STAND-ALONE SOLAR

INVESTMENT MAP

Sierra Leone

February 2021

Africa Clean Energy
Catalysing Africa's Solar Markets

TETRA TECH
International Development

UKaid
from the British people

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

Tetra Tech International Development

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ABBREVIATIONS

Acronym	Definition
DfID	Department for International Development
ECREE	ECOWAS Centre For Renewable Energy and Energy Efficiency
FCDO	Foreign, Commonwealth and Development Office
GESI	Gender and Social Inclusion
MCCU	Millennium Challenge Co-ordinating Unit
MFI	Microfinance Institution
MNO	Mobile Network Operator
OCA	Open Capital
PUE	Productive Use of Energy
REASL	Renewable Energy Association of Sierra Leone
SAS	Stand-Alone Solar
SHS	Solar Home Systems
SL	Sierra Leone
SLAMFI	Sierra Leone Association of Microfinance Institutions
SME	Small and Medium Enterprise
SMT	Salone Micro-finance Trust
TA	Technical Assistance
UNOPS	United Nations Office for Project Services
USTDA	United States Trade and Development Agency
US	United States

EXECUTIVE SUMMARY

Sierra Leone faces an uphill struggle to achieve universal energy access by 2030, in line with Sustainable Development Goal (SDG) 7. Currently only 26 percent of Sierra Leoneans are connected to electricity, with less than 10 percent connected outside of urban areas.[1] The current National Electrification Plan aims to achieve universal access only by 2030, predominantly through grid and mini-grid technologies. Standalone solar (SAS) presents another avenue for electrification, so far connecting nearly 152,000 households and with the potential to connect around 50 percent of the population quickly and cost effectively, with well-directed investment and a supportive enabling environment.[2]

Despite the potential role SAS can play in electrification, it received little support from public or private sector before 2016. Of the USD 443 million invested in electrification, only 9 percent was invested in SAS technologies. The bulk of investment has led to 348,000 household grid connections, while donor-funded projects have connected 13,700 households to mini-grids.[3] Since the Ebola crisis, most of the major development partners have also invested in electrifying health clinics. However, in a country where 31 percent of urban and 66 percent of rural households live below the poverty line, extremely low levels of energy demand make a challenging return on investment case for 'Tier 2' connections.[4] Since 2016, when FCDO (formerly DfID) invested in the Compact Agreement, the SAS sector has seen new market entrants and started attracting private capital investment to increase energy demand in Sierra Leone and contribute to universal access.

To date, most funding for SAS has been in the form of technical assistance to some SAS companies and sector-wide capacity building. In total, around USD 43 million has been deployed, 65 percent of which comprised technical assistance or capacity building. For example, FCDO support led to the creation of the industry body, REASL, in 2016 to engage with GoSL on policies supportive to SAS. These efforts have so far resulted in VAT and import tariff exemptions for IEC standard solar products.

Limited commercial capital has been deployed to date, and the gap in required investment remains large. Impact investors have provided the bulk of commercial capital, to a small number of predominantly internationally led or founded SAS businesses. Similar to the rest of SSA, commercial capital from local sources has not yet played a significant role in the sector and locally-founded SAS companies have found it easier and more profitable to grow through cash and B2B sales, rather than financing growth with external finance sources. There is still an estimated USD 204 million investment gap in commercial capital, concessionary capital, and subsidies which need to be filled in order that SAS can play a role in helping Sierra Leone achieve universal access by 2030.[5]

The investment gaps in SAS in Sierra Leone are driven in part by lack of a supportive regulatory environment in Sierra Leone. Historically, the lack of long-term GoSL support for SAS as a technology within the National Electrification Plan has meant that there is no overarching framework for private sector companies, or development partners and investors to adhere to, contributing to the limited pipeline of investable companies. The proposed Solar Energy Off-Grid Strategy aims to address this issue.

Limited sources of investment and a challenging macroeconomic environment have also stifled growth. Those companies that have the potential to absorb capital have struggled to find much-needed local currency capital to support PAYG models which are necessary to serve low-income and rural populations. The Ebola crisis and fluctuating commodity prices between 2016-19 led to a large currency devaluation, which led local banks to focus largely on government lending rather than products for SMEs.

1. *World Bank (2020), Access to Electricity (% of Population): World Bank (2020), Access to electricity, Rural (% of Rural Population)*
2. *'Standalone solar' implies a system that uses photovoltaic cells to directly power appliances or charge rechargeable battery banks, as opposed to hybrid-solar or mini-grid systems. OCA analysis (2020): GOGLA (2019), Global Off-Grid Solar Market Report Semi-Annual Sales and Impact Report January – June 2019: GOGLA (2019), Global Off-Grid Solar Market Report Semi-Annual Sales and Impact Report July – December 2019: GoSL (2018), Sierra Leone Integrated Household Survey 2018*
3. *OCA Consultations: OCA Analysis*
4. *Statistics Sierra Leone, A Poverty Profile for Sierra Leone*
5. *Ecowas Centre For Renewable Energy and Energy Efficiency (ECREE, 2019), Off-Grid Solar Market Assessment & Private Sector Support Facility Design*

Foreign exchange hedging instruments are expensive and limited which has prevented international investors from providing local currency debt due to the high currency devaluation (47 percent between 2016–19) and increased the cost of importation for SAS companies.

There are several routes to improving the flow of capital to the SAS sector, and thereby accelerating access to energy. These recommended interventions first describe how to improve the enabling environment for investment, then increase the supply of capital, and finally improve the capacity of SAS companies to absorb capital.

- **SAS in national electrification planning** – The GoSL should execute its commitment to include SAS into the National Electrification Plan through the proposed Off-Grid Strategy. They should also engage with energy experts to develop the right mix of technologies required to achieve universal access, signalling a firm commitment to sector stakeholders[6]. This could lead to longer-term tariff exemptions to attract support to the sector.
- **Quality standards** – GoSL could develop regulations to ensure the quality of imported appliances which are energy efficient, therefore cheaper to run and drive demand for SHS.
- **Mobile money adoption** - Separately, mobile network operators (MNOs) could be supported (adopting International Growth Centre 2016 recommendations) to increase investment into mobile money adoption which will lower the cost of operating PAYG models.
- **Guarantee facilities** – To increase the supply of capital, first development partners could support existing guarantee funds (e.g. Africa Guarantee Fund) and where necessary, create new funds, to reduce the cost of finance and encourage local currency lending to SAS companies. This could also help increase funds available to MFIs for consumer lending.
- **Matchmaking and technical capacity building** – To increase demand for capital, industry bodies such as REASL, could be supported to host networking between investors, banks, and SAS companies and to lead efforts to improve the supply of technical human capital to the sector through training and apprenticeships.

This report trusts that these recommendations can help ACE TAF work with partners to accelerate investment into the SAS sector in Sierra Leone and provides a framework to assess future interventions to help development partners and government to support interventions which are aligned with this report's findings.

6. *ACE TAF has started to address this with support for 'Energy Access Explorer'. See 'Opportunities for future interventions to accelerate investment'*

1. INTRODUCTION

As of 2019 only 26 percent of the population in Sierra Leone has access to energy sources, including grid, mini-grids, and standalone solar.[7] To date, an estimated USD 443 million has been invested to achieve these connections. Grid connections have received the bulk of investment to date (~76 percent), comprising nearly 68 percent of all connections. This report has found through consultations that approximately 152,000 households are connected via SAS, with this segment receiving only ~9 percent of total energy access investments.[8] However, the true number of connections is hard to assess, as there is little official data, for example GOGLA members reported nearly 38,000 SHS and Pico products sold in 2019 alone.[9]

Beyond on-grid electrification, stakeholders have supported the mini-grid sector with investment and market-building activities. The government and development partners have prioritized mini-grid technologies which they estimate can reach ~200,000 connections.[10] Examples of mini-grid sector support include the Rural Renewable Energy Project funded by FCDO (formerly DfID) and implemented by UNOPS that seeks to install nearly 90 mini-grids, with 50 already installed and providing energy access to 12,500 households.[11] In addition, USTDA, a development agency has commissioned a feasibility study and injected USD 1 million to understand the viability of developing a further 50 mini grids in SL.[12]

Investment into SAS includes funding to support development of the SAS sector and direct investment into SAS companies. Mini-grids include 47 installed by UNOPS and, four by ECREEE and PRESSD-SL while grid refers to funding in expansion of the national grid. For a full breakdown, please refer to table 4 in the appendix section of the report.

> To date, an estimated **USD 443 million** has been invested to increase electricity access.Grid connections have received the bulk of investment to date (~76 percent), comprising nearly 68 percent of all connections.

Masougbo Chiefdom Primary Health Unit in Bombali District, Sierra Leone. They have recently received a solar lighting system funded by UNFPA which enables them to see what they are doing both during the rainy season and at night.

Photo credit. H6 Partners

7. *World Bank Data (2018), Access to Electricity (% of Population) – Sierra Leone: GoSL (2018), Sierra Leone Integrated Household Survey 2018: Infraco, Sierra Leone Mini Grid Project*
8. *Estimated from current connections disclosed by individual SAS companies through OCA consultations*
9. *Gogla (2019),Global Off-Grid Solar Report H1: Gogla (2019), Global Off-Grid Solar Report H2*
10. *OCA consultation*
11. *OCA consultation*
12. *OCA consultation*

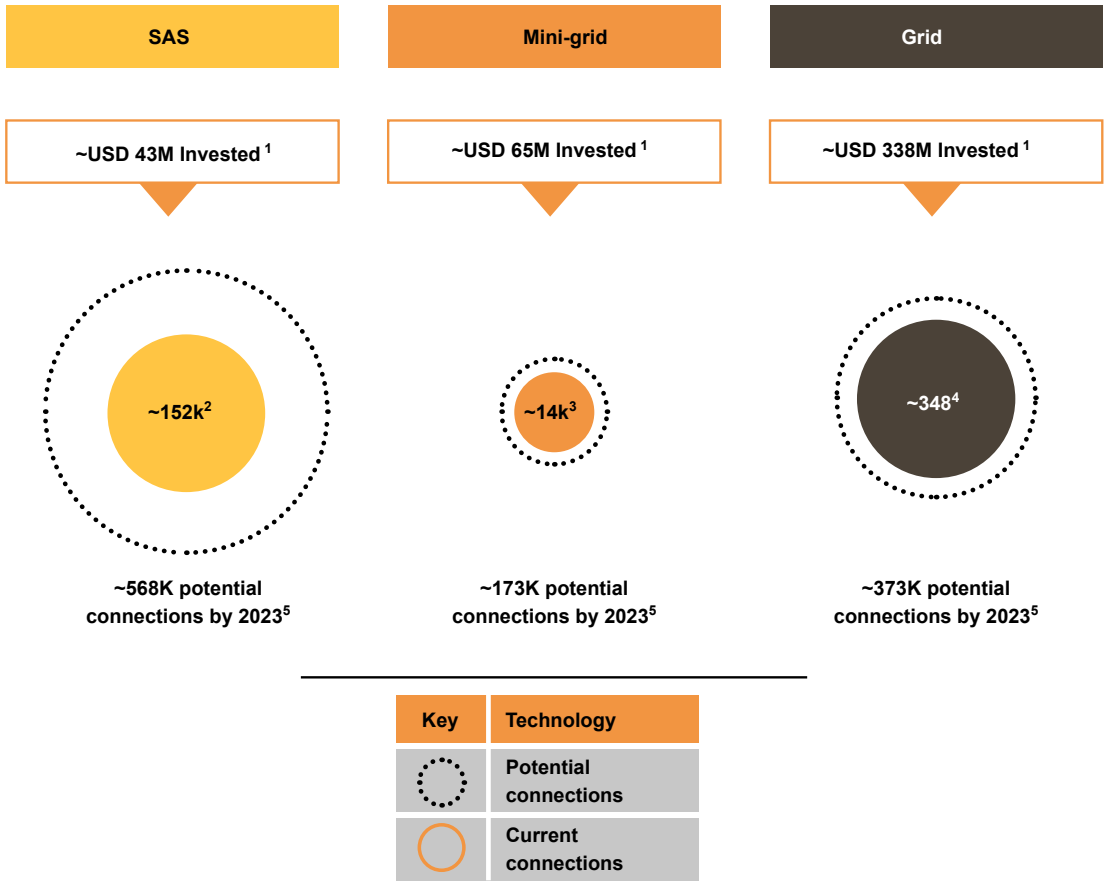

Figure 1 Estimated current connections achieved by 2019, potential connections by technology by 2023 and investments into each technology between 2016 - 2019[13]

The government will struggle to reach its goals of universal electricity access by focusing on grid and mini-grid power only. The Government hopes to connect 99 percent of the urban population and 85 percent of the rural population through grid and mini-grids by 2030.[14] Though grid tariffs are heavily subsidized, the USD 0.28kWh rate is among the highest in the region.[15] With over 50 percent of the country living below the poverty line (31 percent of urban areas and 66 percent in rural areas), and grid electrification projects so expensive, the possibility of government achieving its target through grid expansion is unrealistic.[16] Mini-grids provide a cheaper alternative than grid expansion, but connections are still expensive. Programs to date show that it is not feasible to establish mini grids in areas with a population of less than 300 people for every two kilometers.[17]

Stakeholders must now engage more to accelerate the SAS sector as it will be critical to achieving the GoSL's target for universal electricity access. SAS systems have emerged as a cost-effective form of electrification. Connecting one household via an SAS connection costs roughly 1/5 the cost of installing a mini-

13. *OCA consultations: Sun Connect (2020), 'Press Release: Easy Solar Raises $5M in Series A Equity and Debt Funding to Scale Operations in West Africa' : GoSL (2020), Budget Profile For FY2016-2020: GOGLA (2019), Global Off-Grid Solar Report H1 2019: GOGLA (2019), Global Off-Grid Solar Report H2 2019: Statistics Sierra Leone (2018) Sierra Leone Integrated Household Survey 2018: OCA analysis: OCA Consultations: World Bank Statistics: Ecowas Centre For Renewable Energy and Energy Efficiency (2019), Regional Off-Grid Electrification Project: Off-Grid Solar Market Assessment & Private Sector Support Facility Design: GoSL and Ecowas Centre For Renewable Energy and Energy Efficiency (2015), National Renewable Energy Action Plan*
14. *GoSL (2017), Electricity Sector Reform Roadmap (2017 – 2030)*
15. *Investing in Sierra Leone, Sector Perspective: Global Petrol Prices (2020), Ghana Electricity Prices*
16. *Statistics Sierra Leone (2011), A Poverty Profile For Sierra Leone*
17.
18.

grid connection.[18] Given the low purchasing power of much of the population, and significant need to electrify sparse rural populations, SAS are a critical component of universal electrification. Further, even as the GoSL expands the grid to achieve more connections by 2030 (~1M), there could be demand for SAS equipment due to the frequent power outages in the country.[19] Despite these advantages, the sector has received little investment and support, and there is no one comprehensive source for information on investments in the sector.

This report outlines investment in SAS to date and informs stakeholders on how to increase investment for and accelerate development of the SAS sector in Sierra Leone. The research team conducted both secondary research and held consultations with key stakeholders including private sector companies, government, development partners, investors, and other ecosystem players. The team aimed to answer three primary research questions:

- What has been the nature of investment in SAS to date?
- What are the main barriers to investment into SAS to date?
- What are the highest potential interventions to accelerate energy access through SAS growth?

The aim of this report is to inform interventions needed to increase investment for the SAS sector. It provides companies and investors with a better view of investment opportunities in Sierra Leone. It also provides insights on the investments needed to scale distribution of products to the most vulnerable and marginalised communities within the country. Though this report focuses on Sierra Leone, many of its conclusions and recommendations could be relevant for other countries.

Photo courtesy: www.eqmagpro.com

19. *Ecowas Centre For Renewable Energy and Energy Efficiency (2019), Regional Off-Grid Electrification Project: Off-Grid Solar Market Assessment & Private Sector Support Facility Design*

2. INVESTMENTS OVERVIEW

Since 2016, private investors, development partners, and the GoSL have deployed nearly USD 43 million into the standalone solar (SAS) sector in Sierra Leone. The bulk of funding was technical assistance and subsidies, predominantly from development partners but also from private investors (see full list in Appendix 1). Only 30 percent of all capital deployed was direct investment, either equity or hard currency debt which was invested into fewer than 10 percent of SAS companies.[20] To achieve universal electricity access, more direct investment into SAS companies in the form of debt, equity and grants will be needed. Hard and local currency debt will be required to finance working capital needs, including inventory financing. Equity and grant financing are also needed for companies to innovate and develop products.

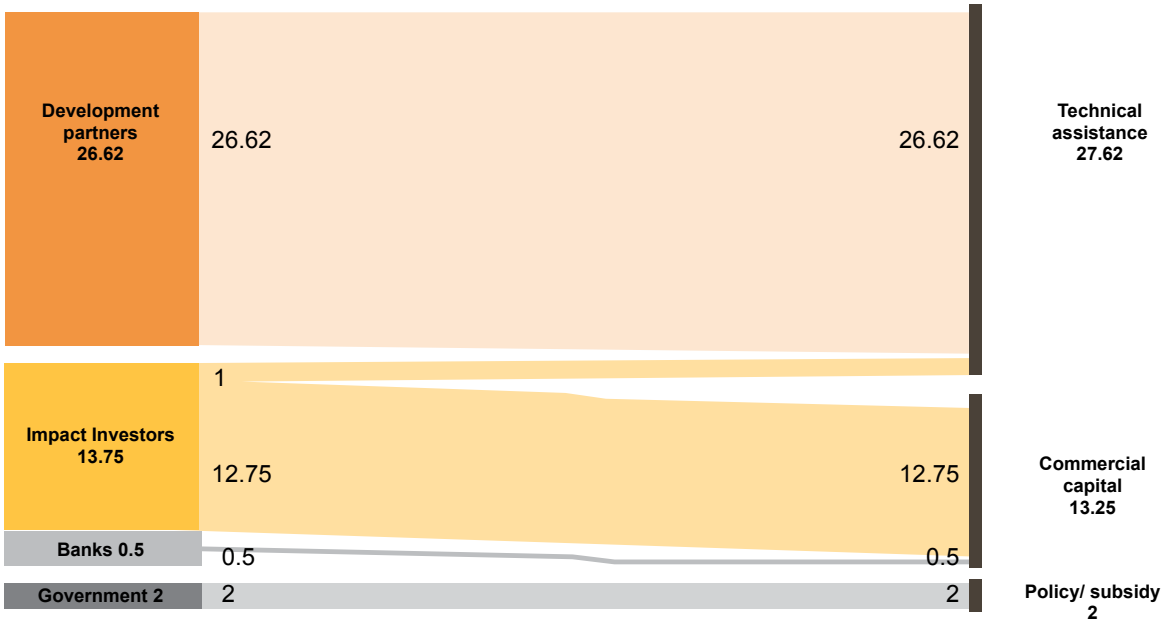

Figure 2: Sources and types of capital into the SAS sector in Sierra Leone (2016 – 2020)[21]

Development partners programmes have been the single largest source of funding for SAS in Sierra Leone, providing capacity building and concessionary capital. Development partners present in Sierra Leone include FCDO (formerly DfID), The World Bank, AfDB and GIZ. FCDO has provided the most support, launching the Sierra Leone Energy Compact Agreement in 2016 which catalysed investment and new market entrants into SAS in Sierra Leone. Given the nascency of the sector, 90 percent of development partner funding has focussed on creating an enabling environment for SAS. For example, FCDO invested in capacity building for REASL, while also supporting matching grants to pay salaries for technical experts hired by SAS companies.[22] Development partners have also deployed grants that encourage companies to distribute solar products to rural households.[23]

20. *REASL, REASL Members List*
21. *OCA analysis of primary and secondary research GoSL (2020), Budget Profile For FY2016-2020: OCA Consultation: Sun Connect (2020), 'Press Release: Easy Solar Raises $5M in Series A Equity and Debt Funding to Scale Operations in West Africa': Amount fore-gone by GoSL on import tax and VAT exemptions*
22. *REASL (2017), 'SOBA and REASL on a Six Months Support from a DFI-Funded…': REASL (2017), Technical Assistance Facility from DfID through Power For All*
23. *Climate Change, Promoting Renewable Energy Services for Social Development in Sierra Leone*

Private investors have started to provide equity to companies in the Sierra Leone SAS sector, led by impact investors active in the region. Acumen Fund, Gaia Impact Fund, and Cordaid Investment Management have all invested since 2016.[24] Acumen Fund and Gaia Fund invested nearly USD 3.5 million in Easy Solar in 2018, followed by a USD 3 million round in 2020 from Acumen Fund and FMO.[25] However, Easy Solar has been the exception in attracting private capital successfully. Some of the same investors provided direct investment into BBOXX, which later exited the market as it struggled to adapt its model to local market conditions. In addition, private sector 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.

Some private international investors have deployed debt to SAS companies, with the vast majority in hard currency. AECF deployed USD 1 million at 0 percent interest rate and engaged local banks to provide USD 0.35 million in match-funded debt at 18 percent interest rate. This facility provided working capital, and finances for inventory and marketing. Separately, Easy Solar raised nearly USD 2 million in debt from Trine to support its expansion as well as working capital needs.[26] SAS companies need local currency debt to finance receivables for products sold via PAYG, but very few private investors are able to provide local currency debt. Cordaid Investment Management is a rare example, providing local currency debt to companies such as Easy Solar and BBOXX.[27]

Local commercial banks have provided limited support to the SAS sector so far, in line with very low levels of lending to SMEs. Local banks only offer SME loans at interest rates over 20 percent with 120 percent collateral requirements, rates that are typically unaffordable to SMEs. However, recently a few local banks have tried to develop targeted products for SMEs, such as Guaranty Trust Bank's SME business line.[28] In addition, Access Bank provides financing to SMEs and supports them in marketing their products through co-branding and advertisements on radio shows. Through this initiative, the bank aims to disburse between USD 200,000 to USD 300,000 over the next one to two years.[29]

There is also limited third party asset financing available from MFIs for consumers looking to purchase SAS products. Access Bank, Ecobank Microfinance and Salone Microfinance Trust (SMT) offer financing for SAS products. Other MFIs have also expressed interest in providing this product for their customers but have not yet done so.[30] Access Bank has partnered with a local SAS company to provide financing to consumers for purchase of their solar panels and batteries.[31]

The Government has developed policies that promote high-quality solar products but has not provided funding to SAS projects. GoSL amended the National Finance Policy to provide VAT and import duty exemptions for IEC certified products and developed a 'Green Lane' for faster customs clearance of IEC certified products.[32] However, there is a very small role planned for SAS in the current National Electrification Plan that guides GoSL investment activities and so there has not been any direct investment by GoSL in SAS to date. The current National Electrification Plan is being updated, and recommendations for development partners and industry players to contribute to this process are included in opportunities for future interventions to accelerate investment.

24. *Acumen, 'Acumen Makes First Investment in Sierra Leone': Cordaid Investment Management, 'Making Solar Energy Affordable Through Local Currency Financing'*
25. *Acumen, '* *OCA Consultation*
26. *OCA consultations*
27. *Cordaid Investment Management, Making Solar Energy Affordable Through Local Currency Debt Financing*
28. *Guaranty Trust Bank Website: Touré Alexandre, Interview with OCA, Virtual, September 7, 2020*
29. *OCA consultations*
30. *OCA consultations*
31. *OCA consultations*
32. *Power For All (2016), 'News Release: Sierra Leone Reports Progress with ' Energy Revolution' Campaign*

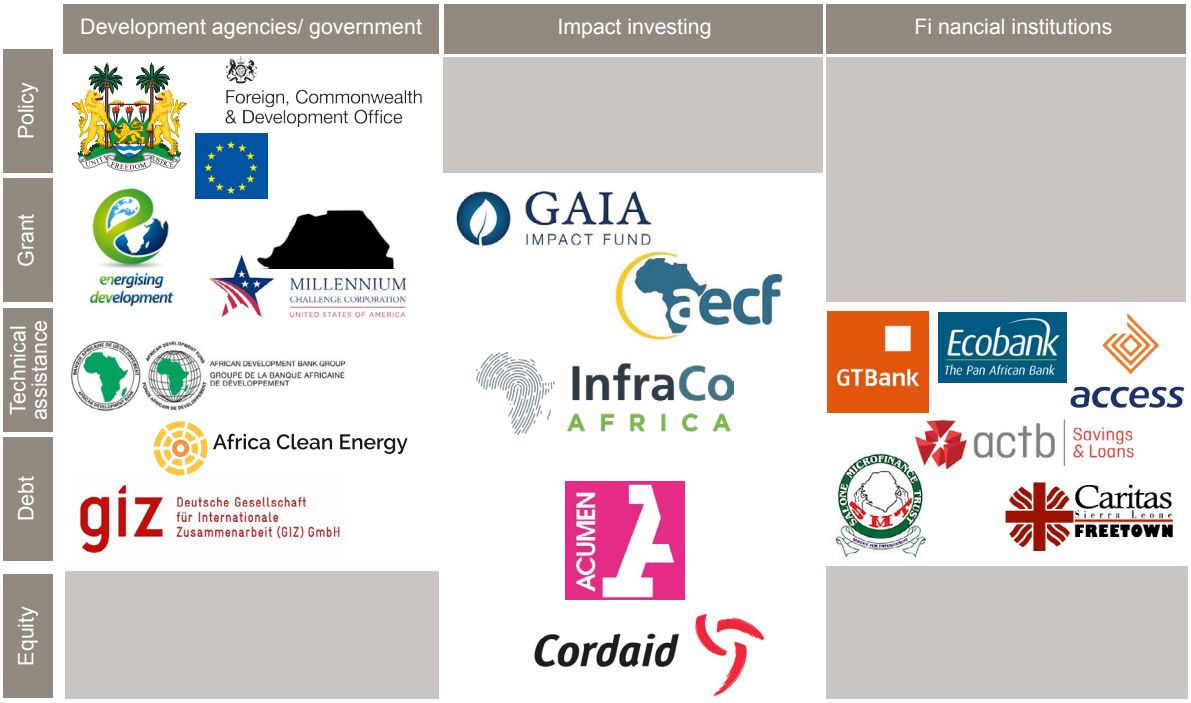

Figure 3: Sources and types of capital in the SAS sector in Sierra Leone

GESI considerations in the SAS sector in Sierra Leone

Investments with a GESI lens have focused on empowering women to take up jobs within the SAS sector. For example, the Barefoot Women Association of Sierra Leone has trained 250 illiterate and semi-illiterate women to become solar engineers. These women have secured jobs within the SAS sector (e.g. solar installations in rural areas) and improved their economic conditions. However, there has been limited investment in interventions to improve energy access of vulnerable groups.

Despite the early funding and direct investments in standalone solar, approximately USD 204 million is needed to finance SAS' role in helping Sierra Leone achieve universal access. This includes technical assistance and direct investment into SAS companies, capacity building to support growth of the sector, and tariff exemptions.[33] According to the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), the financing need in the SAS sector in Sierra Leone is USD 19M annually (USD 247M from 2017 – 2030).[34] Of this, USD 3M is committed but not yet disbursed, and USD 40M disbursed by impact investors and development partners. Figure 4 highlights the financing need, available capital, and the existing financing gap in the sector.

33. *The financing need is derived from ECREEE's estimates of an annualised financing gap of USD 19M from 2017 to 2030 while committed funds estimates the remaining funds from development partner programmes announced prior to 2020 and not yet disbursed. However, this does not include regional programmes such as ACE TAF. Further, disbursed funds include all funding into the SAS sector in Sierra Leone from 2016 to date. Finally, financing gap is derived from the difference between the financing need and the amount allocated and disbursed to support the SAS sector*
34. *Ecowas Centre For Renewable Energy and Energy Efficiency (2019), Regional Off-Grid Electrification Project: Off-Grid Solar Market Assessment & Private Sector Support Facility Design*

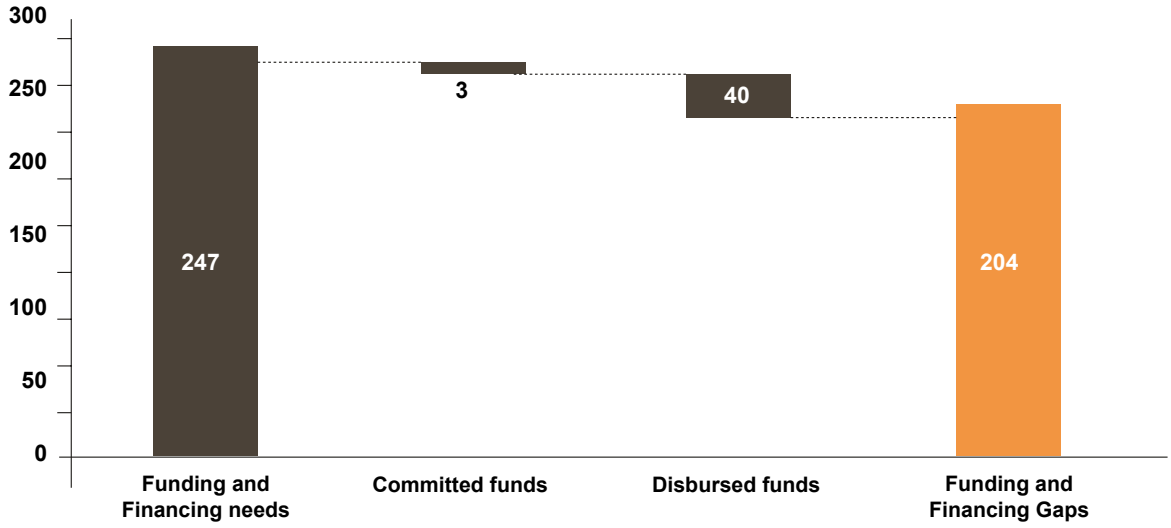

Figure 4: Estimated funding and financing gap in the SAS sector in Sierra Leone[35]

35. *Estimates on split of required investment are based on the proportion of past investments: Ecowas Centre For Renewable Energy and Energy Efficiency (2019), Regional Off-Grid Electrification Project: Off-Grid Solar Market Assessment & Private Sector Support Facility Design: Funding refers to money provided by companies or by a government whereas financing is a process of receiving capital or money for business purpose whereas financing is a process of receiving capital or money for business purpose, and it is usually provided by financial institutions such as banks or private investors*

3. BARRIERS

The financing gap of USD 204 million is the result of multiple barriers to investment, including a small market, limited SME lending by local banks, high cost of local currency transactions, and absence of hedging instruments. These barriers are further described under three categories; supply-side, demand-side, and policy and regulation.

3.1 Supply-side barriers

The SAS market in Sierra Leone is relatively small and the current pool of SAS investors is wary of investing in businesses that will compete with existing portfolio companies. Although the potential addressable market for SAS companies could be as much as 51 percent of population by 2030, companies like Easy Solar have already penetrated 75 percent of the country's districts, having raised only less than USD 10 million in equity and hard currency debt. They plan to expand to all districts by the end of 2021. Investors believe that supporting competitors could impact their portfolio company's growth plans.[36] Private investors who have already funded SAS companies in Sierra Leone do not want to invest in competing companies while potentially new investors are worried the market is too small.

On a macroeconomic level, the Leone's devaluation from 2016-2019 led to almost no SME lending by local banks. The Leone devalued 47 percent between 2016 to 2019 because of the Ebola crisis, which meant banks avoided higher risk lending to SMEs and focussed on government borrowing.[37] Locally founded and owned SAS companies with more than 10 years of operations in country are candidates for local currency loans. However, this is a small segment of the market (less than 10 percent) as most SAS companies were founded after the launch of the Energy Compact in 2016. Though most banks have started to express more interest in SME lending, they deprioritize the SAS sector which they see as small and unproven.[38] The only exception to this has been Access Bank who acted as an on-lender for an Asian financier to support SAS product purchases.

Expensive local currency transactions make it challenging for international investors to provide local currency debt. All SAS products sold in Sierra Leone are imported, so SAS companies purchase products in dollars but then sell them in local currency. This is expensive—foreign exchange fees stand at almost twice the cost of order fees—and exposes companies to frequent currency fluctuations. Without local currency finance it is very difficult to manage this risk. Cordaid Investment Management is the only international funder who is known to have provided local currency debt financing to SAS companies (BBOXX and Easy Solar).[39]

MFIs do not have sufficient liquidity to purchase and finance products and lack the technical capacity to assess loans for new asset types. MFIs have expressed interest in selling SAS products, but there are currently no active examples. To address this gap, the SAS industry body (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.[40] Historically MFIs have struggled to expand product offerings due to deposit constraints imposed by the Central Bank and due to limited technical capacity to assess loans for unfamiliar asset types.[41] Beyond MFIs, banks may provide loans to valued customers, but they would demand 60 percent down payment and only finance larger systems.

36. *OCA consultations*
37. *OCA consultations*
38. *OCA consultations*
39. *Cordaid Investment Management, Making Solar Energy Affordable Through Local Currency Debt Financing*
40. *OCA consultations*
41. *OCA consultation*

GESI related supply-side barriers

There are currently no incentives to encourage investors to target vulnerable and marginalised groups. Although projects like the EU PRESSD-SL target smallholder households, rural families, farmer associations this approach is not widespread. Therefore, given the low demand among the general target population for SAS products, it is likely that concessionary capital will have to play a significant role to help make the investment case, even for impact investors.

3.2 Demand-side barriers

Potential SAS customers perceive SAS products as relatively expensive, posing a barrier to scaling SAS companies. The GDP per capita and average household energy usage in Sierra Leone are USD 500 and 80Wh, respectively, these metrics could fall to around USD 166 and 36Wh for off-grid, rural populations.[42] Further, GoSL subsidises grid electricity, resulting in the perception that non-subsidized SAS products are relatively expensive.[43] Willingness and ability to pay are quite low, resulting in very tight margins or a smaller pool of potential customers, both of which discourage investment interest.

Further, well-established alternative energy sources also pose a barrier to scale, and as a result most companies have not scaled to the point where they can absorb significant capital. Off-grid customers currently rely on kerosene for lighting that is distributed through a well-established network.[44] SAS companies believe that although there is potential to scale to the underserved population, this will be dependent on a number of external factors such as income levels, demand for SAS products and accessibility to rural areas, therefore scaling may be costly and time consuming.

Low mobile money penetration also makes it harder to scale PAYG businesses as both costs (paying agent networks) and revenues (collecting customer payments) are manually administered. Ninety percent of transactions in Sierra Leone happen in cash because mobile money has been limited by unreliable network coverage, low awareness, and sensitisation of the technology.[45] Mobile money has mostly been used for long-distance peer-to-peer payments. SAS companies using PAYG have adapted to limited mobile money by creating networks of 'super agents' who manage local collections.[46] However, cash collection in rural areas is costly, challenging, and sometimes unreliable.

There are very few financing options for small and early stage SAS companies, who therefore focus on growing through cash sales. The high cost of local debt discourages companies from taking on investment. Many local companies are family-owned and not open to sharing ownership as required during an equity raise. Patient capital would be more attractive, and SAS companies that have accessed such funding and adopted a PAYG business model have been able to scale. For example, Easy Solar has increased operations to 12 out of 16 districts and is now serving ~400,000 consumers.[47] Lacking attractive sources of financing, most local companies instead only grow their businesses through cash or business-to-business sales.

Local SAS companies are not well-versed with funds and may struggle to present their investment opportunity to private international investors. Consultations suggest that many SAS companies do not have the networks or experience raising capital to present an attractive investment proposition to international funders. For example, one private company interviewed mentioned that they were unaware of any external capital sources.[48] In addition, these companies struggle to provide detailed information to communicate

42. *World Bank, Sierra Leone Economic Indicators: World Data, Energy Consumption in Sierra Leone: Government of Sierra Leone, Demographic and Health Survey: World Bank (2019), Population, Total; Sierra leone integrated household survey 2018 report ; World Bank, Who Uses Electricity in Sub-Saharan Africa? (2016), We assume that the target market is rural customers with research suggesting that income levels amongst the rural population are estimated at a third of urban thus rural customers make a third of the USD 500 i.e. the USD166*
43. *Statistics Sierra Leone (2011), A Poverty Profile For Sierra Leone; OCA consultation*
44. *ECREE National Renewable Energy Action Plan (NREAP) Republic of Sierra Leone (2015)*
45. *World Bank (2018), Sierra Leone Financial Inclusion Project*
46. *OCA consultation*
47. *OCA consultation*
48. *OCA consultation*

their track record and growth plans in the mode expected by international investors.

SAS companies struggle to hire experienced management teams who can successfully engage with international investors. This is a two-fold challenge, first, of finding talented individuals who can hold senior management positions. Second, without adequate capital it is difficult to attract and retain such talent.

3.3 Regulatory and policy barriers

There is currently only a minor role for SAS in the National Electrification Plan, limiting its potential to scale and attract investment.[49] To date there has been no research or mapping to ascertain the optimum technology mix to achieve universal access in Sierra Leone. Since GoSL is most familiar with grid, and to a lesser extent mini-grid technology, SAS has had a minor role in national planning the international development community has struggled to accelerate investment into SAS.[50] However, the upcoming Off-Grid Strategy for the new National Electrification Plan, aims to provide a framework for GoSL to support the role of SAS in achieving universal access.

The annual review of the solar product tariff exemption prevents long term planning and investment. The policy to eliminate taxes on solar products is reviewed annually in the budget process, which does not give SAS companies sufficient time to make and recoup investments. In addition, SAS companies need clearance from numerous government agencies for approval, a long and uncertain process that adds costs and deters smaller companies from committing to high quality SAS products.[51]

A lack of quality standards for appliances negatively affects their perception, thereby limiting customer demand and scale.[52] Typically appliances drive electricity demand as consumers desire the benefits of appliances including entertainment or productivity. However, low quality appliances consume too much power and make the running costs unaffordable for low income populations. The Sierra Leone market is dominated by appliances which consume disproportionate amounts of power and act as a deterrent to energy demand, rather than as a driver.

MNOs do not have enough initiatives to encourage mobile money adoption, and penetration remains too low to be an option for PAYG payments. Orange Energy remains as the only MNO working to encourage mobile money adoption in the SAS sector, through the establishment of an installment plan for SAS products paid through Orange money. That said, other MNOs have not shown significant investment on improving or creating incentives for mobile money adoption in the country. [53]

GESI related regulatory and policy barriers

The private sector perspective is that GESI considerations are addressed by various government initiatives for the economic empowerment of women, youths, and other marginalised groups. Many stakeholders consulted do not consider GESI an issue. One of the private sector players interviewed mentioned that the Barefoot Women Association is already addressing GESI barriers. However, while the association provides solar engineering training to women it does not provide interventions to increase energy access to other marginalized groups. Further, vulnerable communities' have not been systematically involved in developing strategies to enhance energy access to them.

49. *Sierra Leone Sustainable Energy For All (2015), Country Action Agenda: Habay Pascal, Interview with OCA, Virtual, September 24, 2020*
50. *OCA consultation*
51. *Power For All (2016), 'News Release: Sierra Leone Reports Progress with 'Energy Revolution' Campaign': World Bank (2019), Population, Total*
52. *OCA consultation*
53. *OCA consultation*

4. OPPORTUNITIES FOR FUTURE INTERVENTIONS TO ACCELERATE INVESTMENT

Interventions targeted at SAS in Sierra Leone can accelerate investment in the pursuit of universal electricity access. Given the nascency of the sector, the GoSL and development partners can first implement interventions that create the robust enabling environment needed for investment. Once a sound enabling environment exists to let private sector business thrive, stakeholders can address the supply gaps and demand-side barriers. This section outlines describes key recommendations, outlines their rationale, and the key stakeholders required for each.

4.1 Enabling environment interventions

A strong enabling environment is critical for a robust off-grid energy sector. A supportive policy and regulatory environment could encourage new business creation and capital deployment to SMEs. A clear plan to universal access that outlines distinct roles for government and the private sector is also vital in providing assurance to the private sector. FCDO, through the Off-grid Policy Review and Strategy under ACE TAF, is working to present the GoSL with recommendations for including SAS in the National Electrification Plan. This is the first step towards inclusion of SAS in the national energy planning.

Mapping the optimal energy mix for universal access in Sierra Leone can provide much-needed data for private sector and government planning. ACE TAF is planning to support the Energy Access Explorer for Sierra Leone. This will strengthen the Ministry's capacity to analyse demand based on demographic and socio-economic factors, identify potential areas for expansion, and the optimal electrification mix. Initial estimates show that a significant proportion of unconnected households (800,000 households or 51 percent of the population by 2030) are not suitable for grid or mini-grid technologies, building the case for investing in SAS as transition technologies to full tier 2 energy access.[54] MCCU estimated that nearly USD 1.4 billion is required for the current National Electrification Plan, but this assumed a very minor role for SAS. A least-cost spatial plan building on this work can inform a more accurate investment need as is the case in Togo.[55]

Case Box 1: Togo's least-cost geospatial analysis informed development of its 2030 National Electrification Strategy

Togo conducted a least-cost geospatial analysis to understand demand for electricity and identify the appropriate mix of technology to achieve universal access. The country developed a comprehensive database indicating the least-cost electrification solution for each settlement which formed the basis for development of Togo's 2030 Electrification Strategy. The strategy was then disseminated to over 25 stakeholders in government, SAS companies, development partners, private investors, and financial institutions to test interventions and identify sources of capital. The country has already gained traction by launching innovative programs such as CIZO in 2017, that seeks to electrify nearly 300,000 households and achieve universal access by 2030. The project has received funding from development partners such as AFDB and EU, and connected 100,000 households by December 2020.

54. *ECOWAS Centre For Renewable Energy and Energy Efficiency (ECREE, 2019), Off-Grid Solar Market Assessment and Private Sector Support Facility Design*
55. *Afrik21 (2019), 'Togo: AFDB and EU Invest EUR 12 Million for CIZO Project's Social Component': Lighting Global (2018), Togo Electrification Strategy*

An evaluation of the impact of the tax exemptions could build a case for long-term tax exemptions. The VAT and import duty exemption for IEC-certified SAS products has anecdotally encouraged SAS companies to continue imports by reducing costs, up to 40 percent, by partially offsetting forex risk from devaluation in the leone. Despite this, there is no study providing empirical data on the resultant changes in import and sales volumes; variation in product pricing; and recipients of products. However, FCDO through ACE TAF has commissioned a study to assess the impact of current tax exemptions on number of connections and foreign investment. This data can be used to encourage GoSL to a long term (5-year) commitment. That would reduce uncertainty in the SAS sector and increase private sector confidence and ability to plan investments. Going forward, development partners could support REASL to conduct periodic reviews of tax incentives and other GoSL policies targeted towards the sector.

The same study could also justify more streamlined processes for solar product import tariff exemptions.[56] Specifically, GoSL could consolidate clearance checks to one government department that would act as a one-stop shop for import exemption approvals. Development partners and REASL could provide capacity building, both to GoSL in setting this up, but also to member SAS companies to prepare strong applications for the new process. This will allow more SAS companies to achieve the Green Lane approval, by reducing import costs and ultimately encouraging more sales and increasing investor confidence.

The Bank of Sierra Leone and mobile network operators (MNOs) could collaborate on investment in mobile money adoption to support SAS company penetration among rural customers. In 2016, the International Growth Centre assessed the state of mobile money in Sierra Leone and identified the following priority recommendations: promote consumer protection and financial literacy, encourage interoperability and the growth of agent networks, advance co-ordination between stakeholders, and address agency liquidity issues.[57] The Bank of Sierra Leone could work with MNOs to develop guidelines to implement these recommendations, while development partners can coordinate government stakeholders, MNO representatives, and private sector.

MNOs could consider selling SAS products directly using mobile money, or through partnerships with SAS companies, to build demand for mobile money. One leading MNO in Sierra Leone has already created a subsidiary to sell SAS products on a PAYG model using their mobile money platform and thereby drive mobile money adoption. SAS companies could partner with MNOs to provide SAS products on PAYG tied to one mobile money provider in certain districts. MNOs have large distribution and agent networks which can support distribution of SAS products and bear some of the costs of customer education and collections.

The Ministry of Energy could enact energy efficiency standards for electricity-consuming appliances such as fridges to sustainably grow energy demand. Mandated minimum electricity efficiency standards on all imports would ensure customers can afford the energy bills to run these appliances, encouraging behavioural shifts (changing cooking routines, for example) which will lead to greater energy demand. This will improve the investment case for SAS companies, helping to accelerate investment. GoSL could enact regulations such as restricting the importation of appliances beyond a specified lifetime, for example 10 years. It can also introduce import tariff or VAT exemptions to encourage uptake of appliances suitable for SAS, predominantly DC power. REASL could spearhead advocacy, with support from development partners, and stakeholders could leverage existing standards being developed in other countries as an example, such as Verasol's pilot quality standards for off-grid televisions and fans.[58]

4.2 Interventions to support supply of capital

Beyond the enabling environment, stakeholders can also address bottlenecks that are currently restricting the supply of capital into the SAS sector. Development partners will need to incentivise and de-risk investments, support local lending, and help pipeline development. Equally, investors need to adapt their approach to opportunities in the market and partner with development partners to deploy capital. SAS companies can support one another by sharing experience on the investment process and individually building their network of potential investors.

56. *OCA consultation: International Growth Centre (2017), Power For The People: A Case of Renewable Energy Technological Innovation System*
57. *International Growth Centre (2017), 'You Can Pay Me Through My Cell Phone: Mobile Money is Sierra Leone'*
58. *Verasol, Quality Standards For Solar Appliances*

Intermediaries can help SAS companies access local currency debt by leveraging existing guarantee funds that de-risk SME lending for local banks and by convening stakeholders. The Africa Guarantee Fund managed by AfDB provides both guarantees and capacity building to banks to encourage lending to SMEs, including SAS companies and has supported 33 SMEs in Sierra Leone so far.[59] Development partners can support REASL to engage both AfDB and banks to build a common understanding and framework for how SAS companies can access loans backed by the guarantee. Business support providers (consultants, lawyers, accountants) can work with SAS companies to prepare loan applications which are a good fit for support by the Africa Guarantee Fund. REASL could also organize periodic workshops or networking sessions structured around different themes to share knowledge and build personal relationships which are a key element of doing business in Sierra Leone.

In the future, new de-risking mechanisms can further encourage investment into the sector. The Africa Guarantee Fund will provide useful lessons for future de-risking mechanisms. Development partners can prepare to review the experience of stakeholders, analyse total capital mobilised by the Fund and any bottlenecks experienced. Future mechanisms can also provide collateral guarantees that would allow SAS companies without large asset or cash balances to access commercial lending. Development of this mechanism could be done in close consultation with banks and SAS companies.

Development Finance Institutions (DFIs) could create a credit line facility for hard currency lending to ease SAS imports and improve MFI liquidity. MFIs have a significant market share in Sierra Leone (44 percent) and could be critical in enhancing affordability of SAS products among consumers.[60] DFIs can create a credit line facility which is managed by a regional development bank to provide retail loans with access to foreign currency to SAS companies which they can use for importing quality SAS products. Such a facility can also be used to provide low cost wholesale loans to MFIs to provide consumer asset finance to consumers purchasing SAS products. This will be a better fit for the MFI business model in Sierra Leone, rather than encouraging MFIs to purchase SAS products themselves, to sell on credit.[61]

Private investors can leverage existing hedging funds to manage currency risk. This could attract further foreign capital into the country and encourage investors to deploy capital in much needed local currency. For example, the Currency Exchange Fund (TCX Fund), an initiative by development partners, donors and specialized micro-finance vehicles provides currency hedging solutions to investors in providing funding and direct financing in developing countries.[62] They provide instruments such as swap and forward contracts to help investors mitigate currency fluctuation risk.

Development partners can also provide concessionary capital to crowd-in impact investors into early stage SAS companies. Providing grants on a match funding basis means that SAS companies must source some additional support, which could be non-grant finance, or technical support. For private investors this means that they are unlocking more support for their investment which will help de-risk investments in early stage companies. This type of approach can work well for companies testing new business models or expanding into harder-to-reach areas. Development partners can leverage on the experience of the REACT Household Solar Programme which leveraged on local commercial banks to provide matching grants to SAS companies.[63]

Results-Based Financing (RBF) allows development partners to steer market activity, incentivizing SAS companies to reach new areas and sell to vulnerable populations. RBF schemes offer incentive payments to SAS companies based on pre-defined criteria, for example selling to a user in a specific area or to one who is part of a particular groups, for example women or other vulnerable groups.[64] The initial step is a market scoping to identify the need of the fund, followed by the fund design phase working in close consultation with industry stakeholders. Programs could ensure that SAS products are well understood and fully used by the target groups. For example, the Output Based Fund under the National Electrification Plan in Nigeria aims to help companies scale and achieve the government's goal of electrifying 1 million households using renewable energy. The fund provides grants of up to 20 percent of the cost of SAS products to companies that meet the minimum sales threshold of 150 SAS products per month.[65] Seven companies have accessed the scheme so far.

59. *African Business (2018), 'The AGF Has Enabled Over $700M of Loans to More Than 8K SMEs ,' Felix Bikpo, CEO of AGF*
60. *World Bank (2018), Project Information Document/ Integrated Safeguards Data Sheet (PID/ISDS): World Population Review (2020), Adult Population in Sierra Leone: MFI penetration is a calculation based on percent of adults served by formal financial institutions and MFIs customer base*
61. *Development Bank of Ethiopia*
62. *TCX Website (2020): About the Fund*
63. *OCA consultation*
64. *Energising Development, Results-Based Financing: Energising Development Partnership*
65. *Rural Electrification Agency, Solar Home Systems: Nigeria Electrification Project SHS Component Description*

Economic empowerment activities can boost SAS demand, helping businesses grow and raise capital. Such programmes help SAS customers to purchase assets that use SAS power to increase incomes from energy-related economic activities, thereby boosting demand for SAS products. Micro-entrepreneurs can thus improve the quality and quantity of their incomes with new revenue streams. Development partners and NGOs can ensure sustainability by supporting with small asset finance, business planning, advice and market linkages.

Dedicated programmes for MFIs that combine capital facilities and capacity building can increase consumer financing for SAS products. For example, a grant to SLAMFI could support it in strengthening current operations. Complementary TA can then help the organization structure programs to build building capacity for its members to train personnel, develop consumer financing products, or create credit management procedures to reduce the risk of default. Specific examples include products that use community-based incentives to limit default or the establishment of social centres with assets such as TVs that can both generate income and stimulate demand for appliances.

4.3 Interventions to support demand for capital by SAS companies

Growing demand for capital is equally as important as filling capital supply gaps. In Sierra Leone, there is currently a large gap between the investment that companies can feasibly absorb, and the investment required to achieve universal access. Companies must develop capacity to position themselves for investment and prepare to utilize capital effectively after fundraising.

REASL could collaborate with intermediaries to improve SAS company investment readiness and engagement with banks and investors. The process could begin with a portfolio review of REASL's member companies' readiness and appetite for investment. Bespoke support packages can then improve investment readiness before giving the companies opportunities to pitch to potential investors.

Combining direct investment with technical assistance could support local SAS companies to absorb financing and attract follow-on capital. Combining small ticket size investments with technical assistance to support local SAS companies in aspects such as business planning, preparing realistic financial projections and growth strategies could allow them to attract more significant sums of capital. Similar initiatives such as the Financial Inclusion Programme operated by UNCDF in Tanzania can provide useful examples. Under this programme, companies receive grants and loans coupled with technical assistance to help them to scale.[66]

REASL can also help facilitate peer learning among SAS companies to share best practice in technical and management areas which will contribute to overall ability to grow and absorb capital. Suggested topics for peer learning could include human resource issues or the management of large sales agent networks. In this structure, all companies can share their experience, developing through the process together, and ensuring that smaller companies benefit from the experience of more mature companies.

Developing human capital, particularly technical skills, can also improve investor confidence in the sector. Development partners can support technical training courses for prospective employees, run by technical colleges and professional associations such as the Barefoot Women Association of Sierra Leone. This 'SAS vocational training bootcamp' can help prospective employees develop skills needed by SAS companies, creating a pool of quality professionals available for employment in SAS companies.[67]

The framework for assessing future interventions aims to help GoSL and development partners align future work with the recommendations in this Investment Market Map. The steps for review ensure that there will be coordination with the proposed interventions and that key stakeholders will be engaged as shown in figure 5.

66. *UNCDF (2020): Financial Inclusion*
67. *OCA Consultation*

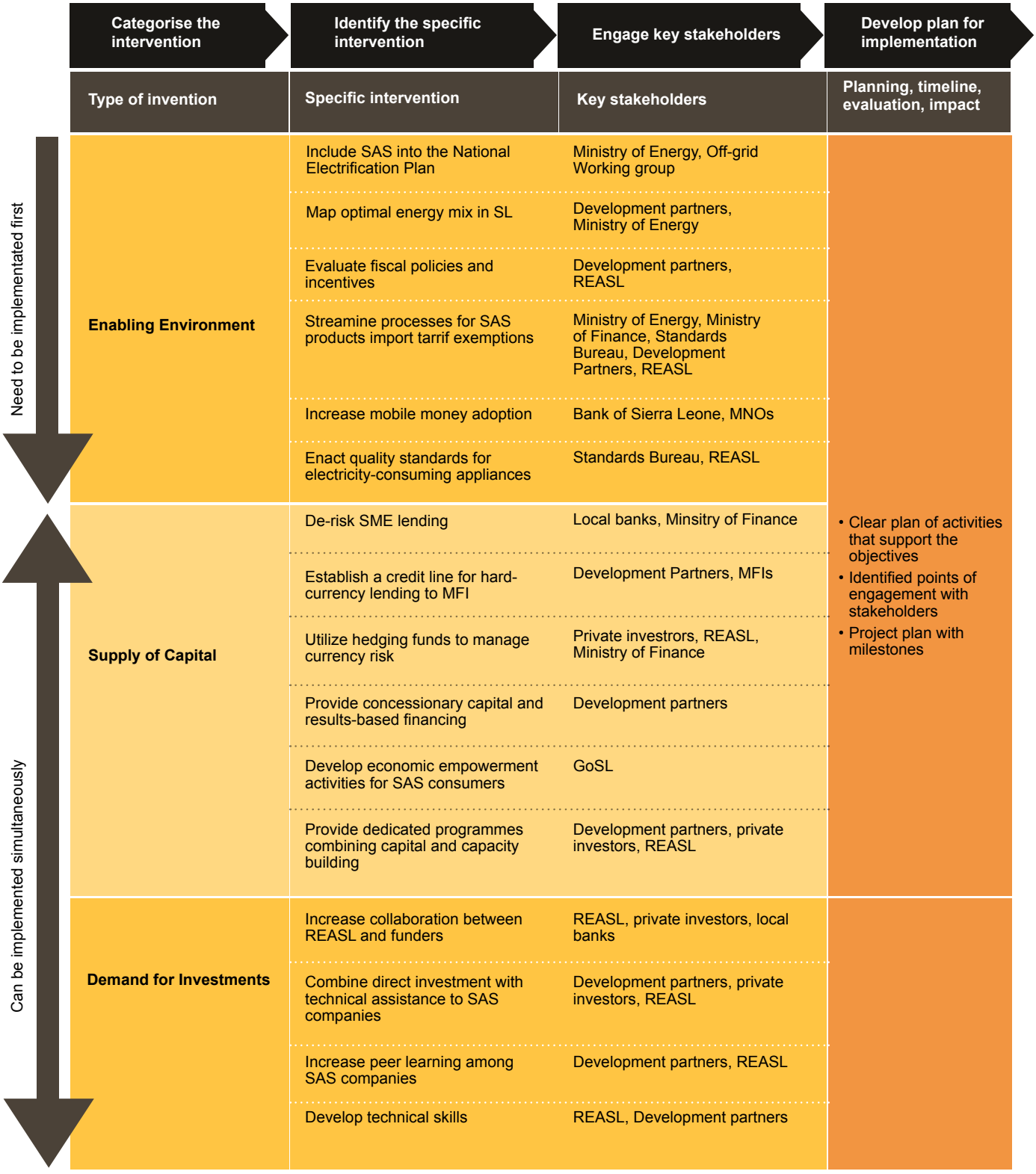

Figure 5: Framework for assessing future interventions

APPENDIX

Appendix I. Funding programs and funds present in Sierra Leone

Table 1 shows: Interventions and financing by development partners and private investors

Development partner	Program details	Amount invested	Type of capital	Status
FCDO	**Power for All** – FCDO provided **technical assistance** to the Renewable Energy Association of Sierra Leone (REASL) to operationalise its secretariat and support engagement with key stakeholders including government and funders[68]	N/A	Technical assistance	Competed
	Sierra Leone Opportunities for Business Action (SOBA) – FCDO provided **technical assistance** to REASL; this support was directed towards stakeholder engagement, business and financial planning and institutional strengthening through development of adequate structures[69]	N/A	Technical assistance	Completed
	Rural Renewable Energy Project – FCDO provided support for the establishment of 90 mini-grids to provide lighting to community health centers and selected households.	USD 47 million[70]	Technical assistance	Ongoing
	Africa Clean Energy Technical Assistance Facility (ACE TAF) – Sierra Leone is one of 14 countries under the broader ACE TAF program[71]	Share of USD 84 million[72]	Technical assistance	Ongoing
World Bank	**Climate Investment Funds –** The fund has deployed a **USD 300,000** grant through the 'Program for Scaling-up Renewable Energy in Low Income Countries' to be implemented by AFDB. The grant will support policy development and provide support for local commercial banks to provide financing to SMEs in the renewable energy sector, including SAS companies and consumers.[73]	USD 300,000	Direct funding and technical assistance	Ongoing
	Regional Off-Grid Electrification Project – The project has allocated **USD 200 million** to provide seed funding to start-ups, provide matching funds to attract private investors and provide a guarantee fund to reduce risk exposure to commercial banks that enter the solar market in 19 ECOWAS states, including Sierra Leone[74]	Share of USD 200 million	Direct funding and technical assistance	Pending

68. *REASL (2017), 'SOBA and REASL on a Six Months Support from a FCDO-Funded…'*
69. *REASL (2017), Technical Assistance Facility from FCDO through Power For All*
70. *Habay Pascal, Interview with OCA, Virtual, September 24, 2020*
71. *ACE TAF Website*
72. *UKAID, Africa Clean Energy Programme (ACE)*
73. *AFDB (2016), Sierra Leone Poised to Transform Renewable Energy Sector With Strengthened Public and Private Sector Participation*
74. *Lighting Africa (2017), Regional Off-grid Electrification Project*

Development partner	Program details	Amount invested	Type of capital	Status
GIZ	**Energising Development Project** - The project seeks to facilitate a functioning market for pico solar products and support training and development of technology solutions to support the sector in three West African countries, including Sierra Leone[75]	n/a	Technical assistance	Ongoing
European Union (EU)	**Promoting Renewable Energy for Sustainable Development in Sierra Leone –** The EU provided a grant to the project that seeks to support installation of solar power plants and distribution of solar home systems in six rural districts in Sierra Leone with a target to provide energy access to 16,000 households[76]	~USD 8 million[77]	Technical assistance	Ongoing
	The European Union Technical Assistance Facility on Sustainable Energy – The EU is conducting a study to understand the best approach in promoting access to modern energy for structural transformation and increasing productive capacities in Sierra Leone	n/a	Technical assistance	Ongoing
Acumen and Gaia Impact Fund	**Pioneering Energy Investment Initiative –** The fund provides equity, convertible debt and technical assistance to companies engaging in solar home systems, hybrid mini-grids and innovations in the SAS sector in 8 African countries including Sierra Leone; the fund partnered with Gaia Impact Fund to invest in Easy Solar, a PAYGo solar distribution company to support its growth[78,79]	USD 20 million	Direct funding	Ongoing
AECF	**REACT Household Solar Programme –** AECF launched a competition and committee to provide technical assistance, interest-free loans, and grant financing to SAS companies; ten companies operating in 4 African countries including Sierra Leone have received funding[80]	USD 10 million	Direct funding and technical assistance	Completed

75. *GIZ, Energising Development Project in the Founding States of the Mano River Union: Liberia, Sierra Leone, Guinea*
76. *Climate Change, Promoting Renewable Energy Services for Social Development in Sierra Leone*
77. *European Union (2017), European Union Supports Access to Renewable Energy: Solar Mini-grids Commissioned in Segbwema and Panguma*
78. *GOGLA, Acumen Fund, Pioneer Energy Investment Initiative*
79. *Acumen (2018),Acumen Makes First Investment in Sierra Leone*
80. *AECF, REACT Household Solar Programme*

Appendix II. Methodology

Table 3 shows: Calculation of amount invested in the energy sector in Sierra Leone (2016 – 2020), organized by technology [81]

Technology	Amount Invested (USD)	Methodology
SAS	43M	• ~ USD 14M in direct financing and technical assistance by impact investors and banks to private companies obtained during consultations and desk research • ~ USD 25M in technical assistance provided by development partners obtained from consultations and the GoSL budget profile for 2016 – 2020 listing funding by development partners to the Barefoot Women Association of Sierra Leone • ~ USD 2M in revenue forgone by the government due to tax exemptions on solar products
Mini-grids	65M	• ~ USD 47M invested in the UNOPS mini grid project and ~USD 18M invested in the Freetown Solar Park Project
Grid	338M	• Total amount invested by development partners and GoSL in grid expansion

Table 4 shows: Calculation of current connections in the energy sector in Sierra Leone (2016 – 2020), organized by technology

Technology	Number of households connected	Methodology
SAS	~152K	• GOGLA estimates of at least 38K solar products sold by affiliate companies in 2019. Sales by non-affiliate companies estimated at 67K based on the assumption that these comprise nearly 60 percent of all companies (based on average of a sample of 11 countries examined in the Off-Grid Solar Market Trends Report 2020 • Connections between 2016 – 2018 are estimates from the Sierra Leone Integrated Household Survey 2020
Mini-grids	~14K	• 12,500 households connected by the UNOPS mini-grids • This report estimates of 1,200 households connected by 3 PRESSD-SL mini-grids and 1 ECREEE mini-grid. Estimates based on UNOPS models of connection of at least 300 households to one mini-grid for efficiency
Grid	~348K	• World Bank estimates of electrification rate Sierra Leone

Table 5 shows: Calculation of potential connections in the energy sector in Sierra Leone (2020 – 2023), organized by technology

Technology	Number of households connected	Methodology
SAS	~586K	• Based on ECREEE'S projections of potential connections by 2023
Mini-grids	~173K	• Based on projections by GoSL and ECOWAS in the National Renewable Energy Action Plan
Grid	~373K	• Based on ECREEE's projections of potential connections by 2023

81. The amount in investments excludes funding by regional programmes including ACE TAF

Masougbo Chiefdom Primary Health Unit in Bombali District, Sierra Leone. Midwife Zainab Manserray (white uniform) is in charge of the clinic and is currently training male midwife student Sahr Philip Sheku (purple uniform) from The Midwifery School in Masubu, Makeni. They have recently received a solar lighting system funded by UNFPA which enables them to see what they are doing both during the rainy season and at night.

Photo credit. H6 Partners

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