE in an off-grid policy review and harmonisation, and the development of an Off-Grid Strategy, which provides a framework to deploy SAS solutions in an integrated approach (with a detailed action plan).<sup>31</sup>



MCCU is supporting development of an Integrated Energy Resource Plan (IERP), building upon the National Electrification Plan 2017–2030 Road Map developed by MoE. This will incorporate both grid and off-grid energy solutions as outlined in various documents, including the off-grid strategy and strategies from SE4ALL, ECREEE and others. The goal is to increase energy access in an integrated approach that combines grid and off-grid opportunities. The plan will harmonise previous and existing plans to provide a roadmap that will enable the decision-making by government and its partners.



A National Grid Development Plan, which includes grid extension and funding possibilities for distribution of SAS systems in rural areas, is planned.



The 2009 National Energy Policy and its associated 2010–2015 Strategic Plan are both under review so as to reflect recent developments and emerging needs in the sector. Initial proposals made in the policy for SAS and presented in the country's Nationally Determined Contributions (NDC) to the United Nations Framework Convention for Climate Change

<sup>31</sup>ACE TAF (2020). *Off-grid solar energy strategy and monitoring mechanism for Sierra Leone*.

(UNFCCC) are also being reviewed through a United Nations Development Programme (UNDP)-funded project focused on developing an initial National Adaptation Plan (iNAP). The iNAP will inform the review of SAS plans in the NDC and the development of a NAP in 2022.

The government has proposed a **tax relief for SAS businesses** for a period of five years. The 2021 budget also exempts consumption, supply and use of renewable energy from solar mini-grids and SAS from the 15 per cent Goods and Services Tax (GST).<sup>32</sup> These new measures extend previous exemptions from import duty and GST on the importation and sale of solar energy products.

The **adoption in 2020 of two quality standards** – IEC TS 62257-9-5 (renewable energy and hybrid systems for rural electrification) and 62257-9-8 (systems <350W) – is a step toward reducing market spoilage and protecting consumers from poor quality products. ACE TAF plans to provide additional support to the Sierra Leone Standards Bureau (SLSB) in 2021 around conformity assessment and market surveillance to ensure enforcement of the standards.

The **government recognizes e-waste as a problem**. To date, however, no legislation has been developed to tackle the issue or foster cross-sectoral collaboration. E-waste is meagrely covered by the Environment Protection Agency (EPA) Act, 2008, with the responsibility for its management assigned to the agency. The agency has a chemicals unit and an ozone officer for e-waste matters and recently collaborated with the United Nations Office for Project Services (UNOPS) to develop a manual on e-waste management and regulation. In 2020 the Ministry of Environment announced it would develop a new

Environmental Protection Bill to cover e-waste and assign specific responsibilities within government. ACE TAF contributed to filling the knowledge gap on e-waste with a 2019 policy handbook to provide insights into management practices in other countries and guidelines to developing legislation.<sup>33</sup>

**A Consumer Protection Act (2020) has been passed** to provide for quality control for products sold. The law is being implemented by the Ministry of Trade and Industry and will govern the activities of trade unions, SLBS and businesses, including suppliers of SAS equipment and services. The MTNDP<sup>34</sup> flags the importance of keeping the tax policy environment stable as instability is thought to be caused by yearly review of tax laws.

The 2020 Gender Equality and Women's Empowerment Policy has harmonised previous approaches to gender mainstreaming and proposes a strategy for the political and economic empowerment of women. Also in 2020, a **National Action Plan for Gender Mainstreaming in Energy Access was developed by MoE** with assistance from the Economic Community of West African States (ECOWAS) Centre for Renewable Energy and Energy Efficiency (ECREEE) to promote quality in access to resources and equity in decision-making. The plan was adapted from the ECOWAS Programme on Gender Mainstreaming in Energy Access with inputs from ACE TAF.

<sup>32</sup>Budget and statement of economic and financial policies, 2021.

<sup>33</sup>ACE TAF (2019). *E-waste Policy Handbook*.

<sup>34</sup>Sierra Leone: *Economic development documents – National Development Plan, 2019-23*

## 5 FINANCING

### 5.1 Supply Chain Financing

The SAS sector in Sierra Leone remains heavily donor supported, with limited commercial investment. Supply chain financing is available from development finance institutions (DFIs), community banks, impact investors, crowd funders and commercial banks. DFIs like the World Bank and the African Development Bank (AfDB) are active providers of technical and financial assistance to the sector. Impact investors like Acumen and Gaia Fund invested nearly USD3.5 million in Easy Solar in 2018, followed by a USD3 million round in 2020 from Acumen Fund and FMO.<sup>35</sup> Easy Solar also raised nearly USD2 million in debt from Trine to support its expansion as well as working capital needs.<sup>36</sup> However, Easy Solar has been the exception in attracting private capital successfully. Some of the same investors provided direct investment into BBOX, but it exited the Sierra Leone market. Private companies founded by Sierra Leoneans have not raised any substantial capital from international investors, who have so far only invested in companies with international headquarters or founders.<sup>37</sup>

Cordaid Investment Management is to date the only source of local currency debt to Sierra Leone SAS companies,<sup>38</sup> and more is needed as currency risk remains a major barrier to securing capital. Locally Commercial Banks generally provide low levels of lending to the SAS sector, which is consistent to their rules for lending to small and medium enterprises (SMEs). However, Guaranty Trust Bank's SME business line has recently developed targeted products for SMEs, which will significantly benefit SAS companies<sup>39</sup>. Access Bank also helps SMEs in marketing their products through co-branding and advertisements on radio shows. The bank hopes to provide between USD200,000 to USD300,000 in loans over the next two years<sup>40</sup>.

A recent survey on COVID-19 impact on businesses revealed that the lack of stable revenue has forced companies to take remedial steps, including deferring loan payments and cash expenses, reducing sales promotions and new installations, drawing down available credit, demanding cash sales and tapping government, development partners and banks for emergency funding.<sup>41</sup>

Although the government recently provided grants to various businesses (including hotels) through the Bank of Sierra Leone (BSL), none of the grants targeted SAS companies.

### 5.2 Consumer Financing

Low levels of disposable income and a low proportion of individuals with bank accounts (about 20 per cent) makes PAYG offered by companies such as Easy Solar and Engen WAO a promising alternative to cash sales.<sup>42</sup> BRAC International estimates that only 12 per cent of adult women in Sierra Leone own a transaction account.<sup>43</sup>

At the same time, there is a high dependence on financial service associations (FSAs), credit unions and informal financial associations for microfinancing. The network of FSAs in the country has expanded to 59 and serves 70,000 clients. Informal financial institutions, locally known as *susu*, also contribute toward SAS deployment in rural areas. About 33 per cent of the population (mostly women) belong to *sus* and derive most of the financing they need for energy and other services from them.<sup>44</sup> If a typical SHS kit plus appliance costs upwards of USD600 and a legally minimum monthly income is USD50, consumer financing is essential.

The main microfinance institutions (MFIs) active in the country are Salone Microfinance Trust (SMT),

<sup>35</sup> Acumen (2018). Acumen Makes First Investment in Sierra Leone.

<sup>36</sup> ACE TAF (2020). Investment market map.

<sup>37</sup> *ibid.*

<sup>38</sup> Cordaid (2018). *Making solar energy affordable through local currency debt financing.*

<sup>39</sup> Touré Alexandre virtual interview with OCA, September 7, 2020.

<sup>40</sup> ACE TAF (2020). Investment market map.

<sup>41</sup> Ministry of Finance (2020). Impacts of COVID-19 on businesses in Sierra Leone.

<sup>42</sup> Energy for Access (2020). Off- and weak grid solar appliance market: Sierra Leone.

<sup>43</sup> <https://www.bracinternational.nl>

<sup>44</sup> SEFA (2020). Mini-grid market opportunity assessment: Sierra Leone.

LAPO, A Call to Business, BRAC, Association for Rural Development (ARD), Ecobank Microfinance, Access Bank and Advocacy Movement Network (AMNet). Limited third-party asset financing is available from MFIs for consumers looking to purchase SAS products, including from Access Bank, Ecobank Microfinance and SMT. Other MFIs have expressed interest in providing this product for their customers but have not yet done so.<sup>45</sup> Access Bank has partnered with a local SAS company to provide financing to consumers to purchase their solar panels and batteries.<sup>46</sup>

MFIs have expressed interest in selling SAS products, but there are currently no active examples. To address this gap, REASL designed a pilot with the Sierra Leone Association of Microfinance (SLAMFI) where MFIs would purchase solar products from SAS companies and sell them to customers with asset financing terms. However, the pilot was unsuccessful

since MFIs did not have the liquidity needed for this model.<sup>47</sup> Historically, MFIs have struggled to expand product offerings due to deposit constraints imposed by BSL and limited technical capacity to assess loans for unfamiliar asset types.<sup>48</sup> Beyond MFIs, banks may provide loans to valued customers, but they demand 60 per cent down payment and only finance larger systems.<sup>49</sup>

**Users of digital financial services<sup>50</sup> increased by 29 per cent** to nearly 5.5 million in 2018, which is the most recent data available. These include users of services provided by mobile network operators (MNOs), mainly Africell and Orange. A new entrant into the mobile money market, QCell, which runs Qoodoo Mobile Money in the Gambia, is gradually gaining a share of the local market.<sup>51</sup> There is growing concern in government circles that legislation may be needed to protect consumer interests and support the expansion of MNOs.



**Users of digital financial services increased by 29 per cent to nearly 5.5 million in 2018.**



MFIs have expressed interest in selling SAS products, but face liquidity challenges.

<sup>45</sup>OCA consultations, quoted in ACE TAF (2020). Investment market map - Sierra Leone

<sup>46</sup>ibid.

<sup>47</sup>ibid.

<sup>48</sup>ibid.

<sup>49</sup>ACE TAF (2020). Investment market map - Sierra Leone

<sup>50</sup>DFS providers include nine commercial banks and two MNOs (Orange and Africell). Recently launched mobile banking services by commercial banks include "Rokel Sim Korpor" by Rokel Commercial Bank, "Mi Yone SLCB Mobile" by Sierra Leone Commercial Bank and "GT Sim Pay" by Guarantee Trust Bank.

<sup>51</sup>Qoodoo Mobile Money.



## 6 MARKET SUPPORT

### 6.1 Development Partners

**Development partners have supported creating an enabling environment for SAS.** For example, FCDO invested in creating REASL and building its capacity, while also supporting matching grants to pay salaries for technical experts hired by SAS companies.<sup>52</sup> Development partners have also deployed grants that encourage companies to distribute solar products to rural households. There has been no direct financial support to the SAS supply chain.<sup>53</sup>

The World Bank has announced a USD40 million grant from IDA to support SMEs in non-mining productive areas through the Sierra Leone Economic Diversification Project. Other recent COVID-19-specific support includes USD2 million in grants provided by Power Africa to SAS companies for rural and peri-urban health clinics electrification. Power Africa also redirected more than USD4.1 million to assess power loads for hospitals, clinics and critical care facilities, and support regulators and utilities struggling with the impact of the pandemic. These and other efforts are coordinated with Sustainable Energy for All (SE4ALL) and the World Bank.<sup>54</sup>

There are several multi-country COVID-relief funds

and initiatives that Sierra Leone is eligible for.<sup>55</sup> SELCO Foundation is also planning to conduct health facility needs assessments in Sierra Leone and Burkina Faso.

ACE TAF continues to strengthen coordination among sector stakeholders and provides administrative and operational oversight to the Off-Grid Sector Working Group and participation in the Energy Partners Coordination Platform. **The coordination of the sector still rests with the Energy Revolution Task Force**, which has created enough space for identifying challenges to market growth and attempted to address them through collaboration among various public and private institutions.

In addition to activities undertaken by the Off-Grid Working Group, the ACE TAF funded Off-grid Solar Strategy and Monitoring Mechanism developed in May 2020 proposes the establishment of a National Centre for Renewable Energy and Energy Efficiency (NACREEE) to manage an Off-grid Solar Investment Fund (OSIF) and coordinate all strategic interventions and activities proposed in the plan. NACREEE will be managed by a national steering committee, which will have representatives from all relevant departments and units within MoE, as well as a cross-section of private sector players registered with REASL.

Table 7: Main donors active in the SAS space and their support

Development partner:	Type of assistance	Description
<b>European Union (EU): Promoting Renewable Energy for Sustainable Development (PRESSD)</b>	Grant	Development of mini-grids across the country.
<b>Foreign, Commonwealth &amp; Development Office (FCDO): Africa Clean Energy (ACE) Technical Assistance Facility (TAF)</b>	Technical assistance	Create an enabling environment for SAS in terms of capacity building, knowledge generation, and technical advisory support.

<sup>52</sup> ACE TAF (2020). Investment market map.

<sup>53</sup> ECREEE (2019). Off-grid solar market assessment and private sector support facility design.

<sup>54</sup> Power Africa COVID-19 response.

<sup>55</sup> Off-Grid Renewable Energy Sector Response to COVID-19.

Development partner:	Type of assistance	Description
<b>FCDO: Sierra Leone Mini-grid Project</b>	Grant	Market systems development, rural electrification through the deployment of SAS and mini-grids, and grid expansion.
<b>World Bank: Sierra Leone Economic Diversification Project</b>	Grant	USD 40million to support SME development in non-mining productive areas.
<b>World Bank: Sierra Leone Skills Development Project and the Sierra Leone Tourism Development Project</b>	Grant	SAS services to Technical and Vocational Education and Training centres.
<b>World Bank: Sierra Leone Skills Development Project and the Sierra Leone Tourism Development Project</b>	Grant	SAS services to Technical and Vocational Education and Training centres.
<b>Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) / Energising Development (EnDEV)</b>	Technical assistance	Increased skills and knowledge on SAS. Gathering data on the sector.
<b>Millennium Challenge Corporation Unit (MCCU): Energy Sector Compact</b>	Technical assistance	Development of an Electricity Sector Reform Roadmap, detailing planning and policy delivery across the sector to achieve both grid and off-grid outcomes.
<b>United States Agency for International Development (USAID): Power Africa</b>	Technical assistance	Creating enabling environments for women-led energy access interventions.

## 6.2 Training Institutions, Incubators, Accelerators

The main organisations that offer solar training or solar business support in the country include:



Barefoot Women Training Centre.



IBIS/Oxfam through the Government Technical Institute, which has a three-year course on renewable energy.



EDSA/EGTC training school.



GIZ (through EnDev), which provides training on how to develop SAS power projects and supports the development of vocational training curricula for solar technicians.



UNOPS (through Easy Solar support), Welthungerhilfe (WHH) and FLS Group.

## 6.3 Market Data

Recent research specific to the SAS sector includes the following:



Changes in Energy Sector Financing During COVID-19: Lessons from the Ebola Outbreak in Sierra Leone (SE4ALL, October 2020).



Off- and Weak-grid Solar Appliance Market: Sierra Leone (Energy for Access, September 2020).



Mini-grid Market Opportunity Assessment: Sierra Leone (SEFA, November 2019). 2020).



Assessment of the Socio-economic Impact of COVID-19 in Sierra Leone (UNDP, July 2020).

Recent research specific to the SAS sector includes the following:



Why Off-grid Energy Matters? An Impact Performance Report (60 Decibels, February 2020).



Off-grid Market Trends Report 2020 (IFC, March 2020).



Access to Consumer Finance for Vulnerable Groups: One Size Does Not Fit All (ACE TAF, October 2020).



Demand-side Subsidies in Off-grid Solar: A Tool for Achieving Universal Access and Sustainable Markets (ACE TAF, September 2020).



The Impact of COVID-19 on the ECOWAS Energy Sector (ECREEE, July 2020).



Identifying Options for Supporting the Off-grid Sector During COVID-19 Crisis (SE4ALL, May 2020).



Understanding the Impact of Distribution Costs on Uptake of OGS Products in select SSA Countries (ACE TAF, October 2020).



ACE TAF PARTNERS INCLUDE:



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