ELECTRICITY REGULATORY AUTHORITY

PART I

ELECTRICITY DISTRIBUTION TARIFF CALCULATION METHODOLOGY

Authority

This electricity distribution tariff calculation methodology is developed according to the Law No.9072, dated 22.05.2003, "On Power Sector."

Purpose

The purpose of this methodology is to set distribution use of system tariffs based on principles of tariff calculation, evaluating the necessary data for a fair tariff.

Objective

The short-term objective of this tariff methodology is to provide a framework for calculating the tariffs of distribution use of system and tariffs paid by eligible customers in Albania for access to the distribution network, and facilitate the creation of a distribution/supplier company.

The long-term objective of this tariff methodology is to establish a regulatory framework for the distribution sector of Albania that is consistent with the Energy Community for South East Europe (ECSEE) Treaty, and enable eligible customers to participate in the regional electricity market.

1. Terms used in the methodology

Standard terms used in all tariff methodologies are established in the Power Sector Law, Market Rules, Metering Code, Transmission Code and other secondary legislation approved by the ERE. Terms used in this methodology have the following meanings.

1.1 **Annual adjustment factor (A)** – a percentage equal to the inflation factor minus the efficiency improvement factor.

1.2 **Average distribution tariff** – average revenue per kWh for the use of the distribution network over a 12-month period, calculated as the total revenue from capacity-related charges, energy-related charges, and fixed monthly charges for the distribution network divided by the total kWh delivered by the distribution system to captive customers and eligible customers located in Albania. Charges for the distribution network are included in the calculation of the tariff to captive customers.

1.3 **Average distribution tariff ceiling** – the maximum allowable level of the average distribution tariff for a specific 12-month period.

1.4 **Base tariffs** – the set of distribution service tariff values determined according to costs in the base year.

1.5 **Base year** – the first year of the tariff review cycle, corresponding to a 12-month period in which the distribution tariffs approved by ERE are applied to customer bills. The beginning of the base year is the date on which the cost of distribution service is charged to captive customers and eligible customers according to the new distribution tariffs. This date may be no more than 30 days before and no more than 30 days after the date of official approval of the new distribution tariffs.

1.6 **Captive customers** – final customers who are not Eligible Customers, supplied by the distribution company equipped with a license for the territory where the electricity consumption area is located. Captive customers are also called *tariff customers*.

1.7 **Differentiated tariff** – the tariff for access to the distribution network. It may include capacity-related charges, energy-related charges, fixed monthly charges, and reactive power charges, related to respective voltage levels.

1.8 **Efficiency improvement factor (X factor)** – the annual percentage reduction in the cost of distribution service resulting from improvements in production efficiency and improvements in technology

1.9 **Price cap regulation** – One of the standard approaches to tariff-setting, in which the regulated company (in this case, the distribution/supplier company) is not allowed to collect an average price per kWh that is above the ceiling (in this case, the average distribution tariff ceiling) set by the ERE, but is allowed to charge prices that are below the prices approved by the ERE.

1.10 **Regulated asset base (RAB)** – the value of fixed assets that are owned by the distribution company and are used to provide service to distribution customers and to fulfill the distribution company's obligation to ensure the reliability and security of the electric system. The regulated asset base does not include financial investments, securities, accounts receivable, or cash.

1.11 **Tariff review cycle** – the time period for which new tariffs become effective and are adjusted according to a decision taken by the Energy Regulatory Entity, following a complete and detailed review of a tariff application submitted by the distribution system operator.

2. General regulations and basic principles

2.1 This methodology is developed in conformity with the Law No.9072, dated 22.05.2003 "On Power Sector" as well as other legal acts which are in force in the Republic of Albania and by-legal acts approved by the ERE.

2.2 The sources of distribution company revenue defined in this tariff methodology are the tariff for access to the distribution network, which is paid by eligible customers, and the sales tariff, which is paid by tariff customers.

2.3 Price cap regulation has been selected in this methodology, for two reasons: (a) to provide an incentive for the distribution company to offer lower prices, when a price reduction will result in increased use of the distribution network , and (b) to protect the customer, by establishing a mechanism for adjusting prices when it turns out that actual revenue per kWh is higher than planned revenue per kWh.

2.4 The calculation of the tariff for access to the distribution network should be based on energy flows, delivery capacity, and costs for the entire distribution system in the base year.

2.5 The tariff for access to the distribution network should have three customer groups: customers at 110/x kV transformers, medium voltage, and low voltage. The tariff for access to the distribution network should cover the true cost of service, with no cross-subsidies.

2.6 A customer who needs a new connection to the distribution network will pay a connection charge to the distribution company. The connection charge should cover only the cost of the customer's meter and the lines that are built exclusively to provide service to that customer. These tariffs for new connections shall be recovered by "Guidelines on Payment Rates for Connections to the Electricity Distribution Network". All other costs related to new connections should be recovered through the distribution tariff so that these costs will be "shared" among all customers.

2.7 Connection charges for new generating facilities directly connected to the distribution system shall be established on a case-by-case basis. The connection charge should cover only the cost of the metering devices and lines that are built exclusively to connect a new generator to the network. Assets financed through this connection charge may not be included in the Regulated asset base of the distribution company. Depreciation of these assets shall not be covered by the distribution tariff.

2.8 The distribution tariff should recover the cost of ownership, construction, operation, and maintenance of lines, cables, transformer substations, transformers, and related buildings and communication facilities.

2.9 Reactive power compensation costs are incurred by the OST and therefore reactive power charges are part of the transmission tariff. If a distribution company wishes to add a reactive power charge to the tariff for access to the distribution network, and to the sales tariff, the distribution company must submit a separate tariff application to ERE explaining the reasons why the distribution company should collect additional revenue according to the proposed reactive power charge. If such an application is not submitted, the tariff for access to the distribution network and the sales tariff will not have reactive power charges.

2.10 Price cap regulation is applied to the average distribution tariff. ERE approves the average distribution tariff ceiling. If the average distribution tariff measured on the basis of historical data for one of the years in the tariff review cycle exceeds the average distribution tariff ceiling established by the Energy Regulatory Entity, the distribution company must lower the distribution tariffs in the following year so that the customers of the Albanian distribution system receive a refund of the amount of excess revenue collected (i.e. the amount of over-recovery).

2.11 An "RPI-X" approach is used to give the distribution company an incentive to reduce its costs during the distribution tariff review cycle. The duration of the distribution tariff review cycle is three years. If the distribution tariffs for the next tariff review cycle have not been approved before the end of the three year period, the ERE may adopt a decision to extend the tariff review cycle by one additional year.

2.12 Tariff setting involves two interrelated activities:

a) setting economically justified base tariffs for the base year of the tariff review cycle, and

b) setting the average distribution tariff ceiling for years 2 and 3 of the tariff review cycle.

2.13 The distribution tariff review cycle and the transmission tariff review cycle should begin on the same day of the year (for example, January 1 or July 1) but it is not necessary for both of them to begin on the same date (for example, January 1, 2005).

2.14 Long-term debt financing should be used to finance new capital expenditures, but should not be used to cover operating costs or refinance older assets i.e. assets that were brought into operation on or before 31.12.2000.

2.15 The regulated company shall clearly and unambiguously report the costs of each regulated service including only the assets and activities related to the regulated services. The cost allocation method shall be comprehensive.

2.16 Tariffs shall correspond to costs that would be incurred by a well-managed distribution company which tries to make prudent investments, minimize network losses, and avoid wasteful expenditures. When setting the base tariff the regulator has the right to investigate the cost levels reported by the distribution company, and benchmark its unit costs against other distribution companies.

2.17 In preparing a tariff application the distribution company shall try to present all costs with precision up to 1,000 Euro. The regulator should not question amounts less than 1,000 Euro unless there is a dispute about compensation or payment to specific physical persons.

3. Electric energy and power balances

3.1 The electric energy balance of the distribution system for the base year shall be prepared by estimating the total amount of energy in GWh received by the distribution system during the base year. This total equals energy received from the transmission system plus energy received from generating stations connected to the distribution system. Total energy received must be allocated to:

a) energy delivered to captive customers

b) energy delivered to eligible customers

c) technical energy losses in the distribution system

d) non-technical energy losses in the distribution system

e) technological consumption and other energy deliveries.

3.2 The coincident peak load flow balance of the distribution system shall be prepared by estimating the total power in MW received by the distribution system in the peak hour. This total equals power received from the transmission system plus power received from generating stations connected to the distribution system. Total power received must be allocated to:

a) power delivered to captive customers

b) power delivered to eligible customers

c) technical power losses in the distribution system

d) non-technical power losses in the distribution system

e) technological consumption and other power deliveries.

3.3 Energy and power balances for the combined transmission and distribution system are not an acceptable substitute for balances for the distribution system.

3.4 For each of the last ten years, energy losses in the distribution system must be shown as a percentage of energy received by the distribution system.

4. Costs to be included in the tariff calculation

4.1 Costs to be included in tariff calculation and recovered through capacity-related charges, energy-related charges, and fixed monthly charges consist of capital costs, operational costs and taxes. Only economically justified costs that pertain to the provision of regulated services shall be included in tariff calculation. The revenue requirement to be collected in the base year is equal to:

$$RR = C_{capital} + C_{operating} + C_{tax}$$

RR = Revenue Requirements

4.2 Capital costs equal the return on capital, plus depreciation and amortization.

$$C_{capital} = R + D$$

$C_{capital}$ - capital-related component of the target revenue for the base year

R - return on capital

D - depreciation of fixed assets and amortization of other assets

4.2.1 The return on capital is calculated by the formula:

$$R = B * r$$

B – Regulated Asset Base at the beginning of the base year of the tariff review cycle

r – the allowable rate of return on the Regulated Asset Base.

4.2.2 The value of the regulated asset base should be equal to the replacement cost of the fixed assets used to provide distribution service, less depreciation, less an adjustment for economic obsolescence. The regulator has the right to ask the distribution company to hire an auditing firm or expert in asset valuation to conduct an asset valuation study, if such a study has not been completed for at least five years. Unless the regulator has some reason to believe that the distribution company has incurred excessive costs on its recent construction projects, the regulator should assume that the replacement cost of any asset is equal to the actual cost incurred (historical cost).

4.2.3 Land and rights-of-way used by the distribution company may be valued at original purchase cost, adjusted for inflation. It is not necessary to estimate the market value of this land.

4.2.4 The depreciation lifetimes of different categories of assets should be based upon the expected operating life of these assets. If financial data have been distorted by the use of unreasonably high numbers for depreciation lifetimes, the regulator may instruct the distribution company to prepare a set of financial accounts for tariff making purposes, using depreciation lifetimes approved by the regulatory authority.

4.2.5 None of the assets of the distribution company should be considered stranded assets. If they are valued according to depreciated replacement cost and are in operation, then it is reasonable to assume that they are needed to provide distribution service.

4.2.6 The allowable rate of return on the Regulated Asset Base is calculated from an allowable rate of return on equity in the base year, an estimated average interest rate on long-term debt during the base year, and a debt/equity ratio. All three of these values must be given in the tariff decision issued by the regulatory authority so that the assumptions used to calculate the allowable rate of return will be clearly presented. The allowable rate of return on the Regulated Asset Base is:

r = roe * (1-d) + i * d

roe – allowable after-tax rate of return on equity; a target set by the regulatory authority

d – debt ratio - i.e. the ratio of long-term debt to long-term assets - which is set by the regulatory authority and applied to the Regulated Asset Base

i – weighted average interest rate on long-term debt

4.2.7 If there are no private shareholders, profits must be used to support the distribution company's capital expenditure program and increase the book value of share capital. The allowable rate of return on equity should be selected by the regulator on the basis of the distribution company's need to obtain cash flow for capital expenditure, as shown in the statement of sources and uses of funds in the base year.

4.2.8 If there are private shareholders, the allowable rate of return on equity should be set on the basis of returns earned by private sector firms which face a comparable level of business risk and operate in Southeast Europe or in other countries considered comparable to Albania.

4.2.9 The ERE may decide to set a high allowable rate of return on equity to enable the distribution company to generate cash flow for capital expenditure.

4.2.10 The weighted average interest rate on long-term debt should be determined as either (a) the sum of interest payments on long-term debt during the base year, divided by the total principal on long-term debt (the total amount borrowed) at the beginning of the base year or (b) the sum of interest payments on long-term debt during the 3-year tariff review cycle, divided by the sum of the amount borrowed at the beginning of the base year, the amount borrowed beginning of year 2, and the amount borrowed at the beginning of year 3. The choice between (a) and (b) shall be made by ERE. Unless the regulatory authority finds some reason to believe that the distribution company has borrowed money at interest rates that are higher than necessary to obtain distribution company financing, the weighted average interest rate on long-term debt should be calculated by the distribution company and shown in the tariff application.

4.2.11 Before submitting a tariff application, the distribution company may submit an application for the regulator to set the allowable rate of return on the Regulated Asset Base. The regulator must respond to this application according to the approved procedures for tariff applications.

4.2.12 All essential components of the distribution system must be owned by the distribution company and not leased. Payments associated with leasing (for example, motor vehicle leasing) may be included in operating expenditures.

4.2.13 Costs associated with the acquisition of intangible assets such as patents, licenses, trademarks, software licenses, and information obtained through research and development should be shown as operating expenses. For a distribution tariff calculation there is no reason to capitalize the value of intangible assets.

4.3 The distribution company's operating costs include:

$$C_{operating} = C_{metering} + C_{maintenance} + C_{salaries} + C_{technical\ losses} + C_{outsource}$$

$C_{metering}$ - the cost of measuring the power and energy delivered to captive customers and eligible customers, and the cost of billing and settlement of accounts with captive customers and eligible customers

$C_{maintenance}$ - spare parts, supplies, vehicles, fuel, and other maintenance costs; this component excludes the maintenance costs that have been allocated to $C_{metering}$

$C_{salaries}$ - salaries, wages, medical insurance, and costs (other than taxes) associated with employee benefit programs; this component excludes the salary costs that have been allocated to $C_{metering}$

$C_{technical\ losses}$ - an allowance for the true economic cost of technical energy losses in the distribution network

$C_{outsource}$ - expenditures for professional services including accounts, lawyers, financial advisors, consultants, IT specialists, and advertising agencies (excluding expenditures already included in salaries and wages)

4.3.1 The price assigned to distribution system energy losses equals:

$$C_{losses} = E_{losses} * P_{import}$$

E_{losses} - technical energy losses in the distribution network during the base year

P_{import} - the average price of electric energy that would be imported during the base year

4.3.2 In special circumstances the repair and maintenance of the distribution system may be done by private firms rather than employees of the distribution company. After a major storm, for example, urgently needed repair work may be contracted to private firms. The costs should be included in $C_{outsource}$.

4.4 The $\mathbf{C}_{\mathbf{tax}}$ component enables the regulatory authority to show clearly the portion of the tariff which is attributable to taxes and therefore beyond the regulator's control.[1] Although it is possible to reduce electricity rates by lowering the contribution of the electric sector to tax revenues, the regulator's role is simply to provide the figures that show the tax component of electric sector tariffs including the distribution tariff. The tax component includes the following items, which are shown as expenses in the income statement of the distribution company:

$$\mathbf{C}_{\mathbf{tax\ expense}} = \mathbf{C}_{\mathbf{social\ tax}} + \mathbf{C}_{\mathbf{property\ tax}}$$

VAT has not been included in the above formula since it is calculated by the distribution company for each customer and indicated as a separate item in the monthly bill.

The total tax component of the distribution company's revenue requirement for the base year, excluding VAT, is:

$$\mathbf{C}_{\mathbf{tax}} = \mathbf{C}_{\mathbf{tax\ expense}} + \mathbf{C}_{\mathbf{profit\ tax}} + \mathbf{C}_{\mathbf{ERE}}$$

4.4.1 The cost component labeled $\mathbf{C}_{\mathbf{social\ tax}}$ includes all taxes related to salaries. This includes salary-related taxes that are used by the government to provide unemployment benefits and training to workers who lose their jobs.

4.4.2 The cost component labeled $\mathbf{C}_{\mathbf{property\ tax}}$ includes all taxes other than social taxes, income taxes and VAT. For example this component includes fees charged by government authorities other than ERE for permits and licenses. Property tax on buildings, constructions and land owned by the distribution company is calculated based on the legal acts of the Republic of Albania.

4.4.3 The cost component labeled $\mathbf{C}_{\mathbf{profit\ tax}}$ includes all profit taxes planned to be paid by the distribution company to the Government of Albania.

4.4.4 The cost component $\mathbf{C}_{\mathbf{ERE}}$ includes all fees paid to ERE by the distribution company.

4.4.5 The distribution company should not collect revenue for the purpose of covering KESH's tax obligations. The distribution tariff should not contain any component which is related to tax obligations incurred by KESH before the distribution company started its operations.

5. Allocation of costs to capacity, energy, and fixed monthly charges

5.1 Each customer must pay an energy charge, in leke/kWh, based on the number of kWh delivered from the distribution system to the customer during that month.

5.2 Each customer must pay a fixed monthly charge which is intended to cover the metering, billing, and settlement costs incurred by the distribution company to provide service that

[1] Under international financial accounting standards, salary-related taxes and property taxes are normally included in operating expenses, and profit taxes are included in income before tax, and therefore associated with the return on equity.

customer during the base year. The fixed monthly charge depends on the number of delivery points for that customer.

5.3 Customers with the appropriate type of meter will also pay a capacity charge, in leke/kW/Month, based on the customer's peak load during the 12-month period ending with the billing month. If the customer has signed an agreement with the distribution company in which the customer must pay for a specific amount of capacity guaranteed by the agreement, then the capacity charge is applied to whichever is higher – the contractually guaranteed capacity, or the customer's peak load during the 12-month period ending with the billing month.

5.4 In a tariff application the distribution company must forecast the following figures, for each customer group (customers at 110/x kV transformers, medium voltage, and low voltage):

a) An estimate of the total delivery capacity in kW required to provide a reliable supply of electricity to customers in that customer group.

b) the total energy in kWh that will be shown in captive customers and eligible customers' bills in each month of the base year, and the sum of these monthly totals

5.5 The revenue requirement of the distribution company in the base year includes three components: a capacity-related portion, and energy-related portion, and a fixed portion.

$$\mathbf{RR = C_{capacity} + C_{energy} + C_{metering}}$$

5.6 For each customer group (customers at 110/x kV transformers, medium voltage, and low voltage) the capacity-related portion of the revenue target in the base year equals:

$$\mathbf{C_{capacity} = C_{capital} + C_{profit\ tax}}$$

5.7 The price of capacity, in leke per kW per month, equals:

$$\mathbf{I_{capacity} = C_{capacity} / L}$$

L - total delivery capacity, kW

5.8 For each customer group (customers at 110/x kV transformers, medium voltage, and low voltage) the energy-related portion of the revenue target in the base year equals:

$$\mathbf{C_{energy} = C_{maintenance} + C_{salaries} + C_{losses} + C_{outsource} + C_{social\ tax} + C_{property\ tax} + C_{ERE}}$$

5.9 The price of energy, in leke per kWh, equals:

$$\mathbf{I_{energy} = C_{energy} / E}$$

E - total energy in kWh that will be shown in captive customers and eligible customers' bills during the base year

5.10 For each customer group (customers at 110/x kV transformers, medium voltage, and low voltage) the fixed portion of the revenue target in the base year equals $\mathbf{C_{metering}}$.

5.11 The fixed monthly charge, in leke per delivery point, equals:

$$P_{monthly} = C_{metering} / N$$

N - the average of the number of delivery points to captive customers and eligible customers at the beginning of the base year, and the number of delivery points at the end of the base year

5.12 For customers whose meter simply measures active energy consumption in kWh, the price per kWh is calculated so that it will cover both capacity-related costs and energy-related costs:

$$P_{energy} = (C_{energy} + C_{capacity}) / E$$

5.13 For customers who have a meter that measures both active power in kW and active energy consumption in kWh, the price of energy is different:

$$P_{capacity} = I_{capacity}$$

$$I_{capacity} = C_{capacity} / L$$

$$P_{energy} = I_{energy}$$

$$I_{energy} = C_{energy} / E$$

5.14 A distribution company may submit an application to ERE for peak/off-peak energy prices in the distribution use of system tariff. In this application there will be two values of I_{energy}: one corresponding to peak periods (when network losses are higher and the value of energy is higher) and one corresponding to off-peak periods (when network losses are lower and the value of energy is lower). In other respects the tariff methodology would be the same. The distribution company would have to explain in its tariff application the costs and benefits of introducing a peak/off-peak pricing structure in the distribution use of system tariff. The peak/off-peak approach requires more expensive meters, which can be justified only by peak/off-peak price differences for generated and imported energy, but it reflects the true cost of network energy losses more accurately than the simple approach shown in paragraph 5.9.

6. Calculation of the average distribution tariff

6.1 In each year of the tariff review cycle, the average distribution tariff equals:

$$P_{average} = (C_{capacity} + C_{energy} + C_{metering}) / E$$

$P_{average}$ - average distribution tariff

6.2 The average distribution tariff may be calculated for any 12-month period. The monthly data may be forecast or historical or a combination of forecast data for future months and estimated data for recent months.

6.3 Revenue associated with the use of the distribution system should be collected from captive and eligible customers in a transparent and non-discriminatory fashion. Comparable groups of

captive and eligible customers connected to the distribution system should pay the same distribution use of system charges, directly or indirectly.

7. Setting the average distribution tariff ceiling

7.1 For the base year, the average distribution tariff ceiling is equal to the average distribution tariff calculated according to costs in the base year.

7.2 For the second year of the tariff review cycle (Year 2), the average distribution tariff for the base year is multiplied by the annual adjustment factor:

$$\mathbf{A = (1 + RPI – X)}$$

A - annual adjustment factor

RPI - rate of consumer price inflation forecast for Year 2 by the National Bank of Albania, or set by the ERE on the basis of the trend in consumer price index over the most recent 3 year period for which historical data are available

X - efficiency improvement factor set by ERE

7.3 The ERE may, at its discretion, add to this formula a performance improvement factor based on the quality of supply to captive customers and eligible customers or the level of distribution network energy losses. Such performance improvement factors must be defined very clearly and simply, and the distribution company must provide an assurance to ERE that the distribution company is able to provide the quality of supply data needed to accurately measure its performance improvement.

7.4 The value of X should be determined on the basis of a benchmarking study of distribution system operators, in which the performance of at least 3 distribution companies is examined over a period of at least 3 years. If the ERE does not have time to conduct such a benchmarking study or review the results of other benchmarking studies then the value of X should equal zero.

7.5 If the distribution company's actual financial performance in any year of the tariff review cycle is better than indicated by the financial projections in the tariff application, or better than expected by the ERE, bonuses may be given to the top management of the distribution company and to the employees of the distribution company without raising the average distribution tariff above the average distribution tariff ceiling. Therefore the distribution company has an incentive to improve efficiency and reduce its costs, even when the value of X is equal to zero.

7.6 For the third year of the tariff review cycle (Year 3), the average distribution tariff for the second year is multiplied by the annual adjustment factor, using an RPI value corresponding to Year 3.

7.7 Over-recovery of revenue should be refunded to captive customers and eligible customers by making an adjustment to the level of the energy charge in the distribution tariff. There is no need to adjust the capacity charge or the fixed monthly charge.

7.8 The distribution company should never be "punished" for over-recovery of revenue, through an adjustment to the allowable rate of return on equity or through an adjustment of the price $\mathbf{P}_{\mathbf{import}}$ that is assigned to network losses. Over-recovery of revenue can result from forecasting errors and from unanticipated events and trends in the power sector.

7.9 An over-recovery of revenue during the last year of a tariff review cycle should be refunded to captive customers and eligible customers by making an adjustment to the level of the energy charge in the base year of the following tariff review cycle.

7.10 If a "force majeure" event disrupts the distribution system, the distribution company may submit a request to the ERE at any time, for permission to adjust the energy charge in the distribution tariff so that a specific amount of additional revenue will be collected by the distribution company. The additional cost should be collected from both captive customers and eligible customers in a non-discriminatory fashion. The distribution company should aim to achieve stable and predictable distribution tariffs.

8. Deadlines

8.1 Based on this methodology, the distribution company shall submit to the ERE a request for the approval of new tariffs, no later than 6 months before the day that the new proposed tariffs are required to enter in force.

8.2 The distribution company shall submit to the ERE data on previous year costs and average tariffs (prices) according to the sale structure, within April of the next year.

8.3 ERE shall examine these data within May, and if deviations from the approved costs and tariffs (prices) that impair the customers are evidenced, the ERE shall decide on the company reimbursements for the next year.

9. Final provisions

The Electricity Distribution Tariff Calculation Methodology was approved by ERE's Board of Commissioners on June 24, 2005.