



REGULATION FOR MINI-GRIDS, 2016

Simplified Summary

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EXECUTIVE SUMMARY



The Nigerian Electricity Regulatory Commission (NERC) on the 24th of May 2017 released the Mini-Grid Regulations, 2016 as the overarching document governing the development of mini-grid electricity generation - with plant capacity put at anywhere between 0-100kW to 1MW in Nigeria. The regulation oversees all aspects of mini-grid development in Nigeria.

This Guide provides a simplified summary of the regulation primarily for stakeholders in the off-grid renewable energy sector. It further provides some context for the regulation – including the definition and types of mini-grids, process and requirements for permit and licenses, project development processes, tariffs and other charges, relationship between stakeholders, compliance and technical requirements, compensation, dispute resolution and current implementation status.

LEGAL FOUNDATION



The regulations for Mini-Grids was enacted by the Nigerian Electricity Regulatory Commission (NERC) under the powers conferred by Sections 96 (1) and 70 (8) of the Electric Power Sector Reform Act (EPSRA) 2005.

CONTEXT



The Federal Government of Nigeria has in recent times, considered off-grid solutions as an important step in addressing energy poverty and driving rural electrification in Nigeria. Mini-Grids represent an important growth market for the expansion of the off grid sector, as well as closes the significant energy access gap in Nigeria

Mini-grids as defined by this regulation is - *"any electricity supply system with its own power generation capacity, supplying electricity to more than one customer and which can operate in isolation from or be connected to a distribution licensee's network. Within this regulation, the term mini-grid is used for any isolated or interconnected mini-grid generating between 0kW and 1MW of generation capacity."*

The key **objectives** of the Mini-Grid Regulation includes;

- Incentivizing mini-grid investments in Nigeria.
- Simplifying the process for private sector participation in the mini grid sector of the Nigerian electricity market.
- Increasing access to electricity in un-served and underserved parts of Nigeria.
- Grid extension, and increasing profitability of loss making areas and wider coverage of paying customers.
- Encouraging the use of renewables on a small scale (particularly small hydro and solar).

KEY STAKEHOLDERS

This regulation applies to electricity actors across the value chain – for both the on-grid and off-grid electricity market. Key stakeholders include:

- Rural Electrification Agency (REA)
- The Nigerian Electricity Regulatory Commission (NERC)

- Mini-grid developers
- Electricity distribution companies
- Un-served and under-served communities in Nigeria

TYPES OF MINI-GRIDS

Isolated Mini-Grids

Mini-grids with distributed power larger than 100kW and up to 1MW of generation capacity; and mini-grids with distributed power of up to 100kW. These are mini-grids not connected to any distribution network.

Interconnected Mini-Grids

Mini-grids with distributed power between 100kW and 1MW, and which are connected to a distribution network.

PROJECT DEVELOPMENT PROCESS

■ Isolated Mini-Grids

Site identification which should not be in the 5-year expansion plan of the distribution company

Engagement with beneficiary community

One-year exclusivity agreement with the community

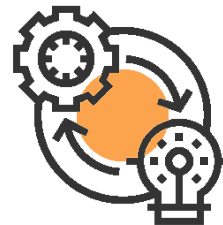
Obtaining building permits from municipality.

Environment Impact Assessment from the Ministry of Environment

Application to NERC for permit or registration (depending on the capacity of the mini-grid) as well as approval of tariff

Mini-grid installation and operation

■ Interconnected Mini-Grids



Site identification

One-year exclusivity agreement with the beneficiary community

Tripartite Agreement between mini-grid developer, Distribution Company, and the community - including several condition precedents to be met by all parties

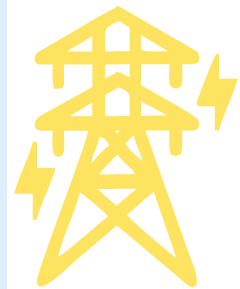
Application to NERC for approval of tripartite agreement

Mini-grid installation and operation

PERMIT REQUIREMENTS FROM NERC

Isolated Mini-Grids

- Establish that the intended geographic location is an un-served area which has not been assigned to an independent electricity distribution network operator (IEDNO) or any mini-grid developer.
- Confirmation that based on the distribution licensee's expansion plans, the mini-grid activities will not interfere with the expansion plans into the designated un-served area.
- Written consent of the distribution company of the intended area where the proposed operational area of the mini-grid developer will be within the five-year expansion plan of the distribution company.
- Submission of the executed agreement between the community and mini grid developer for approval by the regulator (NERC).
- All necessary land for the construction and installation of all assets has been acquired or leased; and all necessary permits have been granted to the mini-grid developer.
- The tariff is calculated based on the Multi-Year Tariff Order (MYTO) methodology and approved by NERC. Note that for isolated mini-grids up to 100kW capacity, a permit is not mandatory and the mini-grid developer can decide to only register with NERC. However, for capacities over 100kW, a permit is required.



Interconnected Mini-Grids

- The proposed retail tariff is calculated using the MYTO methodology, agreed to collectively - by the mini-grid developer, the distribution licensee and the community with approval by NERC.
- The mini-grid developer, the distribution licensee and the community have executed a tripartite contract.



PERMIT REQUIREMENTS FROM NERC (Cont'd)

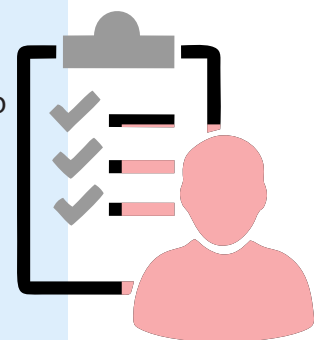
Documentation for Mini-Grid Permit

- Contract between the community representative and mini-grid developer
- Application form for mini-grid permit
- Power station layout drawings
- Map with position of power station and distribution network clearly marked - using indicators to distinguish single phase and three phase as well as medium voltage networks
- Certified copy of the following: Certificate of Incorporation, Memorandum and Articles of Association, Deed of Partnership or Deed of Trust
- Certified copy of Certificate of Occupancy or Lease Agreement for project site
- Certified copy of building permit
- Filled standardized spreadsheets for tariff calculation



Issuance of Permit by NERC

- NERC shall issue a permit or approve a tripartite contract to an applicant within a maximum period of 30 days from the date of receipt of complete documentation
- Pending when a response is received from NERC, the mini-grid developer of a mini-grid of up to 100kW of distributed power who has applied for a permit can commence operations as registered mini-grid operator
- Registered mini-grid developer who wants to operate as a mini-grid permit holder will be required to use the MYTO methodology in determining its tariff; and have the right to compensation, only where a permit has been granted by NERC



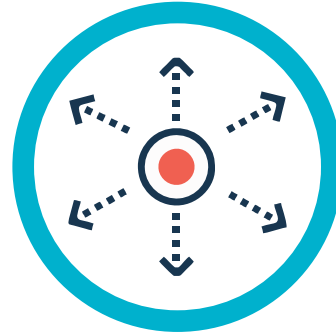
KEY PROVISIONS

Tariffs & Charges



- For permit holders, tariffs are computed using a MYTO methodology intended to be cost-effective, subject to a cap of ten percent for technical and non-technical losses respectively.
- For registered mini-grids, the developer is at liberty to adopt the MYTO methodology or set tariffs pursuant to an agreement with its community (which must be consented by at least 60% of the customers within the community).
- NERC retains the right to step in and adjust the tariff in the event that the rate of return exceeds six percent over "usual non-recourse commercial debt interest rate in local currency and with adequate tenor for these kinds of projects."
- Interconnected mini-grids tariffs are required to be calculated using the MYTO methodology, agreed by the developer, the distribution licensee and community, and approved by NERC.
- The interconnected mini-grid developer shall pay the distribution licensee a network usage charge which shall be agreed by both parties.

Exclusivity



- A community may grant an exclusive right to develop an isolated mini-grid project for a period of up to 12 months. The isolated mini-grid developer may request an extension beyond 12 months upon justification from NERC.
- The community and NERC or the distribution company may require from the developer proof of its commitments (e.g. Letter of Intent from investors, endorsement letter from the state government) before signing the exclusivity agreement.
- NERC shall not grant a permit or license or approve a tripartite contract for a certain site, where an exclusivity agreement has been executed in respect of that site.
- NERC shall not grant an extension of an exclusivity period beyond 12 months where the site is within the five-year extension plan of a distribution company.
- The distribution company reserves the right to integrate the community to its distribution network.

KEY PROVISIONS (Cont'd)

Compensation Regime

- In circumstances where a distribution company extends its network to an area covered by an isolated mini-grid operated under a mini-grid permit or an area where the NERC-approved Tripartite Contract between parties has expired and is non-renewable, the mini-grid developer may transfer all assets it does not wish to remove, to the distribution company in return for compensation to cover the developer's loss of assets and revenue.
- The compensation payable by the distribution company is the aggregate of the depreciated value of the mini-grid assets (including the development and construction costs where the extension takes place within the first five years of the mini-grid; and the revenue generated by the mini-grid in the immediately preceding 12 months.

The isolated mini-grid developer also has the option of connecting its facilities to the distribution company's network and complying with all the requirements of the regulations to operate as an interconnected mini-grid.

It is important to note that the compensation does not cover registered mini-grid developers.

Where a distribution licensee extends its distribution network to the mini-grid site of a registered mini-grid developer; upon the request of the distribution licensee, the registered mini-grid operator has to decommission and remove all its assets and equipment within two (2) months after the distribution licensee starts to supply electricity to the area. The registered mini-grid operator shall not be entitled to any refund or compensation.

OBLIGATIONS OF THE MINI-GRID PERMIT HOLDER

- Construct, operate and/or maintain its distribution network in accordance with the relevant technical codes and standards.
- Comply with the act, terms and conditions of the permit, the tripartite contract, the agreement with the community, customer contract, the rules and regulations, as well as the decisions, orders and directions of NERC.
- Comply with all other regulations unless expressly excluded in the regulation; including the regulations specified by NERC regarding utilisation of the distribution assets for a business other than distribution of electricity.
- Grant NERC and its duly authorized representative's access to any information that is relevant to fulfil the tasks assigned to NERC under the Electric Power Sector Reform Act (ESPRA) 2005 and the

Accounts of the Mini-Grid Permit Holder -Obligations

The Mini-Grid permit holder is obligated to do the following:

- Maintain separate accounting records for the mini-grid business, including the business of utilizing the assets of a distribution company's network, in such form and containing such particulars as may be specified by NERC and in accordance with the Companies and Allied Matters Act, 2004 Cap. 20 of the Laws of the Federal republic of Nigeria, or as may be amended periodically.
- Prepare accounting statements for each fiscal year comprising of both a profit and loss account, and a balance sheet.
- Ensure that the accounting statements are prepared and are certified by an independent auditor.

Accounts of the Mini-Grid Permit Holder -Inspection of Accounts

- The mini-grid permit holder shall provide reports in the form prescribed by NERC to the Commission at least once every two years.
- Where the authorized person inspecting the accounts of the mini-grid permit holder proves that the actual costs incurred or the actual revenue earned by the developers is different from the costs and revenues stated during the tariff definition at the point of application for permit or approval of tripartite Contract - the input parameters for tariff calculation using the MYTO methodology shall be adjusted to the actual values; and tariffs as well as the calculation of the depreciated value may be adjusted and approved by NERC.
- The new tariffs shall be applied within 30 days after approval by NERC.
- A mini-grid permit holder and the community may request an inspection of accounts with NERC in order to update its tariffs and depreciated value.
- The mini grid permit holder and the community asking for an inspection of accounts with NERC shall pay a flat fee 200 naira per customer connected to the mini-grid

Installation and Maintenance of Mini-Grids under a Permit

- The mini-grid permit holder shall design, construct, commission, operate and/or maintain and de-commission its distribution network and related facilities in compliance with the technical codes and standards, as well as terms and conditions of its permit or tripartite contract.
- Where there is any inconsistency between the regulation and the technical codes and standards, the provisions of the technical codes shall prevail.
- The registered mini-grid operator is not bound by the technical codes and standards for design, construction, commissioning, operation and maintenance of its distribution systems, but may apply the minimum technical requirements.

GENERAL PROVISION FOR CONNECTION TO CUSTOMERS

- The mini-grid permit holder shall enter into the standardized connection agreements with every customer who accepts to connect to the mini grid.
- The NERC's Nigeria Metering Code (Version 02) shall be mandatory for all registered mini-grids and isolated mini-grids operated under a permit and interconnected mini-grids operated under a tripartite agreement.
- The tariff and billing model of mini-grids operated under a permit shall be described in the standardized contract between the mini-grid operator and the customers in the community.

MINI-GRID REGULATIONS IMPLEMENTATION STATUS

Nigerian Electricity Regulatory Commission



- There are more developers operating via registrations than via a permit currently.
- There are no approved tripartite agreements yet because most developers are focusing on off-grid communities.
- A mini-grid registration takes a month to be approved.

Private Sector

- There are more developers operating via registrations than via a permit currently.
- There are no approved tripartite agreements yet because most developers are focusing on off-grid communities.
- A mini-grid registration takes a month to be approved.
- There are currently several pilot and commercial off-grid mini-grids installed and operational in Nigeria, and supported by development partners and the REA through its Energizing Economies Initiative and funded through the Rural Electrification Fund (REF). The World Bank and African Development Bank through the Nigeria Electrification Project (NEP) are also upscaling the deployment of

mini-grids and solar home systems for rural electrification through a combined \$550 million facility.

- The GIZ's Nigeria Energy Support Programme (NESP) through its Interconnected Mini-Grid Acceleration Scheme (IMAP) and in collaboration with the REA has begun piloting the development of interconnected mini-grids in Nigeria. Research and support organizations are also providing technical support for the uptake of interconnected mini-grids in Nigeria. For example, the Rocky Mountain Institute (RMI), the Clean Technology Hub (CTH) and the Energy Market and Regulatory Consultants (EMRC) with support from All On are jointly developing viable business models to support interconnected mini-grids in Nigeria.
- There is gradual realization of the opportunity mini-grids present especially interconnected mini-grids by the distribution companies who previously were not receptive to mini-grids. Some distribution companies and mini-grid developers are beginning to build working relationships, for example, the Benin Electricity Distribution Company (BEDC)

Private Sector (cont'd)

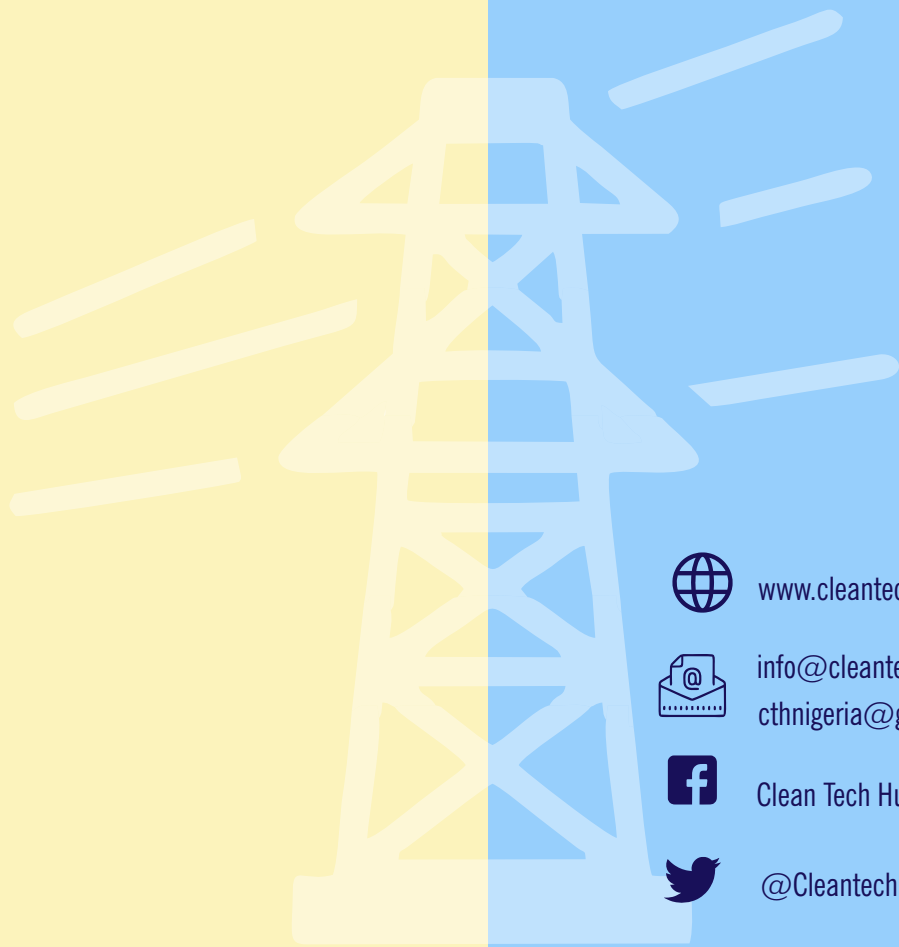
and Rubitec Solar, an indigenous mini-grid developer have signed a MOU for the development of interconnected mini-grids within the Benin distribution company's network while the Abuja Electricity Distribution Company and GVE have signed

an agreement for an inter-connected mini-grid at the Wuse Market.

- There has been a gradual increase in the number of local and foreign mini-grid developers in the country.

SAMPLE MINI-GRIDS IN OPERATION IN NIGERIA

Location	Developer	DISCO Territory
Gbamu-Gbamu (80kWp – Ogun State)	Rubitec Solar	Ibadan Electricity Distribution Company
Ba'awa (10kWp) and Kadabo (10kWp) – Kaduna State	SoSAI Renewables	Kaduna Electricity Distribution Company
Bisanti (40kWp) – Niger State	GVE Group	Abuja Electricity Distribution Company
Angwan Rina (50kWp) – Plateau State	GVE Group	Jos Electricity Distribution Company
Deshi (50kWp) – Plateau State	GVE Group	Jos Electricity Distribution Company
Kare (90kWp) – Kebbi State	Nayo Tropical Technology	Kaduna Electricity Distribution Company
Rije (10kWp) – Federal Capital Territory	Ajima Farms	Abuja Electricity Distribution Company
Kigbe (20kWp) – Federal Capital Territory	Havenhill Synergy	Abuja Electricity Distribution Company
Umon Island (50kWp) – Cross River State	Community Research and Development Centre	Port Harcourt Electricity Distribution Company
Kurdula (80kWp) – Sokoto State	GoSolar Africa	Kaduna Electricity Distribution Company



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