



**REGULATION NO: EERC/R004**

**ENUGU STATE ELECTRICITY REGULATORY COMMISSION**

**METHODOLOGY FOR TARIFF REGULATION**

In exercise of the powers conferred upon it by Section 34(1) of the Enugu State Electricity Law 2023 and of all the powers enabling it in that behalf, the Enugu State Electricity Regulatory Commission hereby establishes the Regulation on tariff methodology that shall apply in Enugu State Electricity Market.

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## General

### 1. Short title and commencement

- (1) These Regulations may be cited as the **Enugu State Electricity Regulatory Commission Tariff Methodologies Regulations 2024**
- (2) These Regulations shall come into force on the date on which it is approved by a resolution of the Commission.
- (3) These Regulations shall be signed by the Chairman who shall also cause the seal of the Commission to be affixed thereon.

### 2. Interpretation

**“Applicant”** means a person who has made an application for a licence, or for an amendment, or renewal, transfer, assignment, withdrawal of a license under the Law

**“Building Block”** means tool for spreading or amortizing the expenditure and cost of a regulated firm over time and not as a regulation.

**“Commission”** means the Enugu State Electricity Regulatory Commission.

**“Days”** means working days, excluding Saturdays, Sundays, and public holidays declared by the Federal Government of Nigeria or the Enugu State Government.

**“Law”** means the Enugu State Electricity Law, 2023.

**“Licence”** shall include all licences which the Commission is empowered to issue.

**“Licensee”** means any person who holds a licence issued by the Commission.

**“Major review”** means 5-yearly tariff review.

**“Minor review”** means a minor adjustment to the tariff made once yearly or six monthly or less to reflect the variation in fuel price, inflation and the exchange rate.

**“Month”** means a calendar month.

**“Tariff”** mean prices allowed by the Commission in respect of any regulated activities of the Enugu State electricity market and charged to the customer for the electricity used.

**“Tariff Review”** means the application for a review and the processes employed to establish a tariff for a licensee or to make changes to the current tariff of a Licensee as prescribed in this Regulations.

**“Tariff Methodology”** means a method used to establish or identify the appropriate cost to be charged to the consumer as the tariff

**“USoA”** means the Uniform System of Accounts Regulations 2018 established by the Nigerian Electricity Regulatory Commission and as may be amended from time to time.

### **3. INTRODUCTION**

The Enugu State Electricity Regulatory Commission proposes the establishment of a Tariff Methodology pursuant to the authority given to it under Section 34 of the Enugu State Electricity Law, 2023. The Commission sets out the basis and pricing principles underlying the proposed Methodology and lays out the due process to be followed in meeting the statutory requirement.

The methodology provides a ten (10) year tariff path for the electricity industry in Enugu State, with limited minor reviews each year in the light of

changes in a limited number of parameters (namely: inflation, foreign exchange and fuel prices) and major reviews every 5 years, when all of the inputs are reviewed with stakeholders.

### **3.1 LEGISLATIVE AUTHORITY**

- a. Section 34(1) of the Enugu State Electricity Law 2023 provides that tariffs for all licensed activities shall be contracted in accordance with one or more tariff methodologies established by the Commission.
- b. Section 20(1) of the Law specifies the following as the activities for which licenses are required in the Enugu State Electricity Market:
  - (i) electricity generation;
  - (ii) electricity transmission;
  - (iii) system operation;
  - (iv) electricity distribution;
  - (v) electricity retail;
  - (vi) integrated utility; or
  - (vii) other categories of electricity services as may be established by the Commission by subsidiary legislation.

### **3.2. BACKGROUND**

1. The Enugu State Electricity Law 2023 requires that the regulation of electricity prices shall be governed by a tariff methodology which shall be developed by the Commission.
2. Consequently, the Commission has adopted, as provided in section 34 of the Enugu State Electricity Law 2023, the principles which are required in the determination of appropriate tariff methodology which shall apply in the State. The principles are that a regulatory methodology should:

- (a) be simple, understandable, feasible and free of controversial interpretation;
  - (b) be effective in enabling the licensee recover total revenue that covers the efficient costs of doing business plus a fair return on capital invested;
  - (c) provide stability and predictability of future tariffs and resulting revenues;
  - (d) sanction wasteful expenditure and incentivise both continued investment by the licensee and the promotion of technical and economic efficiency and quality, by both licensees and customers in providing and receiving the licensed service;
  - (e) clearly indicate to all counterparties and consumers the costs that their consumption imposes on the licensee's business and incentivise efficiency in causing these costs;
  - (f) be fair and avoid undue discrimination in apportioning total costs amongst different consumer classes; and
  - (g) promote the innovative use of technology, and the cleanest available fuel sources.
3. While these principles can be stated simply, they can become complex. What may seem fair to one group (consumers) may not seem the same to another (suppliers). However, the Commission is required to balance the interests of all parties (Section 34[2][b] of the Enugu State Electricity Law) and consider that the objectives of both stakeholder groups are joined by the common need to ensure that the electricity supply system is viable, adequate, reliable and safe. Efficiency also includes a number of important concepts. It means producing electricity at the lowest cost as well as providing incentives for new investment in the industry.

4. The fair and equitable tariff methodology should cover both the determination of the total allowed revenues that can be earned from regulated tariffs and the principles governing the structure of tariffs used to recover these revenues.

#### 4. THE TARIFF METHODOLOGY

##### 4.1. THE METHODOLOGY

- (a) The methodology used by the Commission to determine the tariff path is the rate of return regulation/methodology, which is also called cost of service regulation. In the treatment of cost, the Building Block approach will be employed where operating expenditures and capital expenditures are symmetrical to allow sufficient revenue recovery. The rate of return methodology provides comfort to investors because rate of return regulation constrains a regulator's discretion in setting prices. The methodology will make provisions to discourage cost-padding also known as the Averch-Johnson effect, or simply "gold-plating" by operators which is a major disadvantage of rate of return regulation.
- (b) The basic formula for determining a revenue requirement is:

$$R = B * r + E + d + T$$

where:

R = revenue requirement

B = rate base, which is the amount of capital or assets the utility dedicates to providing its regulated services

r = allowed rate of return, which is the cost the utility incurs to finance its rate base, including both debt and equity

E = operating expenses, which are the costs of items such as supplies, labor (not used for plant or network infrastructure construction), and items for resale that are consumed by the business in a short period of time (less than one year)

d = annual depreciation expense which is the annual accounting charge for wear, tear, and obsolescence of plant, and network infrastructure.

T = all taxes not counted as operating expenses and not directly charged to customers.

- (c) In order to avoid “Gold-Plating” in the tariff using rate of return regulation, the licensee shall be required to review cost with the Commission. It is the cost agreed with the Commission that shall be allowed for the operator to use in the tariff model for the determination of price that shall apply in contracts. This is because the value chain of electricity business in Enugu State shall be subject to contracts and prices shall be determined based on the applicable methodology published by the Commission in its website.
- (d) The review process for the cost shall be as prescribed in the Schedules to these Regulations.
- (e) The inputs to the methodology shall include a capital valuation and future levels of capital expenditure, operating costs of sales volumes, cost and efficiency improvements to derive a future average regulated tariff for each year of the tariff order. This annual tariff is expressed in a formula as the percentage change over each of the annual tariff setting periods
- (f) The Commission shall from time to time publish allowed base cost parameters which shall be allowed in the tariff model. The parameters shall be updated in the tariff model on the Commission’s website for use by licensees and investors.
- (g) There are three standard building blocks which are used in the tariff model, and they are:
  - (i) The return on capital – being the return necessary to achieve a fair rate of return on the necessary assets invested in the business;
  - (ii) The return of capital – associated with recouping the capital over the useful lives of the assets (depreciation); and
  - (iii) Efficient operating costs and overheads.

## **4.2. TREATMENT OF CAPITAL COSTS IN TARIFF METHODOLOGY**

### **4.2.1 CAPITAL COST**

- (a) Two out of the three building blocks provide a return of, and on capital invested. In a very capital-intensive industry like electricity supply, it is important that the cost of capital is recognized and that new capital investment is allowed a reasonable return. If it is not, new investment will be discouraged and future demand will not be met.
- (b) The initial value of the assets is rolled forward each year. Depreciation reduces the valuation and new capital expenditure increases it. Replacement costs, actual capacity ratings and remaining economic life is taken into account in valuation.
- (c) The cost of capital under a building blocks approach comprises two components, namely: the return of capital (that is, depreciation) and the return on capital (measured by the cost of capital). The capital stock to which both of these are applied is the annual asset value of the electricity supply industry the rolled forward asset value.
- (d) The allowed return on capital is aimed at providing appropriate incentives for future investment. Thus, in all building block regimes, the cost of capital is provided to all approved new investment under the regime. This is typically done via the mechanism of rolling forward new investment into the regulatory asset base.

### **4.2.2. TREATMENT OF DEPRECIATION**

- (a) The depreciation method to be used for the calculation of tariffs shall be the optimized depreciated replacement cost (ODRC) method. This involves:
  - (i) Adjusting the cost of an asset from the year of its purchase to the year of the tariff calculation;
  - (ii) Optimizing its capacity (this usually means excluding any

- unnecessary expenditure or over-building); and
- (iii) Applying depreciation over the economic life of the individual asset or groups of assets.

#### **4.2.3. TREATMENT OF THE COST OF CAPITAL (THE WEIGHTED AVERAGE COST OF CAPITAL)**

- (a) The cost of capital is a key input into the determination of tariffs, since the return on existing and new assets is a significant element of the revenue requirement of the electricity business.
- (b) The basis for estimating the cost of capital for a utility business is the cost of capital that would be required by a privately owned business with similar risk characteristics. The cost of capital to be used by the Commission in calculating electricity tariffs shall be estimated as a weighted average cost of capital (WACC) – using an estimation of the cost of equity and a cost of debt which reflects bond finance costs.

$$\text{WACC} = D/C * K_d + E/C * K_e$$

Where:

D = Debt

E = Equity

C = Sum of capital (Debt + Equity)

K<sub>d</sub> = Cost of Debt

K<sub>e</sub> = Cost of Equity

- (c) Instead of applying different returns to different components of capital, such as debt and equity, a weighted average cost of capital (WACC) recognizes that lenders and equity investors require different rates of return because of the different risks they face. The WACC aggregates these returns, and weights each according to the estimated percentages of debt and equity in the industry.

- (d) The cost of debt is directly observable as commercial interest rates. The returns required by equity are not and are typically estimated.
- (e) The cost of debt is almost always lower than the cost of equity, with the WACC lying in between.

#### **4.2.4. TREATMENT OF OPERATIONAL EXPENSES**

Operation and maintenance costs are assumed to include an allowance for improved performance. Therefore, the repair or replacement of these units or network infrastructure which would improve supply and reduce the quantity of unserved energy will be included in the Tariff Methodology. Spinning reserve units for generation, which would reduce the number and duration of outages, thus involving slightly higher operating costs, would be acknowledged as costs required to provide a reliable service and also included in the Tariff Methodology.

#### **5. MISCELLANEOUS PROVISIONS**

- i. The tariffs shall be reviewed each year by the operator/licensee and approved by the Commission but shall only be varied according to varying rates of inflation, the cost of input fuel for electricity generation and exchange rate fluctuations which are exogenous to the licensee. This review shall commence at the last month of the current tariff regime and shall last for not more than one (1) month.
- ii. The Commission may consider and allow the licensee six (6) monthly review in rates due to inflation, the cost of input fuel for electricity generation and exchange rate fluctuations if there are rapid changes in these exogenous factors which adversely or negatively affect both consumers and licensees. The review shall be approved by the Commission before it is implemented by the licensee. This

review shall commence immediately upon the approval of the Commission and shall not last for more than one (1) month.

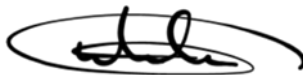
- iii. The major 5-yearly tariff review shall be done by the licensee and approved by the Commission which shall consider each of the input assumptions for the tariff model in order to update them to appropriate current values. The inputs set by the Commission shall not be affected or changed during the review. This review shall last for a maximum period of six (6) months.
- iv. Major reviews may be undertaken at less than 5-year intervals by the licensee if the licensee can demonstrate to the Commission that industry parameters have changed significantly from those used in the last major review by the licensee and is required urgently to maintain industry viability.
- v. A major or 5-yearly review shall be for a maximum of six (6) months. It shall be commenced more than one year before the beginning of the new 5-year tariff period.
- vi. The Commission shall analyse and establish important parameters, including the following:
  - (a) Forecast of electricity demand
  - (b) Interest rates
  - (c) Reasonable industry WACC
  - (d) Industry losses (Technical and non-technical losses)
  - (e) Allowed exchange rate for cost in foreign currencies
- vii. The Commission shall adopt the Uniform System of Accounting (USoA) established by the Nigerian Electricity Regulatory Commission in reports required for tariff purposes for uniformity with the Nigerian Electricity Supply Industry (NESI). It shall cover but not limited to the following:
  - (a) Capital expenditure;

- (b) Actual and projected sales,
  - (c) Operating costs,
  - (d) Fuel costs; and
  - (e) Taxes and other payments.
- Other inputs required in the tariff methodology
- viii. As an incentive to encourage affordability, generators may be required to locate reasonably close to the transmission/distribution networks or load centers.
- ix. The Distribution Use of System (DUOS) charges shall apply to Medium Voltage Distribution licensees to cover the cost of electricity distribution. DUOS charges shall be determined using the tariff methodology and the building block to capture allowances for capital expenditure, operation and maintenance of the network, losses across the distribution networks and interphase metering costs.

## 6 AMENDMENT OR REPEAL

The Commission may amend or repeal, in whole or in part, the provisions of these Regulations where the need arises.

Made at Enugu this ... 27<sup>th</sup>.. day of ... September... 2024.



Chijioke M. Okonkwo  
Chairman/ Chief Executive Officer  
Enugu State Electricity Regulatory Commission

## SCHEDULE 1

### **Procedure for Review of Tariff Cost Inputs used in the Tariff Model**

An applicant for a licence (including Amendment, Renewal and Extension of Tenure) shall approach the Commission for a review of the input cost which shall be applied in the tariff methodology upon application for generation licence.

The Commission shall be required to review and agree with the applicant on the cost which shall be allowed and used as inputs in the model. The Commission shall allow “Used and Useful” cost besides the inputs set and locked by the Commission in the model.

The review of the cost with the applicant shall be completed within twenty-one (21) day of submission of generation licence application to the Commission. Consequently, the Commission shall accept initialed Power Purchase Agreement (PPA) without finalized Tariff Schedule in the PPA.

An applicant for a generation licence shall be required to provide, where applicable, Fuel Supply Agreement (FSA), Engineering Procurement and Construction contract (EPC) and the Operations & Maintenance (O&M) agreement and all information and the documents enumerated in Schedule 2 during the review.

Transmission and Distribution (or Medium Voltage Distribution) licence applicants shall provide the information and documents enumerated in Schedule 3 during the review of their cost that shall be completed within the period not exceeding 21 days.

Electricity Retail licence applicants shall, in addition to the PPA, provide the information and documents enumerated in Schedule 4 during the review of their cost that shall be completed within the period not exceeding 21 days.

Where the Commission does not reach an agreement on cost with the applicant within the twenty-one (21) days, the Commission shall subject the

process to a formal hearing as stipulated in the Commission's Business Rules.

During the cost input review, required information already submitted to the Commission during licence application shall not be resubmitted unless there are changes in the cost parameter which will affect tariff.

## SCHEDULE 2

### Generation Tariff Review Information

Description	Unit	Amount	Remark
Generator type			
Generation Capacity			
Capital cost			
O&M cost (fixed)			
O&M cost (Variable)			
Capacity factor			
Auxiliary Requirement			
Fuel Costs			
Economic life of the Plant			
Construction period			
Sent-out efficiency			
Availability factor			
Ancillary consumption			
Load Factor			
Capacity degradation			

**Note:**

- i. Applicants shall attach supporting evidence of their claims and state the type of evidence they are submitting in the last column.
- ii. Applicants shall attach a list of the breakdown of costs comprising different components/items.
- iii. All expenditures/costs shall be expressed in Naira (N)

### SCHEDULE 3

#### Transmission/Distribution (MVD) Tariff Review Information

	Unit	Period t-2	Period t-1	Year t	Year t+1	Year t+2	Year t+3	Year t+4	Year t+5	Remark
Fixed Assets Register										
Schedule of Depreciation										
O&M cost (fixed)										
O&M cost (variable)										
Fixed Cost (admin)										
CAPEX Projection										
Transmission/Distribution loss										
Transmission/Distribution Capacity										
Transmission/Distribution length										
Ancillary Services Cost										

**NOTE:**

- i. Applicants shall attach supporting evidence of their claims and state the type of evidence they are submitting in the last column.
- ii. Applicants shall attach a list of the breakdown of costs comprising different components/items.
- iii. All expenditure shall be expressed in Naira (N).

- iv. “t” refers to the initial regulatory year in the five-year regulatory period.
- v. All requested data shall be broken down to physical location, business and units where applicable.
- vi. Data for period t-2 and t-1 shall be the actual amount spent

## SCHEDULE 4

### Electricity Retail Companies (ERC) Tariff Review Information

	Unit	Period t-1	Year t	Year t+1	Year t+2	Year t+3	Year t+4	Year t+5	Rema rk
Cost of Power									
Fixed Assets Register									
Schedule of Depreciation									
CAPEX (including Metering)									
O&M cost (fixed)									
O&M cost (variable)									
CAPEX Projection									
Fixed Cost (admin)									
Distribution Technical Loss									
Distribution Non-Technical Loss									
Distribution Capacity									
Actual Sales									
Projected Sales									
Distribution length									
Miscellaneous Cost									
Total Number of Customers									
Customer Number per Class									

**NOTE:**

- i. Rows should be created for each number of Class according to the ERC's customer classification.
- ii. Applicants shall attach supporting evidence of their claims and state the type of evidence they are submitting in the last column. Executed PPA shall be required for power purchased.
- iii. Applicants shall attach a list of the breakdown of cost comprising different components/items.
- iv. All expenditure shall be expressed in Naira (N).
- v. "t" refers to the initial regulatory year in the five-year regulatory period
- vi. All requested data shall be broken down to Customer class, physical location, and business units where applicable
- vii. Data for period t-2 and t-1 shall be the actual amount spent