SUSTAINABLE ENERGY FOR ALL ACTION AGENDA (SE4ALL), 2016

Adopted by:
Inter-ministerial Committee on Renewable Energy and Energy Efficiency (ICREEE)

Approved by:
National Council on Power

Simplified Summary

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EXECUTIVE SUMMARY

The Sustainable Energy for All initiative focuses on driving actions and mobilizing commitments to positively transform the world's energy systems as well as catalyze sustainable development. Its objectives are premised around the proposition that national governments must design and implement a set of integrated country actions to drive transformative change in the world's energy systems; create the right investment environment for private sector participation, and encourage and facilitate the interplay of civil society organizations in identifying, advocating, and monitoring public policy and business action; mobilizing social innovation and grassroots action; leading behavioural change; as well as help to spread best practices and building capacities at all levels in partnership with governments and businesses.

The Nigerian Government had earlier demonstrated its commitment to the Initiative by launching the SE4ALL program in Nigeria in August 2012. This singular act placed Nigeria as one of the first Nations in the world to embrace the initiative. This Guide provides a simplified summary of Nigeria's action agenda for the Sustainable Energy for All Initiative. It provides context to the action agenda, the legal foundation, the targets and measures in the policy document, the gaps, the incentives, the key provisions, the key stakeholders, as well as related regulatory and policy documents, as well as current implementation status.

CONTEXT

The Sustainable Energy for All (SE4All) initiative is a multi-stakeholder partnership between governments, the private sector, and civil society. Launched by the UN Secretary-General in 2011, it has three interlinked objectives to be achieved by 2030:

- Ensure universal access to modern energy services.
- Double the global rate of improvement in energy efficiency.
- Double the share of renewable energy in the global energy mix.

The SE4All initiative also supports the 2014-2024 Decade of Sustainable Energy for All, as declared by the UN General Assembly. It is globally convened by the UN and the World Bank.

ECOWAS Heads of States in October 2012 mandated the ECOWAS Center for Renewable Energy and Energy Efficiency (ECREEE) to coordinate member state efforts in developing country actions.

The SE4All Action Agenda for Nigeria was developed in line with the guiding principles contained in the Guidelines for Developing National Sustainable Energy for All Action Agendas in Africa, which will be considered in tandem with the goals of the national energy agenda.

LEGAL FOUNDATION

Nigeria's Sustainable Energy for All Initiative Action Agenda is the country's implementation document for the global Sustainable Energy for All. It shows Nigeria's commitment towards global sustainable development, and links to the country's policy and regulatory documents on sustainable energy such as the National Renewable Energy and Energy Efficiency Policy (NREEEP), the National Renewable Energy Action Plan (NREAP), the National Energy Efficiency Action Plan (NEEAP), and Nigeria's Nationally Determined Contribution (NDC) to the COP 21 Paris Agreement.

TARGETS

Energy Access

- To increase electricity access from the current aggregate level of 40% (urban 65% and rural 28%) in 2015 to 75% (urban (65%) and rural (60%) by 2020.
- By 2030, the population living without energy access should drop from 60% in 2015 to about 10%.
- Replace 50% of traditional firewood consumption for cooking by improved cook-stove technology by 2020 and 80% by 2030.
- Working together with the private sector to roll out LPG at affordable cost for Nigerians between 2020 and 2030.
- Increase nuclear energy mix to 2.5% and 4% by 2025 and 2030 respectively.
- Increase grid supply to 32,000MW by 2030.

Energy Efficiency

- By the end of 2015, efficient lighting will be used by 20% of households, 40% by 2020 and almost 100% by 2030.
- For high-energy consuming sectors (transport, power and industrial sectors), energy efficiency will increase by at least 20% by 2020 and 50% by 2030.
- By 2016, energy audits will be compulsory for all high energy consuming sectors and public buildings.

Renewable Energy

- Nigeria's electricity vision 30:30:30 is to achieve a technology-driven renewable energy sector that harnesses the nation's resources to complement its fossil fuel consumption and guarantees energy security.
- By 2030, renewable energy is expected to contribute about 30% share in the available energy mix.
- To achieve a 27% and 20% contribution of hydroelectricity (both large and small hydro) to the nation's electricity generation mix by 2020 and 2030 respectively.
- To achieve a 2.5% contribution of wind energy to the nation's electricity generation mix by 2030.
- To achieve a 20% and 19% contribution of solar energy (PV and Solar thermal) to the nation's electricity generation mix by 2020 and 2030 respectively.
- To achieve and maintain 3% power generation capacity using biomass resource by 2020 and 2030.
- Achieve 10% biofuel blend by 2020 using locally produced bio-fuel from secondary biomass.

2030 TARGETS

Access to Electricity

- Increase overall supply of electricity in country to 23.5GW and 45 GW by 2020 and 2030 respectively (on-grid, off-grid and self-generation).
- Increase On-grid supply from 26% (2016) to 48% (2020) and 70% (2030).
- Reduce the use of self-generated power from 74% to about 48% and 18% in 2020 and 2030 respectively.
- Increase overall supply from off-grid systems (mini-grid and solar home systems) to 3% and 12% in 2020 and 2030 respectively.

Nuclear Energy

The revised Strategic Plan for the implementation of the National Nuclear Power Programme (2015) has the goal to ensure the availability of at least 1000 MW of electricity generation from the first nuclear power plant (NPP) by 2025 and an additional 3000 MW from more NPPs into the national grid by 2035

Renewable Energy

Nigeria has a target of 5,300 MW and 13,800 MW of on-grid RE capacity by 2020 and 2030 (including large hydropower) respectively.

Clean Cook Stoves

- The overall aim of the West African Clean Cooking Alliance (WACCA) is to provide safe, sustainable and affordable cooking for the ECOWAS region by 2030.
- 50% and 80% population using modern cooking fuel by 2020 and 2030 respectively.
- Improved wood cooks stove as well as efficient charcoal production will provide the balance of 20% population with cooking fuels in households.
- The Global Alliance on Clean Cookstoves (GACC) – Nigeria is also working in partnership with the International Centre for Energy and Environment Development (ICEED), the Federal Ministry of Environment and other relevant agencies and NGOs to promote clean cooking in Nigeria.

Summary of Renewable Energy Targets

Resource	2010	2015	2020	2030
Hydro (LHP) (MW)	916	1097	2540	4700
Hydro (SHP) (MW)	0	15	265	1200
Solar (MW)	0	0	2050	6000
Biomass (MW)	0	0	300	1100
Wind (MW)	0	0	170	800
All Renewables plus LHP (MW)	916	1112	5325	13800
All Energy Resources (on-grid power plus MW of self-generated power	18019	18019	12313	45101
% of RE incl. LHP	5	27	52	46
% of RE excl. LHP	0	0.01	27	30

Off-Grid Renewable Energy Targets

Increase total off-grid capacity to 8,000MW by 2030

Energy Efficiency Targets

2020

- 40% household efficient lighting use.
- At least 20% energy efficiency increase in high energy consuming sectors.
- Achieve 10% biofuel blends.
- Improve bioenergy sector efficiency.
- Distribution loss reduction target to 15-20%.

2030

- Almost 100% household efficient lighting use.
- At least 50% efficient energy increase in high energy consuming sectors.
- Curb firewood demand below supply capacity.
- Distribution loss reduction target to less than 10%.

EXISTING GAPS - ELECTRICITY ACCESS, RENEWABLE ENERGY & ENERGY EFFICIENCY

Electricity Access

Aspects	Gaps
Financial	• Lack of access to funding for energy access projects. • Most financial institutions in Nigeria do not have a dedicated financing window for energy access. • The use of foreign exchange lending facility. • High levels of taxation, low support for foreign direct investment, high interest rates etc. • Inadequate provision for long term stability for energy access investments. • Limited government financial incentives such as subsidies, grants for energy access projects. • Decentralized power plants are not prioritized in the national strategy for power expansion.

Aspects	Gaps
Institutional & Regulatory	• Lack of appropriate financial mechanisms to meet the social and political components of energy access. • Lack of long-term national strategies and large scale programmes. • Limited policy instrument/ mechanisms approved by the Government to spur private sector investment. • Lack of continuity in government policies.
Technical	• Poor state and low capacity of electricity infrastructure in the country. • Inadequate number of trained and certified professionals
Capacity Building and Availability of Information	• Research and development capacity is very limited in the country. • Lack of awareness of the potential and benefits of energy access services.

Renewable Energy

Aspects	Gaps	Aspects	Gaps
Financial	• Major shortage in investment capital leading to high interest rates for renewable electricity. • High initial cost of deployment. • Non-implementation or withdrawal of government financial incentives such as subsidies results in low return on investment and project abandonment. • Projects requiring counterpart funding often experience delays because of the inability of the country to meet the required obligation. • Weak purchasing power of potential end users.	**Institutional & Regulatory**	• The dominance of public institutions in the sector. • Conflicts and duplications in mandates among public sector actors. • There is no law directly promoting renewable energy and energy efficiency. • Lack of continuity in government policies.
Technical	• Nigeria has no significant manufacturing capacity for components of renewable energy technologies. • Potential IPPs have significant logistics challenges in procuring equipment and maintenance support for renewable energy projects. • Poor perception among potential end users. • Inadequate number of professionals in the sector	**Capacity Building and Availability of Information**	• Research and development capacity is limited in Nigerian research institutions due to short fall in funding. • Lack of practical courses and expertise on renewable energy in major institutions in the country. • Limited public awareness of the potential and benefits of renewable electricity.

Energy Efficiency

Aspects	Barriers, Challenges and Risks
Financial	• Low energy prices are a dis-incentive for the efficient use of energy. • Major shortage in investment capital resulting in high interest rates for energy efficiency appliances. • Non-implementation or withdrawal of government financial incentives.
Institutional and Regulatory	• There is no lead agency responsible for energy efficiency in Nigeria. • Limited participation of private sector in the drive for energy efficiency. • There is no legislation in Nigeria that promotes the use of energy efficient appliances. • SON does not have standards for energy efficient appliances
Technical	• There is no significant manufacturing capacity for energy efficient components and appliances in Nigeria. • Test laboratories are not adequate.

OVERVIEW OF MEASURES – ENERGY ACCESS, RENEWABLE ENERGY & ENERGY EFFICIENCY

Measure	Needed Action	Measure	Needed Action
Energy Access	• Development of a national energy plan. • Upgrade of grid infrastructure. • Promotion of efficient electricity generation technologies in urban and rural areas. • An aggressive rural electrification and access plan.[1]	**Energy Access**	• Electricity for rural productive uses program. • Integrated resource plan. • Building and investing in robust national energy data management. • Broadening human and institutional capacity.

1 This is currently being done by the REA through the " Energizing Economies Initiative", the "Energizing Education Initiative", and the Nigeria Electrification Project with support from development partners such as the World Bank, African Development Bank, UK DFID, USAID/Power Africa, and GIZ

Measure	Needed Action	Measure	Needed Action
Renewable Energy	• Putting in place a strategic implementation framework for the NREEEP using the vehicles of the NREAP, SE4ALL-AA and SDG.[1] • Develop/build a renewable energy data bank and put in place a sustainable system of maintaining it through a coordinated working relationship with all relevant MDAs. • Promote and adapt waste to energy technologies.	**Renewable Energy**	• Construct a private sector led renewable energy-based supply infrastructure for industrial and agricultural processes across the country. • Incorporating renewable energy into the revised building code of Nigeria. • Promote R&D in biofuel for transport sector. • Enact and enforce the Biofuel Usage Act on the use of E5, E10, B10 and E20 in Nigeria.
Energy Efficiency	• Supporting policies and mechanisms such as energy efficiency labels, financial and behavioral incentives.[2] • Environmentally sound management including best practices for manufacturing materials and spent products. • Monitoring, verification and enforcement (MVE) to deter market spoilage. • Formulation and implementation of enabling policies, technologies and integrated strategies that accelerate the adoption of energy efficiency in SMEs. • Develop minimum energy performance standards for quality energy saving lighting products. • Promotion of grid infrastructure and supply efficiency.	**Energy Efficiency**	• Encourage the adoption of Environmental Management Systems (EnMS) by companies responsible for 50% of industrial energy use and promote energy efficiency in energy intensive SMEs. • Public utilities commit to incorporating incentives and technical assistance to support the implementation of EnMS in their demand –side management program. • Large Industrial companies commit to implementing verifiable management approaches such as ISO 50001. • Introduce measures to improve efficiency of transport fuel use. • Introduce tax-based policies for fuel economy labeling, age limits and import restrictions. • Introduction of energy efficiency standards and labels.

2 An Energy Guide Label has been developed for air conditioners, lamps, and refrigerators by the SON with support from GIZ.

Measure	Needed Action
Clean Cook - Stoves	• The development and adoption of national cooking policies, strategies and targets in line with the existing ECOWAS regional policies. • Ensuring such policies support the local manufacturing of improved wood cook-stoves, and highlight key incentives.

INCENTIVE

1. Moratorium on import duties for renewable energy.
2. Setting up of tax credits.
3. Capital incentives and preferential loan opportunities for renewable energy projects.
4. Tax holiday of 5-7 years,[3] which may be granted to:

- Companies that manufacture transformers, meters, control panels, switchgears, cable and other electrical related equipment, which are considered pioneer products/ industries.

- Manufacturers of solar-energy powered equipment and appliances; biomass, large scale mechanized farming.
- Energy efficiency schemes for manufacturers of oven, cookers, cold rooms, refrigerators, and air conditioners.
- Utility services (independent power generation utilizing gas, coal and renewable energy sources).

KEY PROVISIONS

Education, Research, Training, & Capacity Development

- Conduct research, development and demonstration to shape the energy efficiency market in the country.
- Introduce modules on energy access, energy efficiency, renewable energy and nuclear energy into the curriculum of primary school, high school and higher institutions
- Fund "high visibility" renewable energy and energy efficiency pilot projects in educational institutions.[4]
- Development of a wide range of technical and non-technical courses on the energy sector with support from development partners[5] and strengthening the mandate and activities of NAPTIN and other relevant training institutions [6]

3 Some renewable energy companies in Nigeria have benefited from this
4 This is currently being done by the REA under the "Energizing Education Initiative"
5 This is currently being done with support from development partners such as GIZ and USAID/Power Africa
6 This is currently being done with support from development partners such as GIZ and USAID/Power Africa 6 This is currently being done with support from development partners such as GIZ and USAID/Power Africa

Education, Research, Training, & Capacity Development (Cont'd)

- Strengthen current capacity building efforts of the SON on standards and regulations across the country (e.g. building more laboratories and test centres).[7]
- Building capacity for local manufacturing and fabrication of solar PVs, small wind turbines, small hydro power plants and components parts in Nigeria.[8]

Finance & Investment

- Establish clear legal and regulatory framework for energy financing in Nigeria, and long term financing mechanisms for energy asset, corporate bonds and venture capital.
- Develop support schemes and financial mechanisms for the energy efficiency sector through the joint efforts of relevant MDAs and other key stakeholders.
- Establish Infrastructure Project Development Facility (IPDF) to finance the development of a pipeline of bankable projects.

Support Policies, Plans & Framework for Implementation

Policy and regulatory requirements

- The Federal Government through relevant MDAs should design and coordinate a regulatory framework for the implementation and administration of energy efficiency programmes arising from the NREEEP 2015.
- Developing a Minimum Energy Performance Standards (MEPS) on energy appliances in the country as well as a monitoring, verification and enforcement policy to aid the implementation of the MEPS.
- Developing a national gender and energy policy that aligns with regional gender policy and integrating gender aspects in national planning, and decision-making processes.
- Developing and adopting national cooking policies, strategies, standards, and targets, including legal and regulatory mechanisms in line with the existing ECOWAS regional policies, the SE4ALL initiative, the sustainable development goals 7, and the Global Alliance for Clean Cook Stoves (GACC).
- Using the approved policy instruments (FIT and Competitive Bidding Systems) to create an enabling environment for a private sector led construction of on-grid, mini-grid and off-grid renewable energy power plants across the country.

7 This is currently being done with support from the Africa Clean Energy Technical Assistance Facility (ACE TAF), International Finance Corporation (IFC), and Lighting Africa Program
8 A few private companies have set up local assembly and fabrication centers in the country such as Nayo Technologies, Blue Camel Energy, and Asteven Limited

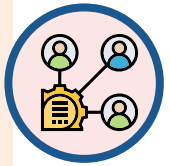
Support Policies, Plans & Framework for Implementation (Cont'd)

Planning & Strategy

- Developing a strategic implementation framework for the NREEEP 2015 and link it with the on-going regional activities, using the NREAP, SE4ALL-AA and SDG7.
- Developing a standardized legal instrument for all import and export processes, review existing duties and taxes of electricity supply industry equipment to make it more investor friendly.
- Building and investing in a robust national energy data management tool-kit, and a renewable energy data bank with a sustainable system in place for maintaining it through coordinated working relationship of all relevant stakeholders.

ROLE OF STAKEHOLDERS INVOLVED IN SE4ALL-AA IMPLEMENTATION

- **Federal Government** to put in place the **SE4ALL** Secretariat within the Federal Ministry of Power.
- The management of Nigeria's SE4ALL Action Agenda will be built on the existing structure of the already established **Inter-Ministerial Committee on Renewable Energy and Energy Efficiency (ICREEE).**
- The **SE4ALL Steering Committee** will include: the Inter-Ministerial Committee on Renewable Energy and Energy Efficiency (ICREEE) team, Federal Ministry of Finance (FMF), Federal Ministry of Education (FMEdu), Central Bank of Nigeria (CBN), Transmission Service Provider (TSP)/ System Operator (SO)/Market Operations (MO), State and Local Governments, Distribution Companies (DisCOs), Generation Companies (GenCos).
- **International Partners** such as EU, GIZ, ECREEE, UNDP, AfDB, Civil Society representative, national banks, private sector, SME reps will serve as the donors' executive committee.
- The **Ministerial Steering Committee** should meet at least every month, while the Donor Executive Committee should meet at least quarterly with small and medium renewable energy providers, civil society organizations and SME leaders.
- The **Federal Ministry of Water Resources** should also liaise with the Federal Ministry of Power in balancing the need for dams for electricity generation and water supply. Currently, the FMWR undertakes all the civil work in dam construction for electricity generation in the country.



ROLE OF STAKEHOLDERS INVOLVED IN SE4ALL-AA IMPLEMENTATION (Cont'd)

- The **Rural Electrification Agency** should design a plan in partnership with state rural electrification boards (SREBs) and private sector stakeholder and civil society to bring energy solutions to off-grid last mile rural communities by at least 2025. This program should target these communities across the country by providing them with solar based solutions for lighting, refrigeration and water pumping.

- **ICREEE and relevant MDAs (including state and local government agencies)** should work on developing business strategies that would encourage private sector participation.

RELATED REGULATORY AND POLICY DOCUMENTS

- National Electric Power Policy (NEPP), 2002
- National Energy Policy (NEP), 2003
- Electric Power Sector Reform Act (EPSR) Act, 2005
- National Nuclear Power Roadmap, 2006
- National Building Code, 2006
- National Biofuel Policy, 2007
- Rural Electrification Policy Paper, 2009
- Roadmap for Power Sector Reforms, 2010
- National Policy on Public-Private Partnership, 2012
- SE4ALL Global Action Agenda, 2012
- Renewable Energy Master Plan (REMP), 2012
- ECOWAS Renewable Energy Policy (EREP), 2012
- National Determined Contribution (NDC), 2015
- National Renewable Energy and Energy Efficiency Policy (NREEEP), 2015
- Rural Electrification Strategy and Implementation Plan (RESIP), 2015
- ECOWAS Energy Efficiency Policy (EEEP), 2015
- Multi Year Tariff Order (MYTO), 2015
- Strategic Plan for the Implementation of the National Nuclear Programme, 2009, revised in 2015
- Rural Electrification Strategy & Implementation Plan (RESIP), 2016
- National Renewable Energy Action Plan (NREAP), 2016
- Petroleum Industry Bill, 2016
- Vision 20:20:20
- Electricity Vision 30:30:30
- Agricultural Food Processing Zone Policy
- IAEA Milestones Approach

IMPLEMENTATION STATUS

- A Rural Electrification Strategic Implementation Plan (RESIP) has been developed and is currently being implemented. The RESIP includes on-grid and off-grid approaches towards rural electrification and access.
- Through the Nigeria Electrification Project which is supported by development partners such as the World Bank, the African Development Bank and the GIZ/NESP, efficient electricity generation technologies such as mini-grids and solar home systems in rural and urban areas.
- Upgrade of grid infrastructure is ongoing through the Transmission Company of Nigeria with support from multilateral donors.
- The National Power Training Institute (NAPTIN) has been carrying out training programs on power across its centres with support from development partners such as the GIZ/NESP.
- Under the Energizing Education Programme of the Rural Electrification Agency, high-visibility renewable energy and energy efficiency projects are being carried out in educational institutions.
- Some renewable energy companies such as GVE Projects Limited have benefited from a five-year tax holiday from the Federal Government as a pioneer in clean energy mini-grids (CEMG).

- Development and adoption of Nigeria's first national building energy efficiency code in September 2017 by the Federal Ministry of Power with support from the GIZ Nigeria Energy Support Programme (NESP). The code is a set of minimum standards for energy efficient buildings in Nigeria. It is expected that the code will be mandatory in the next two years.
- Implementation of a national program to implement an ISO compatible Energy Management Standard (EnMS) for industry (ISO 50001) by the Standards Organization of Nigeria (SON) in collaboration with the GIZ Nigeria Energy Support Programme (NESP).
- Local assembly and fabrication centers in the country by companies such as Nayo Technologies, Blue Camel Energy, and Asteven Limited have been set up.
- The capacity of the Standards Organization of Nigeria (SON) on standards and regulations are being strengthened with support from development partners such as the GIZ/NESP, the Lighting Nigeria Program – International Finance Corporation and the Africa Clean Energy – Technical Assistance Facility.
- The Nigeria Infrastructure Fund (NIF) under the Nigeria Sovereign Investment Authority (NSIA) has been set up to invest in selected infrastructure sectors, including power.

www.cleantechnologyhub.org

info@cleantechnologyhub.org
cthnigeria@gmail.com

Clean Tech Hub

@Cleantechhubng

+2348139186502
+2348096024444

Clean Tech Hub Nigeria

10B Samora Machel Street,
Off Yakubu Gowon Way, Asokoro,
Abuja.