



SIMPLIFIED LEGAL *And* **REGULATORY GUIDE:**

Nigerian Electricity Regulatory Commission
(NERC) (Embedded Generation) Regulations,
2012





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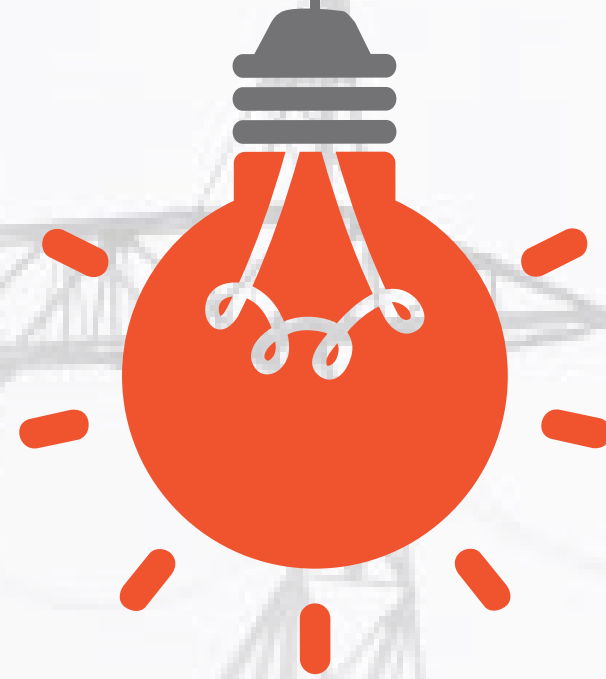
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OVERVIEW

Nigerian Electricity Regulatory Commission
(NERC) (Embedded Generation) Regulations,
2012



The Nigerian Electricity Regulatory Commission (Embedded Generation) Regulations (“the Regulation”)¹ was promulgated on the 7th of February, 2012² as a regulatory framework governing the connection, commissioning, licensing, and commercial practices relating to Embedded Generation and electricity distribution in Nigeria. All proceedings under the Regulation are governed by the Business Rules³ of the Nigerian Electricity Regulatory Commission (NERC) and the Commission has the power to amend or revoke any of the provisions of the Regulation.⁴ It is divided into nine (9) parts consisting of a total of thirty-six (36) sections.

The Glossary of Terms used in the Regulation and referenced in this guide can be found in the main Regulation⁵ and in our [Glossary of Industry Terms](#).



ENABLING LAW

NERC is empowered by the Electric Power Sector Reform Act, 2005 (EPSRA), as the major agency with the responsibility of formulating regulations, to facilitate the implementation and enforcement of the provisions of the Act. NERC is vested with the authority to develop regulations relating to areas of administration, licensing, market structure, procurement procedures, pricing, and tariffs, among many others.⁶The Embedded Generation Regulation is one of many regulations formulated within the ambit of the Commission's powers. [Please refer to EL's guide on the Electricity Act.](#)



OBJECTIVE

**Nigerian Electricity Regulatory Commission (NERC)
(Embedded Generation) Regulations, 2012**

OBJECTIVE



The primary objective of the Embedded Generation⁷ Regulation is:

- To establish standard rules and guidelines for Embedded Generation and distribution of electricity to ensure safe, secure, and efficient electricity supply of electricity.⁸
- The Regulations are applicable to users of electricity Distribution Networks and also actual and prospective licensees of embedded generation activities.⁹



KEY PROVISIONS

Nigerian Electricity Regulatory Commission (NERC)
(Embedded Generation) Regulations, 2012

KEY PROVISIONS



Distribution Planning

Distribution planning is the responsibility of the holders of Distribution licenses. It involves:

1. Forecasting the future demand of the distribution system;
2. Assessing the impact of new connection facilities;
3. Planning the expansion of the distribution system to ensure its adequacy to meet forecasted demand and the connection of new facilities;
4. Identifying and proffering solutions to problems relating to supply quality, power quality and system losses in the Distribution System and
5. Distribution planning and system studies.

Distribution Licensees are to undertake annual system plans indicating the capacity requirements over a five (5) year period based on the need for system expansion to accommodate connections to the Distribution System¹⁰

Distribution Licensees must keep the Embedded Generation licensee appropriately informed with details regarding maximum network capacity, location suitability, load balance, etc. to ensure reliability and minimize losses.¹¹ Distribution Licensees must also adhere to the service performance standards indicated under the Distribution Code^{12,13} Additionally, the availability of the Distribution System must not be less than 90 percent.¹⁴



Connection of Embedded Generation to Distribution Systems

The Regulations permit an Embedded Generator to evacuate power generated using the most appropriate and economical voltage level as specified in the Schedule to the Regulations based on initial testing undertaken by an Embedded Generation Licensee.

There is however a maximum Embedded Generation capacity permitted for the respective Distribution Systems which is stated to be a percentage of the peak system load of the Distribution Licensee's distribution system determinable by the Commission except for isolated Independent Electricity Distribution Networks (IEDN).

Embedded Generating Units that exceed 5MW must comply with the applicable provisions of the Grid Code except those connected to an isolated IEDN and Generating Units with capacity of 20MW and above must be centrally dispatched by the System Operator.

The Distribution licensee shall allow the Embedded Generation Licensee to have non-discriminatory access to the distribution system after an agreement on connection

conditions and fees unless the Embedded Generator fails to fulfil the general requirements embodied in the Regulations. The terms and conditions of the agreement must be fair and reasonable and negotiated in good faith in accordance with the provisions of the Regulation and any other relevant NERC regulatory instrument.¹⁵ Agreements, policies, procedures, technical requirements, commercial arrangements, connection procedures and standard charges associated with the connection of an Embedded Generation Unit to a Distribution System must be published and made public by the Distribution licensee to ensure consistency.¹⁶

Requirements for Connection of Embedded Generation Units including Renewable Energy Power Systems

The technical and non-technical requirements for connection of Embedded Generation Units are provided for within the Distribution Code¹⁷¹⁸. These requirements must be discussed at preliminary meetings and documented in writing as part of a connection offer. Where storage is not necessary, operators of Renewable Energy Power Systems (REPS) must ensure that flexible generation exists to allow intermittent and uncertain power to be absorbed into the network on a priority basis.¹⁹



Metering and Procurement Process

The metering system of the Embedded Generation licensee must comply with the provisions of the Distribution Metering Code (DMC)²⁰²¹ in so far as they are not market participants. Where the Embedded Generation licensee is a market participant, the provisions of the Grid Metering Code²² will apply.²³

Distribution Licensees are to make certain information available to the public at no cost to ensure consistency of Embedded Generation connections with connection and operation standards. Such information includes guidelines for power procurement, connection and operations standards of the Distribution Licensee, copies of standard terms and conditions of all agreements, curtailment/interruption policies, rules or conditions, relevant connection fees approved by the Commission.²⁴

The referenced information is to be made available on the website of the Distribution Licensee and is required to be forwarded to the Commission on a quarterly basis.²⁵

The procurement process shall be competitive and in accordance with the Bulk Generation Procurement Guidelines and Codes approved by the Commission.²⁶²⁷ To procure Embedded Generation, Distribution Licensees must satisfy the relevant provisions within the Market Rules²⁸²⁹ prior to NERC's approval.³⁰

Commercial Arrangements

The Regulation permits an Embedded Generation Licensee and a Distribution Licensee to enter into various Network Agreements such as Power Purchase Agreements (PPAs), Connection or Interface Agreements, Use of Networks Agreement, and Ancillary Services Agreements. However, the terms and conditions of these agreements must be approved by the Commission.³¹ Nevertheless, the Embedded Generation Licensee and the Distribution Licensee may determine the charges and the relevant security for such charges to be paid by the Distribution Licensee for capacity and Energy made available to the Distribution Licensee by the Embedded Generation Licensee, to be detailed in the Power Purchase Agreement.³² On the other hand, the Distribution Licensee is permitted to impose reasonable charges for connection to the Distribution System which must be approved by the Commission.³³



Licensing Application

Step 1	Applications for the grant of a generation license should be made to NERC and will be subject to the provisions of the NERC (Application for Licenses) Regulation ³⁴ and the NERC (License and Operating Fees) Regulations ³⁵ or subsequent amendments
Step 2	<p>To make an application, the following draft documents are to be submitted:</p> <ul style="list-style-type: none">• Power Purchase Agreement• Connection Agreement• Use of Distribution System Agreement• Ancillary Services Agreement• Fuel Supply Agreement
Step 3	<p>Other documents include:</p> <ul style="list-style-type: none">• Environmental Impact Assessment approval for generation capacity of 10 MW and above• Policy for managing effluents and discharges where the capacity is below 10 MW• Registered Title Deed and• Other documents depicting the Corporate status of the applicant
Step 4	After an application has been made, the decision of the Commission; whether in the affirmative or otherwise; will be communicated to the applicant within six (6) months following the application. ³⁶



Technical and Non-Technical Losses

The Regulation provides that the cost of losses incurred during distribution is to be borne by the party that occasioned and is therefore responsible for incurring such losses. These losses are to be calculated on a consistent basis by parties at the interface boundaries with the Embedded Generation Units metered generation and consumption by customers scaled by a Distribution Loss Factor (DLF) determined by the System Operator based on an agreeable methodology by all participants.³⁷ The Distribution Licensees are required to adopt mitigating strategies to minimize the number of losses incurred, and these strategies include:

- adequate metering of customers and Embedded Generation Licensees
- consolidated billing in the master database system for proper energy accounting
- proper citing of Embedded Generation Units, deployment of High Voltage Distribution Systems (HVDS)
- reconductoring of undersized lines, use of low loss transformers and proper balancing of loads between line phases³⁸

Procedure for Commissioning

An Embedded Generator Licensee is authorized to test and inspect the Embedded Generation Unit in accordance with the provisions of the Distribution Code, but such Embedded Generation Licensee must adequately notify the Distribution Licensee prior to the proposed testing and inspection. The Distribution Licensee may send agents or representatives to the operation site to observe the testing and inspection. After testing and inspection, a written test report must be given to the Distribution Licensee by the Embedded Generation Licensee confirming that the metering installations of the Embedded Generation Unit comply with the provisions of the Metering Code.³⁹ Before commissioning takes place, an Embedded Generation Licensee is required to provide information as listed in the Distribution Code.⁴⁰



Dispute Resolution Mechanism

Proceedings before the Commission under the Regulations shall be governed by the Business Rules⁴¹ of the Commission.⁴² Disputes between an Embedded Generation Licensee and Distribution Licensee which are not amicably resolved by the parties will be handled based on the Dispute Resolution Procedure in the Market Rules⁴³ or any procedure approved by the Commission on an ongoing basis.⁴⁴ The Market Rules state

that disputes between System Operators, Transmission Service Providers and Market Operators on matters related to its provisions or established Grid Codes should be settled through Mediation/Conciliation or Arbitration in accordance with the rules of procedure as provided for in the Rules.⁴⁵



KEY STAKEHOLDERS

Nigerian Electricity Regulatory Commission (NERC)
(Embedded Generation) Regulations, 2012



Nigerian Electricity Regulatory Commission

The primary agency for the supervision and control of the Regulation as specified in EPSRA is NERC. The Commission was established as a corporate body to regulate the generation, transmission, distribution of electricity in Nigeria through promoting efficiency in industry and market structures, regulating prices, and ensuring safety in the production and delivery of electricity.⁴⁶

The Commission is vested with the responsibility of monitoring and overseeing Embedded Generation activities, to facilitate competition and prevent abuse of market power. In its process of monitoring operations of Embedded Generation, the Commission is entitled to request for information from licensees. Where the Commission determines that there has been an abuse of market power, it is vested with the power to issue cease orders and levy fines.⁴⁷ The Commission has the power to amend or revoke the whole Regulation in whole or in parts.⁴⁸

The background of the slide features a faint, dark silhouette of a high-voltage power transmission tower, also known as a pylon, which is a lattice structure. It is positioned centrally but slightly to the right, with its lines extending towards the top and bottom corners of the frame. The overall background is a solid, dark grey-blue color.

PRICING **AND TARIFFS**

Nigerian Electricity Regulatory Commission (NERC)
(Embedded Generation) Regulations, 2012

PRICING AND TARIFFS



Before commencing operations, Distribution Licensees have the authority to impose charges that are just and reasonable for connection to the distribution system. These charges must however be approved by the Commission and should be structured in a form that indicates the cost of connection assets, extension of the assets, modifications to the network, metering and data collection and any provisions for operation, repair and maintenance of network assets.⁴⁹

The holders of Embedded Generation licences may enter into agreements with Eligible Customers and can negotiate end-use tariffs. The use of the Distribution Network by the Embedded Generation Licensee will be subject to a Distribution Use of System (DUoS) charge in accordance with the Tariff Methodology approved by the Commission at the time the agreement is being negotiated. The Tariff Methodology that has been approved by the Commission will apply to agreements for the purchase of power with Distribution and Trading Licenses subject to the Market Rules.

In situations where the Distribution Licensee is unable to undertake re-enforcements and extensions required to evacuation of power generated into the network, the Connection Agreement will provide for cost recovery based on costs expended by the Embedded Generation Licensee for the execution of any re-enforcements or extensions following an agreed timeline. ⁵⁰ The Regulation also provides for Feed-In-Tariffs to be used for energy produced by Renewable Energy Embedded Generators. The Feed-In-Tariffs are to be fixed for specified time durations subject however to periodic reviews by the Commission.⁵¹

INCENTIVES AND INVESTMENT OPPORTUNITIES

Nigerian Electricity Regulatory Commission (NERC)
(Embedded Generation) Regulations, 2012



INCENTIVES AND INVESTMENT OPPORTUNITIES



Below are the some of the incentives and investment opportunities in the Embedded Generation Regulations:

- The Regulation makes provisions for Feed-In-Tariffs, thus depicting that the Regulation promotes renewable energy development and utilization.⁵³
- The Regulation allows negotiation of end-use tariffs by Embedded Generation licensees and Eligible Customers⁵⁴
- Distribution Licensees are permitted to engage in Embedded Generation.⁵⁵
- Access to the transmission network via connection by an Embedded Generation Licensee is provided for in the Regulation.⁵⁶
- The procurement process, as specified by the Regulation is competitive and non-discriminatory, hence encouraging active private participation.⁵⁷



SANCTIONS AND PENALTIES

Nigerian Electricity Regulatory Commission (NERC)
(Embedded Generation) Regulations, 2012

SANCTIONS AND PENALTIES



Where the Embedded Generator fails to fulfill the requirements of the Regulations, the Distribution Licensee shall not be obliged to connect the Embedded Generation Unit to the Distribution System. Also, where there has been a breach of the terms and conditions of the Regulation, the Distribution Licensee must notify the Embedded Generation licensee and other affected parties of the breach, and advise the licensee on the Distribution Licensee's policy measures and procedures for handling disputes. overall, the Distribution Licensee is expected to comply with all Codes and Standards approved by the Commission periodically.⁵²

Referenced Statutory Instruments

- Electric Power Sector Reform Act (EPSRA), No.6 LFN 2005
- Nigerian Electricity Regulatory Commission (Business Rules of the Commission) Regulations, 2006
- Grid Code for the Nigeria Electricity Supply Industry (NESI) – Version 03, 2018
- Metering Code for the Nigerian Electricity Supply Industry – Version 01, 2013
- Distribution Code for the Distribution Sector of the Nigeria Electricity Supply Industry – Version 02, 2019
- Market Rules for the Transitional and Medium Term Stages of the Nigerian Electrical Power Sector, 2009
- NERC Regulations for the Application for Licence (Generation, Transmission, System Operations, Distribution & Trading) 2010
- NERC Regulations for Licence and Operating Fees 2010
- NERC Regulations in Independent Electricity Distribution Network No.115 of 2012
- NERC Regulations for Investment in Electricity Networks 2015

Endnotes

1 NERC, NERC Embedded Generation Regulation, 2012. Available at [https://nerc.gov.ng/index.php/component/remository/Regulations/NERC-\(Embedded-Generation\)-Regulations-2012/?Itemid=591](https://nerc.gov.ng/index.php/component/remository/Regulations/NERC-(Embedded-Generation)-Regulations-2012/?Itemid=591)

2 Nigerian Electricity Regulatory Commission (Embedded Generation) Regulations, No. 114 NERC Regulations, 2012

3 NERC, NERC Business Rules, 2006. Available at <https://nerc.gov.ng/index.php/component/remository/Regulations/NERC-Business-Rules/?Itemid=591>

4 Section32-33

5 NERC, NERC Embedded Generation Regulation, 2012. Available at [https://nerc.gov.ng/index.php/component/remository/Regulations/NERC-\(Embedded-Generation\)-Regulations-2012/?Itemid=591](https://nerc.gov.ng/index.php/component/remository/Regulations/NERC-(Embedded-Generation)-Regulations-2012/?Itemid=591)

6 See S. 96 (2) Electric Power Sector Reform Act (EPSRA), No. 6 LFN 2005

7 By virtue of the Interpretation Section 35, Embedded Generation means the generation of electricity that is directly connected to and evacuated through a distribution system.

8 Section 1

9 Section 2

10 Section 3(2), (3)

11 Section 3 (4)

12 NERC, NERC Distribution Code, 2018. Available at <https://nerc.gov.ng/index.php/library/documents/Codes-Standards-and-Manuals/The-Distribution-Code/>

13 Part 2 of the Distribution Code

14 Section4

15 Section6 and 11

16 Section 10

17 NERC, NERC Distribution Code, 2018. Available at <https://nerc.gov.ng/index.php/library/documents/Codes-Standards-and-Manuals/The-Distribution-Code/> 1

18 Part 2, Section4.14 of the Distribution Code

19 Section8

20 NERC, NERC Metering Code, 2013. Available at <https://nerc.gov.ng/index.php/library/documents/Codes-Standards-and-Manuals/Metering-Code/> 1

21 Part 3, Section 1.1.2 of Distribution Metering Code

22 Ibid

23 Part 2 of Grid Metering Code

24 Section 10(1)

25 Section 10(2)

26 NERC, NERC Bulk Procurement Guidelines and Codes, 2012. Available at <https://nerc.gov.ng/index.php/component/remository/Tariff-Charges--and--Market-Rules/Tariff-Charges-and-Market-Rules/Bulk-Generation-Procurement-Guidelines--and--Codes/?Itemid=591> 1

27 Section 12

28 NERC Market Rules, 2009. Available at <https://nerc.gov.ng/index.php/library/documents/func-startdown/312/>

29 Sections 22.4.1 and 22.4.2 of Market Rules for the Transitional and Medium-Term Stages of the Nigerian Electrical Power Sector, 2010

30 Section 18

31 Section 21

32 Section 21(3)

33 Section 22(1)

34 NERC, NERC (Application for Licenses) Regulation, 2010. Available at <https://nerc.gov.ng/index.php/component/remository/Regulations/NERC-Application-for-Licence-Regulation-2010/?Itemid=591>

35 NERC, NERC (License and Operating Fees) Regulations, 2010. Available at <https://nerc.gov.ng/index.php/library/documents/Regulations/NERC-Licence-and-Operating-Fees-Regulation-2010/>

36 Sections 28-29

37 Section 27(3),(4)

38 Section 37

39 Section19

40 Part 2, Section 3.3.5 of the Distribution Code

41 NERC Business Rules, 2006. Available at <https://nerc.gov.ng/index.php/component/remository/Regulations/NERC-Business-Rules/?Itemid=591> 1

42 Section 32

43 NERC, NERC Market Rules, 2009. Available at <https://nerc.gov.ng/index.php/library/documents/func-startdown/312/>

44 Section 34

45 See Rule 43 of the Market Rules

46 Sections 31-61 of the EPSRA

47 Section 82 of the ESPRA

48 Section 33

49 Section22

50 Section25

51 Section 26

52 Section7

53 Section 26

54 Section 22

55 Section 30(4)

56 Section 31(1)

57 Section 12

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