

REPUBLIQUE DU CAMEROUN

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REPUBLIC OF CAMEROON

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TARIFF METHODOLOGY HANDBOOK IN THE CAMEROON ELECTRICITY SECTOR

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I. Background and Rationale

The Electricity Sector Regulatory Agency (ARSEL) was established by law No. 098/022 of 24 December 1998 to liberalise the electricity sector in Cameroon. It is currently governed by law No. 2011/022 of 14 December 2011 that strengthened the reform with the creation of public entities to manage transport facilities and energy flow, by laying down provisions to promote rural electrification, renewable energy and energy efficiency. ARSEL's mission, amongst other, is to:

- control and monitor the execution of the concession agreement and/or licence agreement of the sector's operators;
- ensure the economic and financial stability of the electricity sector and safeguard the economic conditions necessary for its sustainability;
- ensure that the sector's operators respect the execution conditions of the concession, licences and authorisation agreements.

By virtue of the legal, statutory and contractual provisions, notably articles 73, 82, 84 of Law No. 2011/022 of 14 December 2011 governing the electricity sector, relevant provisions of the Framework Agreement and Concession Agreement and/or Licence Agreement, the Terms and Conditions of these agreements and/or licences, of the Power Purchase Agreement (PPA) as well as various amendments, operators shall submit their application file for electricity tariff readjustment of the benchmark year to the Regulator for review before application.

Therefore, hypothesis and data presented in the tariff file take into account accomplishments of the previous year and forecasts for the next year.

The purpose of this document is to put at the disposal of the various stakeholders of the electricity sector; operators, investors, financials and lenders as well as development partners, the set of rules and methods that falls within the enforceable legal and statutory framework to determine different tariffs in the Cameroon electricity sector.

II. Definitions

Definitions contained hereunder are those laid down in Law No. 2011/022 of 14 December 2011, Decree No. 2012/2806/PM of 24 September 2012 and the Concession Framework Agreement.

“Exclusive Activities” shall mean activities defined under Article 1 of Decree No. 2012/2806/PM of 24 September 2012.

“Agency” shall mean the Electricity Sector Regulatory Agency.

“Low Voltage Electricity” shall mean the voltage range below 1000 volts in alternating current and below 1500 volts in direct current.

“Specifications” shall mean all the annexes to this Concession Framework Agreement and to each Derivative Agreement relating to the technical obligations and specifications on energy supply by the operator. Specifications shall include (i) Specifications of the Framework Agreement (ii) Specifications of the Generation Concession Agreement (iii) Specifications of the Transmission Concession Agreement and Transport Network Management (iv) Specifications of the Distribution and sale Concession Agreement and (v) Specifications of the Sale License Agreement. Each Specification is part and parcel of the Agreement to which it applies.

“Concession and Licence Framework Agreement” or “Concession Agreement” shall mean the agreement signed in 2001, between the State of Cameroon and the National Electricity Company (SONEL) on the operation of many parts of the electricity sector in the Republic of Cameroon.

“Distribution and Sale Concession Agreement” shall mean the Derivative Agreement reached under the Concession Framework Agreement for the Distribution and Sale of Low Voltage electricity within an exclusive Distribution Area, under the Concession Regime.

“Generation Concession Agreement” shall mean the Derivative Agreement reached in accordance with the Concession Framework Agreement for Generation operations in the form of concession.

“Transmission Concession Agreement” shall mean the Derivative Agreement reached in accordance with the Concession Framework Agreement for electricity Generation operations and Transport Management Network operations in the form of concession.

“Derivative Agreement” shall mean contracts signed between the State and the operator pursuant to the Concession Framework Agreement, and specifying the special conditions for carrying out activities entrusted to the operator, as concession or licence, including all the annexes and, particularly, their respective Specifications.

“Sale Licence Agreement” shall mean the Derivative Agreement signed pursuant to the Concession Framework Agreement for the Sale of Low Voltage and/or High Voltage electricity operations under the licence regime.

“Date of Signature” shall mean the date of signature of the Concession Framework Agreement that is, 18 July 2001.

“Distribution” shall mean any operation of Medium Voltage and Low Voltage electricity grid to supply electricity from the supply point of the distribution network, to Consumers, in a bid to sell them this electricity; this network comprises posts, lines and other electricity components relating to Medium Voltage electricity and Low Voltage electricity that supply electricity in the Distribution Area.

“Assets File” shall mean the document set out in the Annexe of the Equity Agreement containing the list of different assets in form of Operated Assets, Private Property or Ancillary Assets making up Generation Facilities, Transmission Facilities and Distribution Facilities or ancillary assets to these facilities.

“Derivative Revenue Control Formulae” shall mean revenue control formulae that the Agency shall establish for each tariff constituting the Exclusive Retail Tariff and that applies to different Exclusive Activities at the end of the period during which the Tariff Control Formulae and Derivative Tariff Control formulae are applied.

“Tariff Control Formulae” shall mean the control formulae of Exclusive Retail provided for in Article 5 of the Concession Framework Agreement.

“Derivative Tariff Control Formulae” shall mean tariff control formulae that the Agency shall establish and that apply to various Exclusive Activities relating to Bulk Users.

“Transport Network Management” shall mean the transport network management activity, the terms of which are defined by the Law and Article 9 of the Transmission and Transport Network Management Concession Agreement.

“Bulk Users” shall mean any end-point industrial or commercial vendor or buyer of High Voltage or Medium Voltage electricity, entitled to purchase electricity directly from a conveyor, a producer or a seller pursuant to the conditions laid down in article 4 of the Sale Licence Agreement. (*See. Concession Framework Agreement*)

“High Voltage (HV) electricity” shall mean the voltage range between 30 000 volts and 225 000 volts.

“Medium Voltage Electricity” shall mean the voltage range between 1000 volts and 30 000 volts in an alternating current and between 1 500 volts and 30 000 volts in direct current.

“Extra High Voltage Electricity (EHV)” shall mean the voltage range above 225 000 volts.

III. General Aspects

3.1. Pricing Rules

The pricing principles in the electricity sector shall be defined by the Administration in charge of electricity following the assenting opinion of the Electricity Sector Regulatory Agency, or by the later, as the case may be, under the concession, licence and authorisation agreements of public and private operators. *(See law No. 2011/022 of 14 December 2011)*

To this end, pursuant to article 39 of Decree No. 2012/2806/PM of 24 December 2012, electricity price is fixed and revised based on the service cost, upon the agency's approval. The service cost is determined based on investment costs (cost of engineering, supply, facility construction and commissioning), costs of capital (debt and equity, including return on equity), operation and maintenance costs, duties and taxes due by the concession, licence and authorisation holder.

The concession, licence and authorisation agreements shall lay down rules and conditions for periodic tariff change. *(See law No. 2011/022 of 14 December 2011)*.

The rules for tariff change shall be revised every five (5) years or, exceptionally before the end of that period, in case of significant change in the operating conditions, or due to any event modifying the economic, financial or technical environment in which these concession agreement or licences have been established. *(See law No. 2011/022 of 14 December 2011)*.

Tariffs shall be revised by the Electricity Sector Regulatory Agency based on the principles that would help the operator make reasonable profit under normal operating conditions. *(See law No. 2011/022 of 14 December 2011)*.

3.2. Other General Aspects

Exclusive Retail Tariffs shall apply to every Exclusive Activity, as provided for in the regulation of the sector.

The electricity tariff calculation methods shall be defined every five (5) year from the date of signature of the Concession agreement between the State of Cameroon and AES-SONEL in 2001. These periods shall be broken down as follows:

- The first five-year period shall refer to the first five(5) years of the Distribution Concession (signed between the State of Cameroon and AES-SONEL from the Date of Signature (2001-20015);
- The second five-year period shall refer to the five-year period starting from the end of the First Five-year Period (2006-2010);
- The third five-year period shall refer to the period of five (5) years starting from the end of the Second Five-year Period (2011-2015);
- The fourth five-year period shall refer to the period of five (5) years starting from the end of the Third five-year Period (2016-2020).

The tariff calculation methodology described in this document is that which is valid from the Third Five-Year Period. It is based on the service cost method.

Exclusive Retail Tariffs shall be same in all delivery or supply points within the Distribution Area, for the same category of customers.

During the first ten (10) years of the concession, from the Date of Signature, the Exclusive Retail Tariffs shall be fixed below the authorised average threshold by Tariff Control Formulae and Derivative Control Tariffs. From the eleventh (11th) year of the concession, the Exclusive Retail Tariffs shall be determined in such a way that, the operator's revenues, that is, the turnover excluding power sales tax within the framework of Exclusive Activities, arising from the application of these Exclusive Retail Tariffs, taken as a whole, below the threshold authorised by the Derivative Revenue Control Formulae provided for in article 2 of the Framework Agreement Specifications following this period.

IV. Revision Conditions and Tariff Schedule

Major tariff revisions shall be done every five (5) years following the method applied to the Relevant Five-year period.

Tariff Control Formulae are contained in the Concession Framework Agreement Specifications and shall be valid for an initial period of five (5) years from the Date of Signature. At the end of this first five-year period, the Tariff Control Formulae shall apply to Exclusive Retail Sale, and Derivative Tariff Control Formulae shall apply to Transmission operations, Transport Network Management and Bulk Users during a second period of five (5) years, in accordance with the provisions laid down in the Concession Framework Agreement Specifications.

At the end of the aforementioned two five-year periods, the Tariff Control Formulae and the Derivative Tariff Control Formulae shall cease to apply, and the Derivative Revenue Control Formulae specified in article 2 of the Concession Framework Agreement Specifications shall apply. The Derivative Revenue Control Formulae shall be revised every five (5) year by the Agency in consultation with operators pursuant to conditions provided for by the Decree and the Concession Framework Agreement Specifications.

V. Content of the Tariff File

The operator's application shall contain the following elements of the benchmark year:

- the evolution of the tariff base per activity;
- the evolution of the demand/supply balance;
- the evolution of operating costs (except fuel);
- the evolution of fuel and power purchase costs;
- the estimate of the authorised maximum revenue per activity;
- the estimate of the authorised maximum revenue per category of customers;
- the evolution of invoiced energy;
- average prices per category of customers and for each exclusive activity;
- the estimate of the tariff compensation amount of the years N and N+1.

VI. Tariff Methodology for Exclusive Activities

6.1. Enforceable Tariff Conditions

From the Third Five-year period, that is, from 1 January 2011, Exclusive Retail Tariffs shall be regulated based on revenue control instead of tariff direct control. Tariff Control Formulae and Derivative Tariff Control Formulae shall be changed into Revenue Control Formulae so that the operator may consider achieving a Normal Rate of Profit pursuant to paragraph 2.4 (iii) of amendment No. 2 to the Concession Framework Agreement on the basis of Derivative Tariffs defined in paragraph 2.3 of Amendment No. 2 to the Concession Framework Agreement.

Profitability rates of activities other than Exclusive Activities shall be determined through fair competition under the conditions set out in article 6 of the Framework Agreement.

The parameters of Derivative Revenue Control Formulae for Exclusive Activities shall be determined, for each activity, pursuant to the provisions laid down in article 5.2 of the Framework Agreement and Specifications.

6.2. Activities

The parameters of Derivative Revenues Control Formulae for Exclusive Activities shall be determined, for each activity, pursuant to the provisions laid down in article 5.2 of the Framework Agreement and its Specifications.

Activities for which a Derivative Revenue Control Formula has been established are as follow:

- Sale of Low Tension and Medium Tension for Users other than Bulk Users;
- Distribution;
- Transmission;
- Transport Network Manager;
- Sale-related production referred to above.

The operator shall spare no effort during the Third Five-year Period so that the revenue gathered for his different Exclusive Activities for every T year, RPPT (computed in CFAF), does not exceed the authorised maximum revenue for each t year, R MA_t (computed in CFAF), for each of its activities, determined according to the Derivative Revenue Control Formulae of various activities.

Derivative Revenue Control Formulae shall be used to control the operator's revenue while guaranteeing a Normal Profitability Rate pursuant to paragraph 2.4 (iii) of the Specifications.

6.3. Tariff Formulae

Derivative Revenue Control Formulae of various activities are calculated as provided for in amendment No. 2 of the Concession Framework Agreement (point 10):

$$RMA_t = (CI_{t-1} / CI_{t-2}) \times CE_t + A_t + (WACC \times BT_t) + CC_t + AE_t + RI_t + K_t + AF_t - P_{t-1}$$

RMA_t, is the authorised maximum revenue of the activity considered for the year t.

CI_t is determined with the following formulae:

$$CI_t = \alpha \times IHPC_t + \beta \times \frac{IPC_t \times TC_t}{TC_o}$$

Where:

IHPC is the weighted average of, for the two quarters before the reference quarter, the quarterly household global consumption price index, revised for the HIPC to equal the 2010 level.

IPC_t refers to the arithmetic mean of intermediate good - electrical equipment price index, published every month by the National Institute of Statistics and Economic Studies (INSEE) in France, recalibrated for the CPI to equal the 2010 level.

TC₁ is the arithmetic annual value of the CFAF against the EURO (CFAF per EURO) as published by the East African Central Bank.

Central.

TC_0 is the CFAF value against the EURO (CFAF per EURO) as of 30th June 2001 that is 1 EURO = 655 957 CFAF.

α is the burden of the operating cost affected by local inflation.

β is the burden of operating cost affected imported inflation.

α And β respectively take the following values for the Third Period
Five-year period:

	Production	Management of the transport network	Transport	Distribution	Sale of energy
α	77.1%	77%	87.0%	63.6%	77%
β	22.9%	23%	13.0%	36.6%	23%

OC_t refers to the amount of the operating cost per activity for the year t as validated by the regulator for the year t.

$WACC$, is the capital weighted average computed for the five-year period.

A_t is the depreciation of the activity tariff base for the relevant year.

BT_t , is the net tariff base of the relevant operation for the year t.

CC_t , represents the cost of fuel relating to the generation of thermal energy for the year t.

AE_t , represents the costs of energy purchase from independent producers and the rights relating to the use of water for the year t.

RI_t is a parameter that helps adjust the operator's authorised revenue level for the relevant activity, in the event of unexpected conditions that may significantly affect the operating conditions of the operator for the considered activity.

K_t , is the adjustment factor of the differences between income earned for the relevant activity of the year t-1 (RPP_{t-1}) under the defined efficiency conditions, and the income earned in the year t-1 (RPP_{t-1}) that comprises the actual cost incurred for the same activity.

K_t shall be determined with the following formulae:

$$K_t = (RP_{t-1} - RR_{t-1}) \times (1 + I_{t-1}),$$

Where:

RP_{t-1} is the income received from the same activity for the year t-1 within the specified efficiency conditions.

It is obtained through the following formula:

$$RP_{t-1} = PP_{t-1} \times E_{t-1}$$

Where:

PP_{t-1} is the average price received for the relevant activities of the year t-1.

E_{t-1} represents the energy (generated, transmitted; distributed or sold) obtained on the basis of the expected level of efficiency.

RR_{t-1} represents the income earned from the relevant activity on the basis of the actual cost incurred (investments, costs, etc.) during the year t-1.

I_{t-1} is an interest rate amounting to the invitation to tender interest rate of the Bank of Central African States for the year t-1 plus the bank margin plus two percent (2%).

At_t represents the amount of royalties-related relevant activity for the year t-1.

P_{t-1} is the amount of Contractual incentives due for a breach during the year t-1 for the relevant activity, except Contractual incentives payable to Users.

Determination of the average

The average price of each Exclusive Activity is determined using the following formula:

$$TMP_t = \frac{RMA_t}{EA_t}$$

RMA_t , is the authorised maximum revenue of the relevant activity for the year t as defined above.

EA_t is the energy generated, transmitted, distributed or sold pursuant to the specified efficiency conditions. It is determined using the following formula:

$$EA_t = (1 - pp_t) \times E_t$$

Where:

PP_t Is the loss rate for the relevant activity, proposed by the operator in the investment and maintenance plan and validated by the regulator for the year t.

E_t is the energy generated, transmitted, distributed or sold for the year t.

From the end of the Third Five-year Period, Parties shall be entitled to agree on a revenue control formula on a multi-annual basis.

6.4. Tariff Base

The tariff base is the reference economic value of the operator's asset that helps determine the authorised revenue of the operator to allow him/her reach a Normal Profitability Rate for Exclusive Activities, if he/she achieves his/her servicing objectives by respecting the hypothesis of operating costs and investment costs (the "Tariff Base").

VII. Tariff Methodology for Independent Producers.

Pursuant to law No. 2011/022 of 14 December 2011 governing the electricity sector (see article 84), rates applied between the generator and the supplier on the one hand, and bulk users on the other hand, shall be freely established under their contractual relations and in accordance with the transmission obligation of the Electricity Sector Regulatory Agency price structures, thirty (30) days, at most, upon their enactment.

In the event of any irregularity, especially concerning costs or cross-subsidies transfers, the Electricity Sector Regulatory Agency shall make adjustments with a penalty of between 50% and 200% of the irregularity

Each producer shall beforehand submit its price allocation formula to the Agency for approval to establish tariff.

Where the producer is the supplier to the dealer or distributor, all its contracts, including those signed with dealer or bulk users referred to in subsection 1 above, shall be submitted to the Electricity Sector Regulatory Agency which has a period of thirty (30) days to make possible reservation, and, if need be, challenge the execution of such agreements.

VIII. Communication

Pursuant to the provisions of the Concession Framework Agreement, the distributor shall publish by all appropriate means, particularly through a release in the Service Regulations, applicable prices or formulae for each category of the services referred to. If differences are established between categories of suppliers or customers, the operator shall specify, in full respect of principle of non-discrimination and in accordance with modalities defined in article 4 of the Concession Framework Agreement, different categories of hold backs and various processing made.

IX. Legal, Statutory and Contractual References.

Legal and Statutory Framework:

- Law No 2011/022 of 14 December 2011 governing the electricity sector in Cameroon;
- Decree No 2013/203 of 28 June 2013 on the organisation and functioning of the Electricity Sector Regulatory Agency;
- Decree No. 2012/2806/PM of 24/09/2012 on the implementing certain provisions of law No. 2011/022 of 14 December 2011 governing the electricity sector in Cameroon;
- Decree No. 2000/464/PM of 30 June 2000 governing the activities of the electricity sector;
- Decree No. 2000/462 of 26th June 2000 on the renewal of concessions, licences, authorisations and statements valid upon the entry into of law No. 98/022 of 24 December 1998 governing the electricity sector;
- public electricity distribution service regulation: ARSEL newsletter.

Contractual Framework

- The ENEO's Concession and Licence Framework Agreement and the two amendments to the agreement;
- The Production Concession Agreement and related specifications;
- The Transmission and Transport Network Management Concession Agreement and related specifications;
- The Electricity Distribution and sale Concession Agreement and related specifications.