

Africa Clean Energy Technical Assistance Facility Stand-alone Solar Catalogue

2018 - 2022





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In 2019, 56 per cent of the Ethiopian population was using electricity, 34 per cent from the grid and 22 per cent from solar. Although rural households' use of solar jumped from 16 per cent in 2016 to 30 per cent in 2019, the rate of electricity access for rural households was much lower than the national average of 34 per cent. It is also worth noting that 60 per cent of rural households still use dry cell batteries, kerosene lamps and firewood, which is damaging to their health and the environment."

FOREWORD



Jeremy Swainson

Programme Director

The Africa Clean Energy Technical Assistance Facility (ACE TAF) has contributed to the growth of high-quality stand-alone solar (SAS) systems in the renewable off-grid energy markets across Africa over the past 4 years. We have collaborated with governments, businesses, investors and donors to create the conditions for governments to adopt policies that recognise that solar off grid energy sources are an integral part of their universal energy strategies; that encourage customers to have confidence in stand-alone solar products; and enable companies and investors to expand their distribution of SAS products.

Our experience showed how strategic projects, such as working with State Governments in Nigeria and the Regional Energy Bureaus in Ethiopia and the development of the Energy Access Explorer GIS platform have been critical in improving energy planning. Our efforts in partnership with IFC and governments to adopt IEC standards and implement quality testing laboratories help to enforce those standards resulting in high quality products reaching markets. While in Zambia, our health energy as an enabler approach provided tools and information to the government to improve the electrification of health facilities and hence improve health care in the country. These along with many others provide evidence and sustainable tools to ensure that policies and initiatives continue to be designed and implemented without leaving anyone behind.

Our hope is that you will continue to embrace the challenges and opportunities to further expand clean energy access across Africa.

INTRODUCTION

The Africa Clean Energy Technical Assistance Facility (ACE TAF) started in November 2018 with the aim 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. The programme was funded by the UK Government Foreign Commonwealth and Development Office (FCDO), and managed by Tetra Tech International Development. We worked in 14 African Countries and have been committed to improving access to energy for all, especially vulnerable communities.

ACE-TAF has provided governments with evidence and tools to make informed policies and regulation that positively impact the off-grid sector. Our neutral collaborative stakeholder engagement approach that places the most vulnerable end users at the forefront, that brings together governments, the private sector, and donors will help the continent to move closer to a more equitable energy transition for all.

This catalogue provides a series of snapshots of results of interventions implemented in response to key gaps found in the SAS sector which helped to improve the enabling environment for the private sector to thrive. It is organized around the themes on improving:

Consumer Affordability,
Energy Access for All,
Building Consumer Confidence and Protection,
Improved Energy Planning,
Energy as an Enabler, and
Building Stakeholder Trust by Working Together.



ACE TAF: STAND-ALONE SOLAR SECTOR 2018



Pauline Githugu

ACE-TAF Team Leader

The energy sector shifted to providing consumers with energy affordability options that have resulted in the growth of models such as pay-as-you-go, lease-as-you-go and more recently forays into partnerships with co-operatives and microfinance institutions. There has been an increase in investments from venture capitalist, social capitalists and grant based funders. While “foreign owned” companies have continued to both grow and raise capital, local ones have struggled to keep their businesses afloat. This was worsened by the COVID-19 pandemic that resulted in business closures and job loss. While some bounced back there is still potential to build back better.

At the onset of the programme ACE-TAF identified knowledge gaps in the off-grid sector. There was missing current information on the sector and what was available was private sector focused.

- Quality Standards and enforcement was limited.
- The focus was not on consumer affordability for vulnerable groups.
- There was a disconnect within government policies between energy access and fiscal incentives; grid vs off grid; and fossil fuels vs renewables.
- There was an over reliance on pay-go models.
- Stakeholders were not talking to each other constructively.



ACE-TAF approached these challenges from the perspective of all stakeholders – governments, private sector, donors, and investors alike. Our focus on supporting policy makers to improve the policy and regulatory environment to overcome barriers that were preventing the development of the off-grid solar sector helped to ensure that the market is attractive to investors and grow in order to reach universal energy access targets for all."

FOUNDATIONAL EVIDENCE 2019 SET THE STAGE FOR ACE TAF APPROACH

Collaboration with Solar Sister not only helped to ensure that the end users voice was heard but that women and vulnerable groups were considered when designing policies.



WOMEN IN SOLAR ENERGY - MANAGERIAL, OPERATIONAL AND ARTISANAL:

The off-grid solar (OGS) market in Africa has expanded rapidly over the last 10 years. However, only 17% of the potential market has been served. There is still room for significant growth that could also spur new job opportunities along the solar value chain for women and youth.



There are more opportunities for women than men in the entire energy value chain sector. However, there needs to be more capacity building for women, youth and PLWD on renewable energy and OGS in order for these groups to benefit equally in access to and control over the OGS value chain."

*ACE-TAF-Women in Solar Energy:
Managerial, Operational and
Artisanal March 2021*



HOW CAN GOVERNMENTS IN SSA STIMULATE LOCAL MANUFACTURING OF OFF-GRID SOLAR INCLUDING DESIGNING COMPREHENSIVE POLICIES?



For countries in SSA to undertake successful assembly/manufacturing of solar products, there is need to ensure an enabling environment is created to encourage companies and investors to move beyond future commitments. It is critical that countries put in place a conducive environment to encourage local manufacturing of SAS before putting in place policies that prioritise local content in OGS procurement, as otherwise this will likely create supply side constraints in reaching energy access targets"

ACE-TAF Assessment of Local Manufacturing of Off-Grid Solar in Sub-Saharan Africa – Policy Brief March 2021

BUILDING STAKEHOLDER TRUST BY WORKING TOGETHER



In the past decade the off-grid sector has contributed to the achievement of Sustainable Development Goal (SDG) 7 especially for people living in rural off-grid areas. This growth has been accelerated by stakeholder coordination and collaboration. Strengthening coordination is a timely and powerful strategy that governments, private sector, investors, civil society and development partners should embrace to step up efforts towards universal access to electricity by 2030

VALUABLE IN-COUNTRY CONVENING POWER AFFECTS POLICY ADOPTION



“

VAT and Import duty exemptions are a crucial part of an enabling environment to support the utilisation of SAS products. 2.75 million households in Nigeria could be using a SAS product by 2025 if VAT and import duty exemption are in place and implemented effectively.”

Impact Assessment of VAT and Import Duty Exemptions for SAS in Nigeria – Policy Brief August 2021

IMPROVEMENT TO CONSUMER CONFIDENCE

A woman and a young child are shown in profile, looking at a smartphone held by the child. The scene is dimly lit, with the primary light source being the screen of the phone, which casts a soft glow on their faces. The woman is wearing a colorful patterned shawl, and the child is wearing a red shirt with yellow and blue stripes on the sleeve.

In Zambia, the Rural Electrification Authority (REA) developed a publicity and information dissemination strategy to raise awareness on solar particularly among rural households who had previously held an inferior perception of solar energy as a source of electricity.



The strategy focuses on communicating to, and with, key audiences including end users, decision makers, influencers, implementers and gatekeepers among others."

ACE-TAF REA Off-Grid Solar Publicity and Dissemination Strategy in Zambia

ADOPTION OF QUALITY STANDARDS

Protecting consumers from poor quality products starts with countries adopting IEC standards for stand alone solar products.



For off-grid solar solutions to continue delivering great benefits to consumers they need to be of high-quality. An effective way of improving the quality of stand-alone solar products in the market is the adoption and implementation of standards. Once national quality standards have been adopted, they must be enforced and surveillance done to ensure compliance."

Standards for SAS for Governments – March 2020

INCREASING QUALITY PRODUCTS IN THE MARKET - THE BURDEN OF POOR QUALITY SOLAR ON THE CONSUMER

Vulnerable consumers facing affordability constraints need the assurance that the SAS products they purchase are of high-quality, feature truth-in-advertising and are safe to handle. Poor quality products place an additional burden on the most marginalized consumers wasting the limited income they have earned on purchases. In addition, solar e-waste is hazardous to the environment and human health if not disposed properly.



VERASOL QUALITY LAB CERTIFICATIONS HELP ENSURE ONLY HIGH QUALITY PRODUCTS REACH MARKETS

IFC and ACE TAF have been supporting governments in the adoption and implementation of the International Electrotechnical Commission (IEC) quality standards for SAS and advising governments on streamlining pre-export verification of conformity to standards processes to protect consumers. With IFC and CLASP technical knowledge, Quality Lab equipment was installed in Nigeria, Ethiopia and Zambia.



IMPROVING QUALITY STANDARDS ENFORCEMENT AND CONSUMER CONFIDENCE



There is need to undertake conformity assessment activities in the country of origin of solar products prior to importation to ensure that every SAS consignment contains regulated products"

Pre-Export Verification of Conformity (PVoC) Enforcement and Implementation Plan - Ethiopia



IMPROVING QUALITY STANDARDS ENFORCEMENT THROUGH MARKET SURVEILLANCE

Information about quality standards is available, however the impacts of not enforcing these standards are not always clear to all stakeholders including government and consumers.



The emergence of the off-grid solar sector is an important component in achieving access to energy for all in the State, this will ensure the implementation of the Lagos State Electricity Policy on off-grid electrification"

*Engineer Olalere Odusote,
Honorable Commissioner, Lagos
State Ministry of Energy and
Minera Resources.*



According to the 2020 Market Trends Report, solar home systems and mini-grids were serving 420 million people by the end of 2019 and Off-Grid Solar companies were moving to new locations to electrify underserved populations. If the trend continues the sector could serve 823 million users by 2030. However, this momentum is threatened by the Covid-19 pandemic.



Sales for the first six months of 2020 dropped by more than one million units when compared to the same time period in 2019." SAS and mini-grid companies were more affected than biogas and cookstove companies."

ACE-TAF, Survey showing how COVID-19 is slowing down universal access to energy Project Show



OVERCOMING THE AFFORDABILITY GAP

A key barrier for vulnerable groups continues to be access to quality and affordable stand-alone solar (SAS) products. Approximately 112 million of 228 million people in Sub-Saharan Africa will not be able to afford Tier 1 electricity despite it being accessible by 2030*. The Covid-19 pandemic has affected national economies and limited the consumers' ability to pay even more.

** Lighting Global, Vivid Economics and Open Capital, 2020 Off-Grid Solar Market Trends Report (MTR)*



IMPROVE AFFORDABILITY AND ENERGY ACCESS

Investment maps in Ethiopia, Nigeria and Sierra Leone were developed to highlight the existing off-grid sector (OGS) energy investment landscape and to identify investment opportunities for both public and private sector.



In addition to existing financing and strategic interventions, it is important to understand the state of the SAS sector as it relates to regional energy access rates for key product categories to scale distribution."

ACE-TAF (February 2021) Stand Alone Solar Investment Map



FAVOURABLE TAX POLICY IS CRITICAL FOR UNIVERSAL ENERGY ACCESS

Stakeholders understand the benefits of favourable tax treatment for a period to improve affordability and energy access without damaging government revenues.



Tax exemptions are a crucial part of a favourable enabling environment to help the market achieve scale, economic viability and provide much needed access to energy and other services for households and small businesses. Doing so will enable the SAS sector to grow into a vibrant private sector that can reach the poorest and most remote communities."

Sierra Leone: Impact of Goods and Service Tax and Import Duty Exemptions on SAS Products – Policy Brief



ALTERNATIVE CONSUMER FINANCING

ACE TAF provides analysis and recommendations on alternative consumer financing models can support consumers without distorting the markets.



I used to see solar lanterns at the shop and ignore them, always thinking that they are just fancy little flashlights that are expensive shares Blessin Ogbuewu from Ebonyi State Nigeria.

Consumers such as Blessing are able to utilise the pay-as-you-go (PAYG) business model that has helped SAS companies meet both the consumer's needs and demands."

*Nigeria Deep Dive Case Study
2 – April 2021*



M-PESA

Free Registration
Sim Replacement
Phone Charging
Scratch Cards w/sale Retail

DEMAND SIDE SUBSIDIES CAN EXPEDITE ENERGY ACCESS



DSS is an essential tool for Governments to achieve SDG7 and ensure that no one is left behind on the path to universal access. DSS unlike other subsidies, closes the affordability gap by directly reducing the price paid by end users for OGS products."

DSS in Off-Grid Solar – A tool for achieving universal energy access and sustainable markets

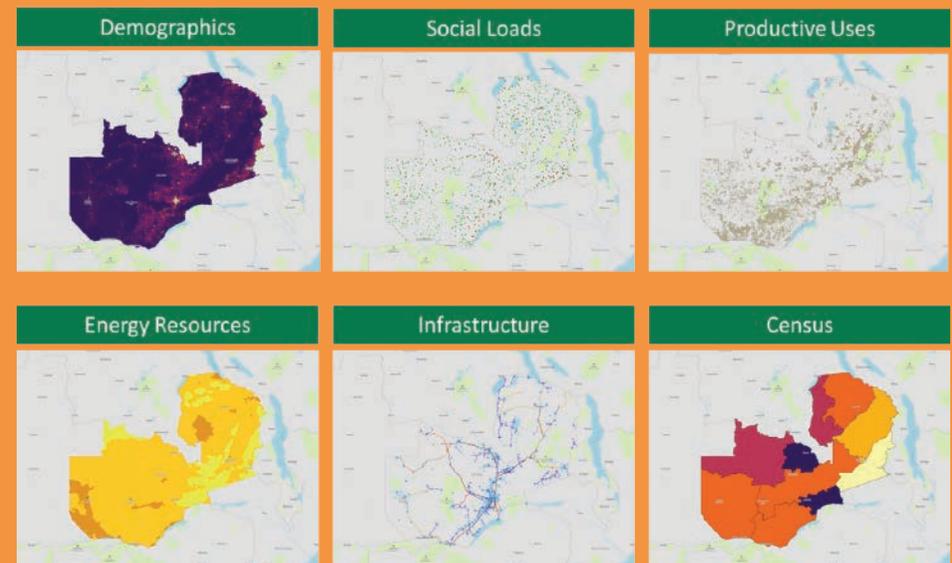
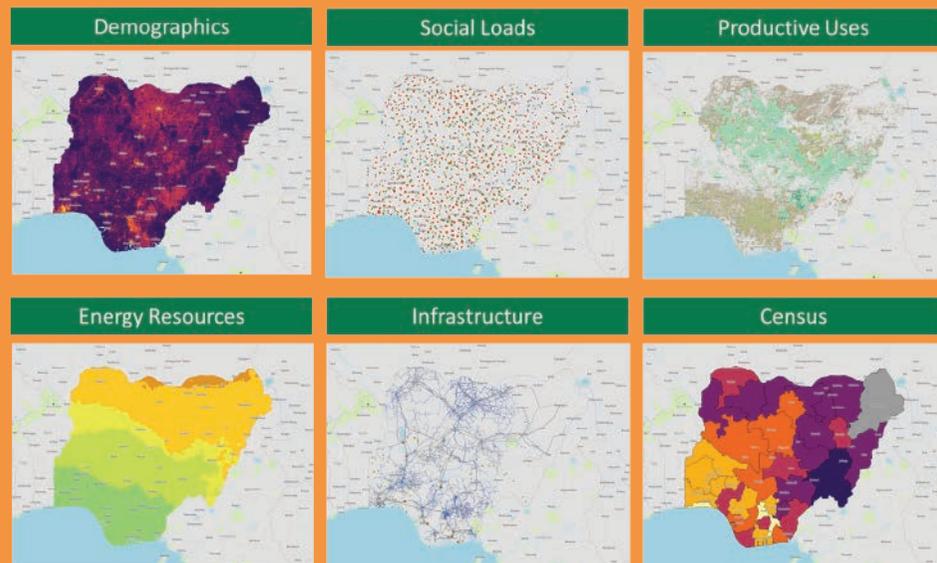


IMPROVED ENERGY PLANNING - ENERGY ACCESS EXPLORER

EAE maps are available for Nigeria, Ethiopia, Sierra Leone and Zambia and enable:

- Strategic Integrated Energy Planning
- Expansion of clean energy markets
- Prioritization of energy access investments
- Estimation of energy needs for development services

ACE TAF partner, WRI developed the Energy Access Explorer (EAE) platform for governments. The platform provides geospatial data that can be analysed to target opportunities to ensure a future where all people and institutions have access to affordable, reliable and modern energy while ensuring socio-economic development.



EAE LAUNCH



The platform makes our life easy. Because it helps us get integrated and up to date information. It saves our time and energy. Instead of us physically going looking for a demand data, (with the help of the platform) we can get the information just sitting on our table. (Using the platform) we can identify areas we can supply and to which target customers.

(The platform) will profoundly change the energy sector. We are going to get digital data. As a private sector and as a company who is doing PAYGo solar systems, this would be very beneficial.”

"መድረኩ/Platform/ ህይወታችንን/ስራችንን/ ያቀልልናል። ምክንያቱም የተቀናጀ እና ወቅታዊ መረጃ እንድናገኝ ያግዛናል። ጊዜያችንንና ጉልበታችንን ይቆጥብልናል። መረጃን ለመፈለግ በአካል ከመሄድ ይልቅ (በመድረኩ እገዛ) መረጃውን በጠረጴዛችን ላይ ተቀምጦን ማግኘት እንችላለን። (መድረኩን በመጠቀም) የት አካባቢ፤ ለየትኞቹ ደንበኞች አገልግሎታችንን ልናቀርብ እንደምንችል መለየት እንችላለን።

(መድረኩ)/ፕላትፎርም/ የኢነርጂ ሴክተርን በጥልቀት ይለውጠዋል። በዚህም መሰረት የበየመረብ /ዲጂታል/ መረጃ እናገኛለን። እንደ አንድ የግል ዘርፍና በቅድመ ክፍያ የፀሃይ ሃይል /PAYGO/ ስርዓት ላይ እንደሚሰራ ድርጅት ይህ በጣም ጠቃሚ ነው ።"

Mrs. Rekik Bekele - Owner and Manager of Green Scene Energy Plc and ESEDA board member Ethiopia



(ወ/ሮ ረቂቅ በቀለ የግሪን ሲን ኢነርጂ ኃ/የተ/የግ/ማህበር ባለቤት እና ሥራ አስኪያጅ እንዲሁም የኢ ኤስ ኢ ዲኤ / ESEDA/ የቦርድ አባል ኢትዮጵያ)

የኃይል ስርጭት አሳሽ/EAE/ ማስጀመር ዘግጅት ላይ ከተናገሩት

INCLUSIVE OFF-GRID POLICIES

Supporting the governments to include stand-alone solar alternatives as part of their off-grid energy strategy at the regional and state level helps countries ensure that investment opportunities flow to the most rural communities and provide energy access for all. This also helps countries reach their universal energy access targets more quickly.



MARKET UPDATES DEMONSTRATED ACE TAF FLEXIBLE APPROACH THAT ENABLED US TO RESPOND RAPIDLY DURING AND POST THE COVID 19 PANDEMIC

The Covid-19 pandemic threatened to erode the gains that have been made on energy access, especially through SAS. In May 2020, ACT TAF presented findings of a survey conducted among energy Ministries in SSA, describing how government can minimize the impact of the pandemic on the off-grid sector.



Our contribution as a company is to ensure that our members have access to the right information on Covid-19 amid the widespread misinformation especially on some social media channels.”

*Olasimbo Sojinrin, Country Director,
Solar Sister Nigeria*



ENERGY AND HEALTH ARE LINKED TO IMPROVED HEALTH CARE



We appreciate the overwhelming support you keep on rendering to the two ministries, specifically Solar for Health. Access to clean energy is key in improving the wellbeing of the people at individual and institutional level. GRZ alone may not achieve the Universal Access to energy services but with your support, this will be attainable at some point. We therefore stand ready for any collaboration that may be required....”.

Mr. Arnold M. Simwaba, Department of Energy – Director, Ministry of Energy, Zambia. (At the initial discussions on the Health Energy Action Plan and Call to Action.)





ENERGY ENABLES OTHER SECTORS AND CHANGES LIVES

ACE TAF takes a demand driven approach to support government agencies and stakeholders to facilitate the discussion on the intersection between energy and other sectors which is critical for economic and social development. Specifically, how productive use of energy can improve agriculture productivity and food security.



AFRICA CLEAN ENERGY

ACE TAF is part of the broader Africa Clean Energy initiatives which included Quality Assurance and the REACT Household Solar Programme, implemented by IFC and AECF respectively. ACE TAF has been implemented by Tetra Tech in partnership with Open Capital Advisors (OCA), Global Off-Grid Lighting Alliance (GOGLA), the World Resource Institute (WRI), and Solar Sisters.



ACE TAF CONTRIBUTORS

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Pauline Githugu, Team Leader
Joyce DeMucci, Deputy Team Leader
Iain Nelson, Programme Manager
Emily Bayliss, Programme Co-Ordinator
Kennedy Kibukho, M&E Manager
Brenda Nyongesa, Finance Manager
Javier Franklin, Head of Finance
Doreen Gatwiri, Procurement Manager
Louisa Ssenyonga, Communications Lead
Jeremy Swainson, Programme Director
Chibuikem Agbaegbu, Country Manager Nigeria
Queen Aghomon, Assistant Country Manager Nigeria
Kenassa Bato, Country Manager Ethiopia
Dessalegn Yigzaw, Assistant Country Manager Ethiopia
Doreen Bwalya, Country Manager Zambia
Brian Mainza, Assistant Country Manager Zambia
Staale Brinchmann, Programme Director
Ewan Bloomfield, Technical Director
Rebecca Glas, Programme Manager
Oliver Turnbull, Programme Co-ordinator
Roshni Patel, Programme Co-Ordinator
Esther Kahinga, Knowledge and Communications Manager
Victor Oloo, Communications Manager
Joseph Eni, Procurement Officer
Simon Ooga, Finance Assistance
Eden Fenta, Country Manager Ethiopia
Izaiah Mulenga, Assistant Country Manager Zambia
Aminata Dumbuya, Country Manager Sierra Leone
Michael Yambasu, Assistant Country Manager Sierra Leone
Malick Seck, Country Manager Senegal
Safietou, Camara, Assistant Country Manager Senegal
Joel Essien, Country Manager Uganda
Isaiah Oonyu, Assistant Country Manager Uganda
Caroline Toroitich, Country Manager Kenya, Ghana, Somalia
Mary Githinji, Country Manager Kenya, Ghana, Somalia
Shaleen Munuhe, Assistant Country Manager Kenya, Ghana, Somalia
Collin Gumbu, Country Manager Tanzania, Rwanda
Tayamika Mattao, Assistant Country Manager Tanzania, Rwanda
Reginald Mapfumo, Country Manager Zimbabwe, Mozambique
Jonathan Njerere, Assistant Country Manager Zimbabwe, Mozambique
Ed Phillips, Country Manager Malawi
Josephine Nyaga, Assistant Manager Malawi

Itotia Njagi, Senior Operations Officer/ Climate Finance AS Practice Group Lead, IFC
Nkatha Michira, Operations Officer / Project Lead, IFC
Nana Nuamoah Asamoah-Manu, Operations Officer / Technical Lead, IFC
Chris Carlson, Program Consultant, Verasol / CLASP
Ari Reeves, Senior Director of Research, CLASP
Arne Jacobson, Director, Schatz Energy Research Center, Humboldt State University
Kristen Radecsky, Senior Research Engineer, Schatz Energy Research Center, Humboldt State University
Davida Wood, Global Director, Energy Access and Governance WRI
Dimitris Mentis, Lead, Energy Access Explorer WRI
Sanjoy Sanyal, Senior Associate, Energy Access Finance WRI
Benson Ireri, Africa Lead, Energy Access WRI
Santiago Sinclair Lecaros, Research Associate, Energy Access Explorer WRI
Fabian Jendle, Senior Software Engineer, Energy Access Explorer WRI
Jake Stockman, Research Analyst, Energy Access Explorer WRI
Douglas Ronoh, GIS Analyst, Energy Access Explorer WRI
Cesar Gonzalez, Project Specialist, Energy Access WRI
Beryl Ajwang, Research Analyst, Energy Access WRI
Koen Peters, Executive Director GOGLA
Patrick Tonui, Head of Policy and Regional Strategy GOGLA
Namory Dumbia, Head of Member Services GOGLA
Susie Wheeldon, Head of Communications and Insight GOGLA
Drew Corbyn, Head of Performance & Investment GOGLA
Francis Wainaina, Project Manager, Policy and Regulatory Environment GOGLA
Sjef Ketelaars, Project Manager Research GOGLA
Kia Muukkonen, Project Manager, Performance & Investment GOGLA
Aletta D'cruz, Communications Manager GOGLA
Johanna Galan, Policy Director GOGLA
Chiara Ferracioli, Policy Director GOGLA
Julie Cammell, Programme Manager, Policy and Regulatory Environment GOGLA
Mariana Daykova, Data Strategy Manager GOGLA
Silvia Francioso, Database Specialist GOGLA
Duda Slawek, Principal & Energy Access Lead OCA
Reza Fazel, Principal OCA
Andreas Zeller, Managing Partner OCA
Nathalie Gogue-Ebo, Associate Partner & West Africa Lead OCA
Harry Masters, Principal OCA
Crystal Mugimba, Senior Project Leader OCA
Emily Barran, Senior Project Leader OCA
Jonathan Maraka, Project Leader OCA
Aditya Shah, Project Leader OCA

SAS KNOWLEDGE HUB



