ABRIDGED VERSION OF
THE ACCESS TO AND USE OF SYSTEM CHARGING METHODOLOGY - ELECTRICITY DISTRIBUTION

This abridged version contains:

1. the Access to and Use of System Charging Methodology – Electricity Distribution (Official Gazette of the Republic of Serbia No. 68/06),
2. the Decision on the Amendments to the Decision on the Access to and Use of System Charging Methodology – Electricity Distribution (Official Gazette of the Republic of Serbia No. 18/07), and
3. the Decision on the Amendments to the Decision on the Access to and Use of System Charging Methodology – Electricity Distribution (Official Gazette of the Republic of Serbia No. 116 /08).

Energy Agency – Legal Sector, on April 13, 2010

ACCESS TO AND USE OF SYSTEM CHARGING METHODOLOGY – ELECTRICITY DISTRIBUTION

(abridged text – unofficial version)

I. SUBJECT OF THE METHODOLOGY

This Methodology determines ways of setting tariff elements for calculating prices for access to and use of system for electricity distribution (hereinafter referred to as the use of system).

II. METHODOLOGY APPROACH

The methodology is based on the price control mechanism for distribution use of system charges by applying the regulatory ”cost plus” method whereby the maximum allowed revenue is set in the regulatory period for energy entities conducting electricity distribution and electricity distribution operation , i.e. the price which enables a return on justified operating costs as well as a return on assets employed.

The maximum allowed revenue of an energy entity is allocated to tariff elements based on:

1) Planned energy parameters, structure and valuation of energy facilities, and
2) Share of variable and fixed costs in total costs of energy entity.

III. TERMS AND DEFINITIONS

Terms used in the methodology have the following meaning:

Revenue allocation	Allocation of the maximum allowed revenue to tariff elements
Maximum allowed revenue	Maximum revenue of energy entity that recovers all justified costs incurred while carrying out regulated energy activities in the regulatory period and that allows an adequate return on the regulatory asset base.
Location of Cost	Physical or other location in energy entity at which a specific cost is incurred
Tariff elements	Parameters of tariff system that quantify the performance of regulated energy entities and calculate prices resulting from these levels of performance.

Other terms used in this Methodology have the same meaning as in the Energy Law.

When calculations are done according to formulae defined in this methodology, all values expressed in percentages shall be divided by 100.

IV. SETTING MAXUMUM ALLOWED REVENUE

Maximum allowed revenue of an energy entity is calculated for every energy activity separately based on justified operating costs and an adequate return on assets employed for electricity distribution and distribution system operation.

If, during the regulatory period, justified operating costs based on which the maximum allowed revenue of an energy entity is set, significantly differ from actual costs as a result of objective reasons (change in the Energy Balance of the Republic of Serbia or a significant change in electricity price for covering losses), the maximum allowed revenue may be adjusted for that regulatory period.

Cost justification shall be assessed on the basis of the nature of a particular cost by analyzing the reasons for which it was incurred, the quantity, and the prices driving a particular cost, and by benchmarking data on costs of energy entities in the previous period and costs of energy entities conducting the same energy activity in the country and the region.

IV.1. Common operating costs, assets, depreciation costs, and other revenues

Common operating costs are operating costs which are incurred to enable an energy entity performing two or more energy activities, or an extra non-energy activity, to operate, but which cannot be directly linked to any specific location of cost.

Common assets are assets of an energy entity that are necessary for an energy entity conducting two or several energy entities, or an extra non-energy activity, to function, and which cannot be directly allocated to any specific activity (intangible investments, except goodwill, immovables, plant, and equipment).

Common depreciation costs are depreciation costs of common assets incurred to enable an energy entity conducting two or several energy activities, or an extra non-energy activity, to function, and which cannot be directly linked to any specific location of cost.

Other common revenues are other revenues earned by employing common energy entity's assets that cannot be directly allocated to any specific activity.

Common operating costs, assets, depreciation costs, and other revenues are allocated to energy activities for which maximum allowed revenue is set in accordance with this methodology (electricity distribution, or electricity distribution operation), and to other energy and non-energy activities, based on transparent rules (formulae) specified in line with accounting standards and objective criteria.

IV.2. Electricity distribution

Calculating the maximum allowed revenue of the energy entity for distribution is done by applying the following formula:

$$MAR_{dis\,t} = OPEX_t + D_t + WACC * RAB_t - OR_t + CF_t$$

where:

t – regulatory period

$MAR_{dis\,t}$ – maximum allowed revenue of the energy entity for distribution in period t (in dinars),

$OPEX_t$ –operating costs in period t (in dinars),

D_t –depreciation costs in period t (in dinars),

WACC – rate of return on regulatory asset base (in %),

RAB_t – regulatory asset base in period t (in dinars),

OR_T – other revenues in period t (in dinars).

CF_t – correction factor in period t (in dinars).

Costs that are included in the calculation of the maximum allowed revenue of an energy entity on account of conducting electricity distribution, are set according to energy parameter forecasts from the Energy Balance of the Republic of Serbia, i.e. according to data used for the Balance preparation.

IV.2.1. Operating expenditures

Operating expenditures represent justified costs of the energy entity for distribution and they comprise:

1) tangible costs,
2) costs of salaries, contributions and other staff expenditures,
3) production services costs,
4) part of reservations for contributions and other staff benefits, paid during the regulatory period, and
5) intangible costs

These operating expenditures also include:

- transmission use of system charges,
- environmental protection costs, and
- operating expenditures of assets funded by capital contributions.

IV. 2.2. Depreciation costs

Depreciation costs represent costs of depreciation of assets that are used for carrying out the energy activity of electricity distribution, where the costs of depreciation encompass the costs of depreciation of the assets funded by capital contributions.

Depreciation costs encompass the costs of depreciation of existing assets at the beginning of the regulatory period and depreciation costs of new assets that will be activated in the regulatory period.

The depreciation costs of the existing assets and new assets that will be activated in the monitored regulatory period are calculated by using a pro rata method in the estimated useful life of the assets.

Depreciation costs of new assets to be put into service during the regulatory period in question are calculated on the base consisting of 50% of the value of intangible investments initiated, immovables, plant, and equipment under construction, and advance payments made towards procurement thereof.

Depreciation costs are calculated according to the following formula:

$$D_t = D_{EAt} + D_{NAt}$$

where:

D_t = depreciation costs in period t (in dinars),

D_{EAt} = depreciation costs of the existing assets in period t (in dinars),

D_{NAt} = depreciation costs of the assets that will be activated in period t (in dinars).

IV.2.3. Regulatory asset base

Regulatory asset base represent the net value of intangible investments (except goodwill), real estates, facilities, and the equipment which is used for carrying out the energy activity of electricity distribution, excluding:

- net value of the assets funded by capital contributions, such as grants, participation of third parties in the distribution system construction, assets acquired from connection charges etc.
- net value of intangible investments, immovables, plants, and equipment under construction that shall not be placed in service during the regulatory period, or that are not justified nor/or efficient, and advance payments made towards procurement thereof.

Whether investments are justified and efficient is determined on the basis of:

- the need to develop the electricity distribution system to meet the increased electricity demand and to improve the quality and security of supply,
- technical – technological, economic, and other parameters and indicators showing that investing is justified and efficient, and
- harmonisation of investments with the annual business programme and development plan of the energy entity.

The regulatory asset base is the basis for the calculation of the return on assets employed that the energy entity is allowed to obtain in the regulatory period.

The value of the regulatory asset base is calculated as the arithmetic mean of the opening and closing values of the regulatory asset base in the regulatory period according to the following formula:

$RAB_t = (oRAB_t + cRAB_t) / 2$

Where:

RAB_t – regulatory asset base in period t (in dinars),

$oRAB_t$ – opening value of regulatory asset base in period t,

$cRAB_t$ –closing value of regulatory asset base in period t .

Opening value of regulatory asset base is calculated according to the following formula:

$oRAB_t = NAV_{0t} – CC_{0t} – CWIP_{0t}$

Where:

NAV_{0t} = opening net value of intangible investments (except goodwill), immovables, plant, and equipment at the beginning of the period t (dinars),

CC_{0t} = opening net value of assets funded by capital contributions at the beginning of the period t (dinars),

$CWIP_{0t}$ = opening net value of intangible investments (except goodwill), immovables, plants, and equipment under construction which will not be commissioned over the regulatory period, or which are not justified nor/or efficient, and advance payments made towards procurement thereof at the beginning of the regulatory period (in dinars).

The closing value of the regulatory asset base is calculated according to the following formula:

$cRAB_t = oRAB_t - D_{RABt} + \Delta Capex_t - Disposals_t - \Delta CC_t - \Delta CWIP_t$

Where:

D_{RABt} = depreciation costs of the regulatory asset base, excluding depreciation costs of assets funded by capital contribution in the period t, calculated by using the method specified in this Methodology (dinars),

$\Delta Capex_t$ = change in the value of intangible investments (except goodwill), immovables, plants, and equipment under construction, and advance payments made towards procurement thereof over the period t, increased by the net value of intangible investments (except goodwill), immovables, plants, and equipment under construction, and of advance payments for their procurement at the beginning of the regulatory period, but which will not be commissioned over the period t (dinars),

$Disposals_t$ = net value of assets that have been disposed of and/or permanently withdrawn from use in the period t (dinars),

ΔCC_t = change in the value of assets funded by capital contributions over the period t (dinars),

$\Delta CWIP_t$ = change in the value of intangible investments (except goodwill), immovables, plants, and equipment under construction, which will not be commissioned over the period t, or which are not justified nor/or efficient, and advance payments made towards procurement thereof (dinars).

IV.2.4. Rate of return on the regulatory asset base

The rate of return on the regulatory asset base is determined as the weighted average real cost of capital.

The weighted average real cost of capital is the weighted average of rate of return on equity capital and weighted average rate of return on debt capital calculated according to weight factors of 40% for equity and 60% for debt capital, and is calculated on a pre-tax basis according to the following formula:

WACC = (equity portion * cost of equity, post-tax, real) / (1-tax rate) + debt portion * cost of debt

Where

equity portion + debt portion = 1

Where:

WACC = rate of return on the regulatory asset base (%),

Equity portion = the equity portion in funding the regulatory asset base (%),

Cost of equity, post-tax, real = real cost of equity capital after taxation (%),

Tax rate = corporate tax rate in line with regulations in force (%),

Debt portion = the debt portion in funding the regulatory assets base (in %),

Cost of debt = weighted average real cost of debt capital (%).

The real cost of the equity after taxation shall reflect the specific risk of the company, risk of the country and prevailing terms of acquiring capital on the financial market over the regulatory period.

The debt capital in the context of this subsection is equal to the sum of long-term liabilities and short-term financial liabilities used for financing the regulatory asset base.

The real cost of debt capital is calculated as the weighted average real interest rate on total debt, whereas the weight factors are the shares of debt in total debt capital. The real cost of debt capital is acceptable to the level of cautiously and reasonably borrowed assets.

IV. 2.5. Other revenues

Other revenues, besides revenues earned on account of distribution use of system, are revenues earned by employing assets intended for conducting the electricity distribution activity, and may be: revenue from sale of by-products and services, revenue earned from use of own products and merchandise, revenue earned through selling assets, and other revenues.

IV.2.6. Correction element

The correction factor shall be a (monetary) value whereby the maximum allowed revenue for the regulatory period (t) is decreased or increased by the difference between the actual revenue according to the annual financial report of the energy entity for t-2 regulatory period and the justified revenue for t-2 regulatory period calculated in accordance with this Methodology on the basis of the actual energy parameters and the value of justified costs, and other revenues earned in the t-2 regulatory period or in previous regulatory periods for which adjustments were not made.

The correction factor is calculated according to the formula below:

$CF_t = (JR_{t-2} - AR_{t-2}) * (1 + CPI_{t-2})$

Where:

t = regulatory period,

CF_t = correction factor over period t (dinars),

JR_{t-2} = justified revenue associated with conducting the energy activity over period t-2 and calculated in line with this Methodology on the basis of actual energy parameters and values of justified costs, and other revenues (dinars);

AR_{t-2} = actual revenue associated with conducting the energy activity over period t-2 (dinars),

CPI_{t-2} = consumer price index in the Republic of Serbia in the period t-2 in line with data published by the relevant statistics office (in %).

In the case mentioned under paragraphs 1 and 2 of this subsection, the correction factor shall not apply to the calculation of the maximum allowed revenue for the first two regulatory periods.

In case the energy entity has data on actual energy parameters and financial reports for t-1 regulatory period at the time the price act proposal is submitted, the correction factor calculation shall be based on data from the t-1 regulatory period or earlier regulatory periods for which adjustments were not made. In this case, the correction element is not applied to the maximum allowed revenue calculation for the first regulatory period.

In case regulated prices are not implemented at the beginning of the first regulatory period, the correction factor shall be calculated only for the part of the first regulatory period with implemented regulated prices, provided that the energy entity has the financial report for the part of the first regulatory period with regulated prices implemented. Where the energy entity does not have the financial report for the first part of the regulatory period with implemented regulated prices, the actual revenue for the part of the first regulatory period during which the regulated prices were not implemented is calculated by applying regulated prices.

The first regulatory period in the context of this subsection is the calendar year during which, in line with the Energy law, implemented access to and use of system prices (regulated prices) by the relevant energy entity are determined according to this Methodology.

IV.3. Electricity distribution system operation

Setting the maximum allowed revenue for distribution system operation is done by using the following formula:

$$MAR_{DSOt} = OPEX_t + D_t + WACC * RAB_t + CCL_t – OR_t + CF_t$$

Where:

t – regulatory period

MAR_{DSOt} – max allowed revenue for carrying out electricity distribution system operation in period t (in dinars),

$OPEX_t$ –operating expenditure in period t (in dinars),

D_t –depreciation costs in period t,

WACC – rate of return on regulatory asset base (in %),

RAB_t – regulatory asset base in period t (in dinars),

CCL_t –costs of covering losses in electricity distribution system in period t (in dinars),

OR_t – other revenues in period t (in dinars),

CF_t – correction factor in period t (in dinars).

IV.3.1.Costs of covering losses

The costs of covering losses in the distribution system are set according to the following formula:

$CCL_t = L_t * CL_{Et}$

Where:

CCL_t – costs of covering losses in the period t (in dinar),

L_t – quantity of electricity required to cover losses within the distribution system (in kWh),

CL_{Et} – electricity price for covering losses in period t (in dinars /kWh).

Quantity of electricity required for coverage of losses within the distribution system is calculated according to the formula below:

$L_t = ED_t * LR_t / (1-LR_t)$

Where:

ED_t = electricity planned for delivery from the distribution system over period t (in kWh),

LR_t = justified rate of losses of electricity within the distribution system over period t (in %).

Quantity of electricity to be delivered from the distribution system is a sum of quantities delivered to customers with facilities connected to the distribution network and to neighbouring distribution systems.

The justified rate of losses of electricity within the distribution system for period t is determined from actual rate of losses in the previous three years, system state analysis, benchmarking of actual rates of losses of energy entities conducting the same energy activity, and the loss reduction plan and measures for its implementation.

The actual annual rate of electricity losses within the distribution system is calculated from the actual annual quantities, by dividing the difference between total quantity of electricity that is supplied and quantity of electricity that is delivered from the distribution system, by the total quantity of electricity that is supplied. The total electricity supplied is equal to the sum of quantities of electricity supplied from the transmission system, neighbouring distribution systems, and generation units connected to the distribution network.

The electricity price for covering losses is the price as set by the total costs of purchasing electricity of the energy entity trading in electricity to supply tariff customers and the costs of that energy entity calculated in accordance with the Electricity Pricing Methodology for Tariff Customers.

IV.3.2. Meaning of other elements of the formula

The meaning of other elements of the formula for calculating maximum allowed revenue of the energy entity for distribution system operation is identical to the meaning set in this

Methodology for calculating maximum allowed revenue of the energy entity for electricity distribution, except that in this calculation parameters for distribution system operation are used.

Maximum allowed revenue of the energy entity for distribution system operation is set according to parameters used for calculating maximum allowed revenue of the energy entity for electricity distribution.

V. ALLOCATION OF MAXIMUM ALLOWED REVENUE TO TARIFF ELEMENTS

Maximum allowed revenue of the energy entity (MAR_t), defined as the sum of maximum allowed revenue for electricity distribution and distribution system operation ($MAR_t = MARdis_t + MAR_{DSOt}$), is allocated to tariff elements as follows:

- active energy in kWh,
- reactive energy in kVarh,
- demand in kW.

The "demand" tariff element is defined as the annual sum of maximum monthly active power of all distribution system users. Monthly maximum power of distribution system users is set in accordance with the tariff system regulating access to and use of the electricity distribution system (hereinafter referred to as the tariff system).

The "active energy" tariff element is the active energy that is delivered to distribution system users annually.

The "reactive energy" tariff element is the total reactive energy that is delivered to distribution system users annually.

How the maximum allowed revenue is allocated to tariff elements and how tariff elements are expressed by tariff rates is determined by the tariff system, depending on the consumer category and group specified by that same tariff system.

A part of the maximum allowed revenue set in line with the tariff system is allocated to the "demand" and "active energy" tariff elements based on the share of variable and fixed costs in total costs, seasonal and daily consumption chart, and analysis of consumption by consumer category and group in the previous regulatory periods, i.e. forecasted consumption for the next regulatory period, and other objective technical and economic parameters.

A part of the maximum allowed revenue set in line with the tariff system is allocated to the "reactive energy" tariff element based on the transmission use of system charges breakdown, the structure and value of distribution system facilities, energy balances and other objective technical and economic parameters.

VI. REGULATORY PERIOD

The first regulatory period begins on 1 January 2007.

The length of the regulatory period is set at one (calendar) year. Documentation and data based on which the maximum allowed revenue of the energy entity is calculated, shall be submitted to the Energy Agency of the Republic of Serbia, as a rule, 45 days before submission of the price act proposal for opinion.