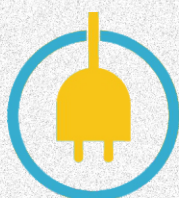




NIGERIA OFF-GRID RENEWABLE ENERGY MARKET UPDATE (2022)



Clean Technology Hub
energy innovation centre

■ FOREWORD

This report is a publication of Clean Technology Hub. It was written and produced by Daramfon Bassey and Ifeoma Malo. It was compiled using both primary and secondary sources such as meetings with key stakeholders, published reports, new reports, and online sources, and is intended to give stakeholders a snapshot of recent major developments in the off-grid renewable energy sector in Nigeria.

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1. NIGERIA'S ENERGY ACCESS BACKGROUND

Nigeria's total installed electricity grid capacity currently stands at 18,000 MW,¹ out of which only 8,000 MW is currently being distributed to Nigerians due to several limitations ranging from gas shortages, water levels in hydroelectric dams, and poor infrastructure. This current situation has resulted in over 70 million Nigerians being without access to electricity, a situation that could worsen in the coming years as electricity demand in the country is projected to reach 77,450MW and 119,200MW by 2025 and 2030 respectively.² In addition, the country is still being plagued with frequent system collapses that have resulted in nationwide blackouts. In September 2022, the country experienced its seventh national grid collapse for the year.³

It is therefore not surprising that in order to address the energy conundrum in the country, there has been an increasing number of policies as well as public and private initiatives aimed at stimulating investment in the off-grid clean energy as well as driving the increased adoption of clean energy solutions in the country. This is in keeping with international trends, as the global off-grid solar market share is projected to reach \$5 billion by 2030. In Nigeria, it is estimated that potential annual market opportunity off-grid solar energy is \$8 billion for mini-grids and \$2 billion for solar home systems.⁴ In 2022, the growth of the sector can be linked to several factors - the continued government support through the activities of the REA and NSIA, the introduction of several sector support initiatives by donor and private stakeholders, as well as increased investments into the sector from foreign and local financial institutions.



2. POLITICAL FRAMEWORK

2.1 Government Institutions



In 2022 so far, there have been several notable activities by government agencies supporting the sector and overseeing the off-grid energy sector in the country. These include changes in the leadership and management structures across several agencies, the introduction of new strategic partnerships, as well as the development of a new Environmental and Social Management Plan (ESMAP) for the solar mini-grid sector etc. The table below provides highlights of some of these significant activities.

¹ This Day (2022), FG: Nigeria's Installed Electricity Capacity Stands at 18,000mw, Generates 8,000MW daily. Available from: <https://www.thisdaylive.com/index.php/2022/03/04/fg-nigerias-installed-electricity-capacity-stands-at-18000mw-generates-8000mw-daily/>

² USAID NPSP (2022), Nigerian Off-Grid Market Intelligence Report. Available from: https://pdf.usaid.gov/pdf_docs/PA00ZB5X.pdf

³ Nigerian Tribune (2022), National Grid Collapses for 7th Time in 2022. Available from: <https://tribuneonlineng.com/national-grid-collapses-for-7th-time-in-2022/>

⁴ USAID NPSP (2022), Nigerian Off-Grid Market Intelligence Report

Table 1: Recent Off- Grid Related Activities by Government Institutions in Nigeria

Institution	Recent Updates
Federal Government of Nigeria (FGN)	<ul style="list-style-type: none"> - Signed an MOU with the Korean Institute for Advancement of Technology (KIAT) designed to deliver a total renewable energy capacity of 1.6MWP and 3.0 MWhrs mini-grid systems to four main communities in Abuja.⁵ - Launched the Environmental and Social Management Plan (ESMP) Guidelines for Solar Mini Grid projects in Nigeria.⁶ - Launched the Nigeria Energy Transition Plan - Announced plans to build a 2.5MW hybrid solar plant in Nigeria Defence Academy located in Kaduna
Rural Electrification Agency (REA)	<ul style="list-style-type: none"> - Signed 4 new agreements under the PBG mini-grid component of the NEP⁷ - Signed six (6) grant agreement addendums under the OBF SHS component of the NEP⁸ - Electrified 14 healthcare facilities in the South-South region using containerized solar hybrid systems⁹ - Partnered with RMI to launch the Energizing Agriculture Program (EAP) - Hired Lande Abudu as the Component Head SHS NEP - Kick started a five year \$2.9 million off-grid electrification project “Derisking

⁵ REA (2022), KIAT AND REA set to Power 4 FCT Communities through Renewable Energy. Available from: <https://rea.gov.ng/kiat-rea-set-power-4-fct-communities-renewable-energy/>

⁶ Daily Asset (2022), FG Launches Simplified Environmental Solar Mini-Grid Project. Available from: <https://dailyasset.ng/fg-launches-simplified-environmental-solar-mini-grid-projects-in-nigeria/>

⁷ REA (2022), REA signs PBG grant agreement with 3 firms. Available from: <https://rea.gov.ng/rea-signs-pbg-grant-agreement-3-firms/>

⁸ REA (2022), REA-NEP Signs OBF grant agreement addendum with qualified grantees. Available from: <https://rea.gov.ng/rea-nep-signs-obf-grant-agreement-addendum-with-qualified-grantees>

⁹ REA (2022), REA Deploys Containerized Solar Hybrid System in 14 Health Care Centers. Available from: <https://rea.gov.ng/haven-hill-completes-14-solar-hybrid-containerized-systems/>

	<p>Sustainable Off-Grid Lighting Solution in Nigeria”.¹⁰</p> <ul style="list-style-type: none"> - Launched the Africa Minigrids Program (AMP)
Nigeria Electricity Regulatory Commission (NERC)	<ul style="list-style-type: none"> - Developed a consultation paper on the proposed review of regulations for Mini-Grid 2016
Federal Ministry of Power	<ul style="list-style-type: none"> - Engr. Ali Dapshima Abubakar appointed as the Acting Director, Department of Renewable and Rural Power Access
Nigerian Sovereign Investment Authority (NSIA)	<ul style="list-style-type: none"> - In February 2022 in collaboration with the REA established a N10 billion revolving fund under the Solar Power Naija (SPN) program.¹¹
Nigerian Electricity Management Services Agency (NEMSA)	<ul style="list-style-type: none"> - In January 2022, Engr. Aliyu Tahir was appointed as the new Managing Director/Chief Executive Officer of NEMSA and the Chief Electrical Inspector of the Federation.¹²

2.2 Off-Grid Electrification Interventions/ Programmes



In addition to the existing off-grid electrification interventions and programmes in the country such as the Nigerian Electrification Project (NEP), Solar Power Naija (SPN) Project, and the Mini-Grid and Interconnected Mini-Grid Acceleration Scheme etc. 2022, has witnessed the introduction of several new initiatives aimed at driving renewable energy adoption in Nigeria these newly introduced initiatives include – The Energizing Agriculture Program (EAP), the Africa Mini-Grid Program (AMP), and the SE4ALL supported Universal Energy Facility (UEF) – Standalone Solar for Productive Use Program.

Energizing Agriculture Program (EAP)



In March 2022, the Rural Electrification Agency (REA) in collaboration with Rocky Mountain Institute launched the Energizing Agriculture Program (EAP) aimed at linking mini-grids and

¹⁰ The Guardian (2022), GEF, UNDP foot \$2.6 million off-grid rural electrification project. Available from: <https://guardian.ng/news/gef-undp-foot-2-9-million-off-grid-rural-electrification-project/>

¹¹ REA (2022), NSIA & REA Partner on N10bn Fund for Solar Power Naija Programme. Available from: <https://rea.gov.ng/nsia-rea-partner-on-n10bn-fund-for-solar-power-naija-programme/>

¹² Daily Post (2022), Buhari appoints Aliyu Tahir as NEMSA MD. Available from: <https://dailypost.ng/2022/01/27/buhari-appoints-aliyu-tahir-as-nemsa-md/>

agricultural productivity to catalyze economic development and improve rural livelihoods in Nigeria. The program is a three-year initiative supported by the Global Energy Alliance for People and Planet (GEAPP) and funded by Rockefeller Foundation and is focused on enabling market-led solutions and breaking the silos between electrification and agricultural development.

Universal Energy Facility (UEF) - Standalone Solar for Productive Use Program



The Universal Energy Facility – a results-based finance facility managed by Sustainable Energy for All, in August, 2022 launched “The Stand-Alone Solar for Productive Use Programme” an innovative programme aimed at scaling up electricity access to small and medium-sized enterprises (SMEs) and households in Nigeria, with plans to expand to additional Sub-Saharan African countries by 2023. The programme will offer grants to renewable energy companies to electrify SMEs engaged in “productive uses” including agriculture, industrial, and other commercial activities. The program is focused on enabling stand-alone solar energy projects that will ensure that small businesses have access to reliable and sustainable energy to grow their operations, as well as displace the use of fuel generators currently being relied on by most small-scale enterprises in the country.

The African Mini-Grids Programme (AMP)



In September 2022, the Rural Electrification Agency (REA) inaugurated the Africa Mini Grids Programme (AMP) – a four-year project funded by the Global Environment Facility (GEF) and supported by the United Nations Development Programme (UNDP) in Nigeria. The program aims to increase the financial viability and promote scaled-up commercial investment in renewable energy mini-grids, with a focus on cost reduction levers as well as innovative business models. The programme is currently being carried out in 21 African countries and is being implemented by the REA in Nigeria as an enabler project of the EAP.

2.3 Off-Grid Energy Regulatory Framework



There have been recent developments in the off-grid energy regulatory environment at both the federal and state level aimed at boosting and strengthening the enabling environment for the adoption and deployment of off-grid renewable energy solutions across the country. This includes – the launch of the Nigerian Energy Transition Plan¹³, the proposed review of the Regulations for Mini-Grids 2016, the introduction of the Environmental and Social Management Plan (ESMAP) Guidelines for Solar Mini-Grid Projects in Nigeria etc.

The Nigeria Energy Transition Plan (ETP) was launched by the Federal Government of Nigeria in August 2022. The ETP is a homegrown, data-backed multi-pronged strategy developed for the achievement of net zero emissions in terms of the country’s energy consumption. The major objectives of the plan include lifting 100 million Nigerians out of poverty and driving economic

¹³ The Africa Report (2022), Nigeria’s Energy Transition Plan needs \$410bn by 2060 to be successful. Available from: <https://www.theafricareport.com/235586/nigerias-energy-transition-plan-needs-410bn-by-2060-to-be-successful/>

growth, bringing modern energy services to all, managing the expected long term job loss in the oil sector due to the reduced global fossil-fuel demand, as well as streamlining existing and new government-related energy transition initiatives. The Plan also sets out the timeline and framework for reducing emissions in five key sectors that contribute 65% of Nigeria's carbon emissions - power, oil & gas, transportation, industry, and cooking. The plan is projected to lead to the creation of up to 340,000 jobs and up to 840,000 jobs by 2030 and 2060 respectively driven largely by the power, cooking and transport sectors especially. Plan aims in the power sector to drive the transition away from diesel/petrol generators through an initial expansion of gas generation capacity to meet increased electricity demand and integrate renewables, and subsequently, ramping up of renewables-backed electrification to facilitate decarbonization in key sectors such as cooking, industry, and, transportation. The implementation of the plan will require \$1.9 trillion including \$410 billion above projected usual spending (about \$10 billion annually) and provides significant investment opportunities for the establishment and expansion of industries related to solar energy, hydrogen, and electric mobility in the country.

The Nigerian Electricity Regulatory Commission (NERC) with the collaboration of the Nigerian Energy Support Programme (NESP) is currently reviewing the regulatory framework for mini grids in the country to reflect new realities in the sector. These proposed revisions include:

- inclusion of definition of Portfolio of Interconnected Mini-grids, and Portfolio of isolated mini-grids
- Clarification that mini-grid permit shall be issued for both isolated and interconnected mini grids
- Provision for allowing submission of a single tariff application for a portfolio of interconnected or isolated mini-grids.
- Provision for allowing submission of combined reports for portfolio mini-grids
- Updated to the Exclusivity and Tripartite Agreement templates.
- Inclusion and enforcement of Monitoring and Evaluation (M&E) mandates, including sample templates for feasibility studies and M&E reporting during operations.
- Amendments to relevant clauses/sections of the Mini-grid regulations 2016 that will be needed to accommodate any changes to the overarching NESI framework.

At the state level, Clean Technology Hub with the support of the Heinrich Boell Foundation under the "Driving Renewable Energy Adoption At the State Level" project launched the Delta State Renewable Energy Roadmap. The Roadmap outlines a 5 years strategy plan for driving renewable energy adoption across key sectors in the state - Agriculture, Health, Education, ICT & Security, Micro, Small and Medium Enterprises (MSMEs), and Transportation. In addition, the FCDO African Clean Energy Technical Assistance Facility (ACE TAF) assisted Jigawa, Kano, Katsina, and Lagos develop their own state level off-grid electrification policies.



3. OFF-GRID PRIVATE COMPANIES

There have been several activities carried out by private off-grid companies in the country, especially solar home systems (SHS) and solar mini-grid companies in the country. These cut across strategic partnerships, mergers, and acquisitions, securing of more investments, launching of new initiatives/programs, and new electrification connections. Some of these current developments are highlighted in the table below:

Table 2: Recent Activities of Off-grid renewable energy companies in Nigeria

Company	Business Type	Current Developments
Asteven	SHS	<ul style="list-style-type: none"> • Rolled out a nationwide training program for youths across the country in partnership with the National Youth Council of Nigeria (NYCN)¹⁴
Jinko Solar	SHS	<ul style="list-style-type: none"> • In June 2022, entered into a 50MWH strategic distribution agreement with Palette Business Solutions Limited¹⁵
Husk Power	Mini Grid	<ul style="list-style-type: none"> • Launched the “Nigeria Sunshot Initiative – a multi-year effort that could benefit at least 2 million Nigerians by 2026
Engie Energy Access	Mini Grid	<ul style="list-style-type: none"> • In April, 2022 inaugurated its hybrid 90KW mini-grid to connect households and small businesses in Gbangba community in Niger State¹⁶ • Signed a grant agreement addendum with the REA under the OBF SHS component of the NEP
A4& T Power Solutions	SHS/Mini-Grid	<ul style="list-style-type: none"> • Received grant from the (I)MAS program • Signed a grant agreement addendum with the REA under the OBF SHS component of the NEP

¹⁴ Leadership Newspaper (2022), 2 Firms Partner NYCN to Empower Youths on Alternative Energy. Available from:
<https://leadership.ng/2-firms-partner-nycn-to-empower-youths-on-alternative-energy/>

¹⁵ African Review (2022), Jinko Solar signs distribution agreement with Palette in Nigeria. Available from:
<https://www.africanreview.com/energy-a-power/power-generation/jinkosolar-signs-distribution-agreement-with-palette-in-nigeria>

¹⁶ This Day (2022), ENGIE Energy Launches Mini-grid in Niger. Available from:
<https://www.thisdaylive.com/index.php/2022/04/13/engie-energy-launches-mini-grid-in-niger/>

Acob Lighting Technology Hub	SHS/Mini-Grid	<ul style="list-style-type: none"> Received grant from the (I)MAS program
Darway Coast	Mini-Grid	<ul style="list-style-type: none"> Received grant from the (I)MAS program
GVE Project Limited	Mini-Grid	<ul style="list-style-type: none"> Received grant from the (I)MAS program National Youth Council of Nigeria (NYCN)¹⁴
Jinko Solar	SHS	<ul style="list-style-type: none"> In June 2022, entered into a 50MWH strategic distribution agreement with Palette Business Solutions Limited¹⁵
Husk Power	Mini Grid	<ul style="list-style-type: none"> Launched the “Nigeria Sunshot Initiative – a multi-year effort that could benefit at least 2 million Nigerians by 2026
Engie Energy Access	Mini Grid	<ul style="list-style-type: none"> In April, 2022 inaugurated its hybrid 90KW mini-grid to connect households and small businesses in Gbangba community in Niger State¹⁶ Signed a grant agreement addendum with the REA under the OBF SHS component of the

¹⁴ Leadership Newspaper (2022), 2 Firms Partner NYCN to Empower Youths on Alternative Energy. Available from:
<https://leadership.ng/2-firms-partner-nycn-to-empower-youths-on-alternative-energy/>

¹⁵ African Review (2022), Jinko Solar signs distribution agreement with Palette in Nigeria. Available from:
<https://www.africanreview.com/energy-a-power/power-generation/jinkosolar-signs-distribution-agreement-with-palette-in-nigeria>

¹⁶ This Day (2022), ENGIE Energy Launches Mini-grid in Niger. Available from:
<https://www.thisdaylive.com/index.php/2022/04/13/engie-energy-launches-mini-grid-in-niger/>

A4& T Power Solutions	SHS/Mini-Grid	<ul style="list-style-type: none"> Received grant from the (I)MAS program Signed a grant agreement addendum with the REA under the OBF SHS component of the NEP
Acob Lighting Technology Hub	SHS/Mini-Grid	<ul style="list-style-type: none"> Received grant from the (I)MAS program
Darway Coast	Mini-Grid	<ul style="list-style-type: none"> Received grant from the (I)MAS program
GVE Project Limited	Mini-Grid	<ul style="list-style-type: none"> Received grant from the (I)MAS program
Sosai Renewable Energy	SHS/Mini-Grid	<ul style="list-style-type: none"> Received grant from the (I)MAS program
Rubitec Solar	SHS/Mini-Grid	<ul style="list-style-type: none"> Received grant from the (I)MAS program
Greenlight Planet	SHS	<ul style="list-style-type: none"> Signed a grant agreement addendum with the REA under the OBF SHS component of the NEP
Solar Sister	SHS	<ul style="list-style-type: none"> In May 2022 merged with LivelyHoods Kenya¹⁷ In August 2022, appointed Olasimbo Sojinrin as the Global Chief Operating Officer (COO)
Havenhill Synergy	Mini- Grid	<ul style="list-style-type: none"> Received grant from the (I)MAS program Deployed containerized solar hybrid systems to electrify 14 healthcare facilities in the South-South region¹⁸

¹⁷ E&C (2022), Solar Sister announces merger with LivelyHoods Kenya. Available from: <https://www.eecc.eu/solar-sister-announces-merger-with-livelyhoods-kenya#:~:text=and%20LivelyHoods%20Kenya%20announce%20their,with%20LivelyHoods%27%20network%20in%20Kenya.>

¹⁸ REA (2022), REA Deploys Containerized Solar Hybrid System in 14 Health Care Centers.

Daystar Power	Commercial & Industrial (C&I) Solar	<ul style="list-style-type: none"> In September 2022, Shell announced the acquisition of Daystar Power
Starsight Energy	Commercial & Industrial (C&I) Solar	<ul style="list-style-type: none"> In September 2022, announced plans to merge with South African C & I solar company – SolarAfrica



4. FINANCING

The off-grid clean energy market remains largely driven by foreign investments in the form of grants by donor agencies, as well as equity or debt funding from impact investors and international private investors. In February 2022, the African Development Bank Group approved the Leveraging Energy Access Finance Framework (LEAF) under which the bank will commit up to \$164 million to promote decentralised renewable energy (DRE) in Nigeria and five other African countries. All On has also in the past couple of months signed several investment deals with off-grid companies in the country. The table below gives an overview of key investment related activities in the sector in the year so far.

Table 3: Recent off-grid financing activities in Nigeria

Investor	Type	Update
All On	Impact Investor	<ul style="list-style-type: none"> Dr. Weibe Boer stepped down as the CEO In June 2022, sealed an investment deal with Solstroem¹⁹ In June 2022, announced a \$500,000 investment deal to Greenage Technologies Power Systems²⁰
SunFunder	Investor	<ul style="list-style-type: none"> In June 2022, was acquired by Mirova, a Paris-based \$27 billion unit of Natixis investment managers²¹

¹⁹ Vanguard (2022), All On/Solstroem sign investment deal to finance technology for rural women on carbon credits.

²⁰ Business Day (2022), All On Greenage Technologies sign \$500,000 solar manufacturing deal.

²¹ P & I (2022), Mirova acquires clean energy boutique Sun Funder. Available from: <https://www.pionline.com/money-management/mirova-acquires-clean-energy-boutique-sunfunder>

Trine	Crowdfunding Platform	<ul style="list-style-type: none"> Partnered with Watt Renewables to provide a €7 million framework to help unlock the potential to deliver reliable power to telecommunication tower operators.²²
IIP Symbiotics	Impact Investor	<ul style="list-style-type: none"> In July 2022, announced plans to provide \$ 5 million financial support to Baobab to strengthen its SHS services in Nigeria, Ivory Coast, Mali, Senegal, Madagascar, and the Democratic Republic of Congo (DRC).²³
Infracredit	Investor	<ul style="list-style-type: none"> Announced plans to partner with the United Kingdom (UK) to provide up to £10 million of concessional aid to reduce the risk for pension and insurance funds to invest in energy access projects²⁴

²² Renewable Energy Magazine (2022), Trine and Watt Renewables Partner to Advance Renewable Energy for Nigerian Telecom Towers. Available from: https://www.renewableenergymagazine.com/pv_solar/trine-partners-up-with-watt-renewables-to-20220510

²³ Africa Energy Portal (2022), Baobab acquires \$5m loan to deploy solar kits in six countries. Available from: <https://africa-energy-portal.org/news/baobab-acquires-5m-loan-deploy-solar-kits-six-countries>

²⁴ Premium Times (2022), UK announces 10 million pounds aid for Nigerian energy sector. Available from: <https://www.premiumtimesng.com/news/top-news/513035-uk-announces-10-million-pounds-aid-for-nigerias-energy-sector.html>

Sustainable Use of Natural Resources and Energy Finance (SUNREF)	Development Finance	<ul style="list-style-type: none"> In June 2022, the Lagos Business School (LBS) concluded plans to access a N140 million credit facility from SUNREF Nigeria to embark on a 350kw solar project to
		reduce their operation cost ²⁵
Sterling Bank	Commercial Bank	<ul style="list-style-type: none"> In June 2022, the bank launched a new and innovative digital product known as the Imperium Platform. The platform aims to connect consumers and renewable energy providers with flexible financing options²⁶

²⁵ The Guardian (2022), LBS Leverages SUNREF facility for 350kw solar project. Available from: <https://guardian.ng/business-services/lbs-leverages-sunref-facility-for-350kw-solar-project/>

²⁶ Punch (2022), Bank launches platform for solar energy consumers. Available from: <https://punchng.com/bank-launches-platform-for-solar-energy-consumers/#:~:text= Sterling%20Bank%20Plc%20has%20launched,solution%20to%20Nigeria%27s%20electricity%20crisis.>



5. MARKET SUPPORT

Donor Agencies

Several development agencies continue to provide financial and technical assistance support to the off-grid renewable energy sector in Nigeria. In February 2022, the Sustainable Energy for All (SE4ALL) in collaboration with the Federal Government of Nigeria launched the Integrated Energy Planning Tool. The tool is powered by extensive geospatial modelling and layers of data and is the first truly integrated energy planning platform that incorporates the requirements for universal residential electrification, institutional electrification, powering of productive uses, and access to clean cooking. In the same month, eight indigenous solar mini-grid developers received grants through the Rural Electrification Agency with the financial and technical support of the GIZ/EU Nigerian Energy Support Program (NESP). The United Nations Development Programme (UNDP) and the Global Environment Facility are funding a five year \$2.9 million off-grid electrification project – “Derisking Sustainable Off-Grid Lighting Solution in Nigeria” aimed at benefiting over 90,000 Nigerians. In March 2022, the Rocky Mountain Institute (RMI) in collaboration with the Rural Electrification Agency (REA) and the technical and financial support of the Global Energy Alliance for People and Planet (GEAPP) launched the Energizing Agriculture Program (EAP) which is aimed at catalysing economic development and improving rural livelihoods in the country through the linkage of mini grids and agricultural productivity. In additions to these interventions, several of these agencies have in 2022 witnessed leadership changes. Mr. Tinyan Ogiehor was recently appointed the Off-Grid Lead of the USAID/Nigeria Power Sector Program (NPSP), and Mr. Suleiman Babamanu was appointed as the Nigerian Program Director of the Rocky Mountain Institute. The Table below shows a summary of key developments in the donor and development support sector of the off-grid market in the country.

Table 4: Recent Off-Grid Renewable Energy Related Activities by Donor Agencies in Nigeria

Organisation/Program	Type of Assistance	Updates
Sustainable Energy for All (SE4ALL)	Technical Assistance	<ul style="list-style-type: none"> Launched the Nigeria Integrated Energy Planning Tool²⁷ Appointed Mr. Abdul Yakubu as the Technical Energy Specialist Launched the Nigerian Energy Transition Plan Launched the Universal Energy Facility (UEF) – Standalone Solar for Productive Use Program

²⁷ This Day (2022), FG Launches Nigeria Integrated Energy Planning Tool. Available from: <https://www.thisdaylive.com/index.php/2022/02/03/fg-launches-nigeria-integrated-energy-planning-tool-today/>

USAID PA Nigeria Power Sector Program (NPSP)	Technical Assistance	<ul style="list-style-type: none"> Recently appointed Mr. Tinyan Ogeihor as the Off-Grid Lead Released the Nigerian Off-Grid Market Intelligence Report for 2021²⁸
FCDO ACE TAF	Technical Assistance	<ul style="list-style-type: none"> Closed out in July 2022 Supported Lagos, Kano, Jigawa, and Kaduna to develop energy policies for the state.
FCDO UKNAIF	Technical Assistance	<ul style="list-style-type: none"> Now solely focused on on-grid interventions
GIZ/EU Nigeria Energy Support Program (NESP)	Technical Assistance	<ul style="list-style-type: none"> Eight indigenous solar mini-grid developers received grants under the (I)MAS program
United Nations Development Programme (UNDP)	Financial Assistance	<ul style="list-style-type: none"> Provided \$300,000 for the “Derisking Sustainable Off-grid Lighting Solution in Nigeria” project²⁹
Global Environment Facility (GEF)	Financial Assistance	<ul style="list-style-type: none"> Provided \$2.6 million for the “Derisking Sustainable Off-grid Lighting Solution in Nigeria” project³⁰

²⁸ USAID NPSP (2022), Nigerian Off-Grid Market Intelligence Report. Available from: https://pdf.usaid.gov/pdf_docs/PA00ZB5X.pdf

²⁹ The Guardian (2022), GEF, UNDP foot \$2.6 million off-grid rural electrification project. Available from: <https://guardian.ng/news/gef-undp-foot-2-9-million-off-grid-rural-electrification-project/>

³⁰ ibid

European Union (EU)	Technical Assistance	<ul style="list-style-type: none"> Launched the \$1.35 billion Nigerian Green Energy Project- The Team Europe Initiative (TEI) aimed at stimulating sustainable climate agriculture and renewable energy for economic growth and development³¹
IFC Lighting Africa	Technical Assistance	<ul style="list-style-type: none"> Handed over a solar laboratory which it installed to the Standards Organisation of Nigeria (SON)³²
Rocky Mountain Institute (RMI)	Technical Assistance	<ul style="list-style-type: none"> Hired Mr. Suleiman Babamanu as the Nigerian Program Director of the Rocky Mountain Institute (RMI) Launched the Energizing Agriculture Program with the Rural Electrification Agency (REA)³³
Heinrich Boell Foundation (HBS)	Financial/Technical Assistance	<ul style="list-style-type: none"> Currently supporting the “Driving Renewable Energy Adoption at the State Level” project being implemented by Clean Technology Hub
Global Energy Alliance for People and Planet (GEAPP)	Technical Assistance	<ul style="list-style-type: none"> Supporting the Energizing Agriculture Program (EAP)³⁴

³¹ Tedia (2022), EU Launches 1.3bn Euro Nigerian Green Energy Project Under Team Europe Initiative.

³² Independent (2022), SON, Donor Partners Boost Renewable Energy with Solar Laboratory. Available from: <https://independent.ng/son-donor-partners-boost-renewable-energy-with-solar-laboratory/>

³³ Business Day (2022), REA Partners RMI to accelerate renewable energy in Nigeria. Available from: <https://businessday.ng/energy/article/rea-partners-rmi-to-accelerate-renewable-energy-in-nigeria/>

³⁴ ibid

Local Manufacturing



There have been several strides in the local manufacturing of several off-grid renewable energy components in 2022. In June 2022, Greenage Technologies Power Systems Limited secured \$500,000 in the form of a mix of equity and convertible debt from All On to fund the construction and expansion of its charge controllers and inverters manufacturing facility located in Enugu. Oando Energy in September 2022, announced plans to construct a 1GW solar module manufacturing plant in the country.

Industry Associations



Renewable Energy Association of Nigeria (REAN)

REAN is an independent, non-profit industry association with over 160 members ranging from private renewable energy companies, research institutes, non-profit organisations, individuals and students working in the sector. Between January – September 2022, the association has admitted over 10 members. Some of the activities carried out by REAN in 2022 so far include:

- In April, appointed Salamatu Baba Tunzwang as the Executive Secretary, replacing Lande Abudu, who left the position at the end of 2021.
- Conducted its Biennial Executive Committee elections in September 2022 where Mr. Ayo Ademilua was elected as the President of the Association taking over from Dr. Segun Adaju.
- Entered into a media partnership with Love FM Abuja for the RE360 radio show
- Published the report and factsheet on the demand side subsidy framework and consumer financing for renewable energy affordability
- Published a perception survey of local manufacturers in the Nigerian Renewable Energy Sector
- Published a women in renewable energy baseline report
- Published a factsheet on renewable energy and its significance to human health

Renewable Energy and Energy Efficiency Associations-Alliance (REEEA-Alliance)



The REEEA-Alliance is midwifed by the Nigerian Energy Support Programme (NESP II) and is made up of 7 member renewable energy associations including the Association of Energy Efficiency (AEE), Council for Renewable Energy of Nigeria (CREN), Renewable Energy Association of Nigeria (REAN), Renewable and Alternative Energy Society of Nigeria (REASON), Sustainable Energy Practitioners Association of Nigeria (SEPAN), Solar Energy Society of Nigeria (SESN), and the Women in Renewable Energy Association (WIRE-A). Some of the activities that have been carried out by the Alliance this year include:

- Organized its Maiden National Conference tagged “Optimizing Opportunities in the Energy Transition Value Chain”
- Organized a three-day workshop for the Review and Harmonization of Renewable Energy and Energy Efficiency Policies in Nigeria.



6. CONCLUSION

In the past three years, the off-grid market in Sub-Saharan Africa, and especially in Nigeria has grown greatly with enormous potential to grow within the next 5 years particularly due to the adoption of technologies, such as mini-grids, solar home systems, and productive use appliances.

In the mini-grid sub sector, according to a 2022 report by the African Mini-Grid Developers Association (AMDA), the number of operational private sector mini-grid grew by 288 sites in 2019 to 400 sites in 2021.³⁵ representing an increase of 39% in Africa leading to an increase in the number of people with access to modern electricity to over 500,000 people, businesses, healthcare centres, and schools.³⁶ In addition, the number of connections greatly increased from 40,700 connections to over 78,000 within the same time period.³⁷ In another 2022 report by the World Bank, there are over 29,400 mini-grids currently being in the planning stage globally out of which 95% are in Africa and South Asia.³⁸ In Africa, there are currently 3,100 installed mini-grids and 9,000 mini-grids with 2,700 mini-grids planned in Nigeria alone - making it the second highest country with the most planned mini-grids globally.³⁹ According to the ESMAP's Global Electrification Platform estimates, mini-grids are the least cost option to provide first time access to electricity to 430 million people (86 million mini-grid connections). In Sub-Saharan Africa nearly 291,000 population clusters have been identified that can be better electrified using mini-grids.⁴⁰

According to GOGLA, off-grid solar technologies are estimated to be the most cost effective and feasible solution for more than half (55%) of new household connections in the next five years globally.⁴¹ It is also expected to be the best pathway for new connections in West Africa within that same time period. In addition, West Africa has the third largest potential market (94 million) for off-grid solar after South East Asia and South Asia. The report also shows the potential for off-grid appliances and productive usage.⁴² According to the report, the estimated potential market for off-grid appliances is projected to reach \$25.2 billion by 2030 and the combined addressable market potential for the use cases of cold storage and irrigation in Sub-Saharan Africa and India is estimated to be over \$14 billion. In addition, the estimated addressable market for cold storage appliances in the region is worth approximately \$296 million.⁴³

The recently launched Powering Jobs Census 2022 developed by Power for All through a survey of 350 companies across Ethiopia, India, Kenya, Nigeria and Uganda shows that there are currently more than half a million direct DRE globally, with 374,000 and 80,000 from Africa and India respectively⁴⁴. In Nigeria, the report shows that the DRE sector currently employs 50,000 people and is projected to create more than 76,000 new jobs by 2023⁴⁵.

³⁵ AMDA (2022), Benchmarking Africa's Mini Grids Report. Available from: <https://africamda.org/wp-content/uploads/2022/06/Benchmarking-Africa-Minigrids-Report-2022-Key-Findings.pdf>

³⁶ ibid ³⁷ ibid

³⁸ ESMAP (2022), Mini Grids for Half a Billion People: Market Outlook and Handbook for Decisions Makers. Available from: <https://documents1.worldbank.org/curated/en/099635009232259510/pdf/P1751510dd4ab407e083a6098d1905fa94f.pdf>

³⁹ ibid ⁴⁰ ibid

⁴¹ GOGLA et al (2022), Off-Grid Solar Market Trends Report 2022 : State of the Sector. Available from: <https://documents1.worldbank.org/curated/en/099235110062231022/pdf/P175150063801e0860928f00e7131b132de.pdf>

⁴² ibid ⁴³ ibid

⁴⁴ Power for All (2022), Powering Jobs Census 2022: The Energy Access Workforce.

⁴⁵ Power for All (2022) Powering Jobs Census 2022: Focus on Nigeria.

These recent reports show that Nigeria and Africa as a whole have immense potential for renewable energy especially with the increasing conversations around the need for just energy transition. Nigeria has in 2022 made major strides in this regards, as illustrated by the launch of the Energy Transition, and the continued implementation of government and donor programs and initiatives such as the Nigerian Electrification Program (NEP), and the Solar Power Naija (SPN) program, and the introduction of the new off-grid renewable energy programs and initiatives. Currently, the country's off-grid solar market is among the fastest growing market in Africa increasing at a 2% average annual rate during the last five years and based on current trends and dynamics favouring solar deployment in Nigeria, the country's PV per capita is projected to reach 5-8GW by 2030⁴⁶.

⁴⁶ Punch (2022), Nigerian Off-Grid Solar Market among fastest-growing in Africa – Report <https://punchng.com/nigerian-off-grid-solar-market-among-fastest-growing-in-africa-report/#:~:text=The%20Nigerian%20off%2Dgrid%20solar,Shell%2Dfunded%20impact%20investment%20company.>