

Pursuant to the Conclusions of the State Electricity Regulatory Commission, number: 04-02-2-260-1/11 of 6 September 2011, the Secretary of the State Electricity Regulatory Commission determined the revised text of Tariff Pricing Methodology for Services of Electricity Transmission, Operation of Independent System Operator and Ancillary Services ("Official Gazette of BiH", No. 46/05, 17/07, 11/09 and 73/11) in which the dates of entry into force of the mentioned Methodology are indicated as well changes and amendments to it.

TARIFF PRICING METHODOLOGY FOR SERVICES OF ELECTRICITY TRANSMISSION, INDEPENDENT SYSTEM OPERATOR AND ANCILLARY SERVICES

REVISED TEXT

I GENERAL PROVISIONS

Article 1

Introductory Provisions

This document shall determine the tariff pricing methodology for services of electricity transmission (hereinafter: transmission fee), and the tariff pricing methodology for the Independent System Operator and the tariff for ancillary services.

Article 2

Definitions

Terms used in this document shall have the following meanings:

- '**Ancillary services**' shall mean all services except generation and transmission of electricity, which shall be provided by ISO with the view to provide system services, including, inter alia, the control of frequency, reserves, reactive power, control of voltage and the black-start capability.
- '**Balancing market**' shall mean the central market for purchase and sale of electricity operated by the ISO with the view to maintain the continuous balance of supply and demand in real time, as well as additional mechanisms applied by the ISO with the view to ensure supply of the system services.
- '**Cross- border electricity flows**' shall mean the flows within which part of the transmission network providing a direct connection to networks of neighboring countries is used, and referring to import, export and transit.
- '**Customer**' shall mean distribution companies, suppliers and eligible customers directly connected to the transmission network.
- '**Distribution operator**' shall be a specially organized part of the electricity company for distribution which shall operate the electricity distribution network.
- '**Eligible customer**' shall mean the customer who fulfills conditions and criteria as prescribed by separate legal acts of the relevant electricity regulatory commission, and who shall be free to purchase electricity on the market at his/her own choice.
- '**Generator**' shall mean any legal person that owns an electricity generation license.

- 'Grid Code'** shall mean rules and procedures which govern the technical issues related to connection to the transmission system, utilization and operation of the transmission system including provisions describing the current circumstances under which the emergency measure of correction in case of delivery may be undertaken, and when and who may undertake this measure.
- 'ISO'** shall mean the Independent System Operator for operation of the transmission system of Bosnia and Herzegovina.
- 'Market Rules'** shall mean a commercial code containing rules and procedures of the balancing market as well as commercial conditions for connection for utilization and operation of the transmission system.
- 'Network user'** shall mean any natural or legal person supplying or being supplied via the transmission network.
- 'Non-eligible (tariff) customer'** shall be a customer supplied with electricity in a regulated manner and at regulated prices (tariffs).
- 'Non-transaction method'** shall mean the method of charging the transmission network utilization where the price does not depend on the geographical location of the user, or on the number of transactions at the given time period.
- 'Regulated company'** shall be a legal person whose activity, in accordance with the law, shall be regulated by SERC.
- 'Regulatory Asset Base'** (RAB) shall mean the value of tangible and intangible assets required and used to provide services within the regulated activity.
- 'Revenue Requirement'** (RR) shall mean the level of revenues required by a regulated company to provide the required level of services while achieving reasonable recovery.
- 'SERC'** shall mean the State Electricity Regulatory Commission in Bosnia and Herzegovina.
- 'System services'** shall mean all services provided by ISO in order to provide safe and efficient transport of electricity in the transmission system, resolve interruptions in transport of electricity and maintain and re-establish the energy balance in the transmission system.
- 'Tariff'** shall be a price charged by the regulated company to users of its services.
- 'Tariff period'** shall mean the period in which the tariff approved by SERC shall remain unchanged and which shall usually last one calendar year, but may last longer or shorter.
- 'Test year'** shall be the previous or the following calendar year which shall precede or follow after the application filing for approval of tariffs and for which the regulated company shall provide information and data required for tariff pricing.
- 'Transit'** shall mean the transport of electricity in order to meet contractual obligations relating to electricity trading, when neither of the contractual parties shall purchase or generate that electricity in Bosnia and Herzegovina.
- 'Transmission Company'** shall mean the joint stock company for the electricity transmission, "Elektroprenos Bosne i Hercegovine".
- 'Transmission of electricity'** shall mean the transport of electricity via high voltage interconnected system for delivery to end users, distribution companies or neighboring electricity systems.

Article 3
Abbreviations

- AD – value of accumulated depreciation of the fixed assets
- C_{AS} – costs of ancillary service purchasing
- C_D – cost of depreciation
- C_{GA} – value of granted assets
- $C_{O\&M}$ – costs of operation and maintenance
- CCR – carrying charge rate
- $DI(\%)$ – debt interest
- DP – debt part, value of liabilities from the balance sheet
- ENTSO-E – European Network of Transmission System operators for Electricity
- EP – equity part, value of capital from the balance sheet
- ETSO – European Transmission System Operators
- GA – value of granted assets
- k – ratio of revenue requirement of the energy component of the tariff and the total revenue requirement
- KM – convertible mark
- kvarh – unit for reactive power (1 kvarh = 1000 varh)
- kW – measurement unit for active power (1 kW = 1000 W)
- kWh – measurement unit for active energy (1 kWh = 1000 Wh)
- N – number of generation units for which the generation price is determined at the bus bar
- p_A – average annual generation price of active energy at the bus bar in Bosnia and Herzegovina
- P_C – peak load measured at customers which shall be an annual summation of all monthly maximum capacities measured at customers
- pE – price at the bus bar of a generating unit which delivers control energy
- p_G – transmission fee paid by generators
- p_i – generation price of electricity at the bus bar of the generation unit i
- p_{ISOG} – tariff for operation of the Independent System Operator paid by generators
- p_{ISOL} – tariff for operation of the Independent System Operator paid by customers
- p_L – price of electricity to cover losses in the transmission network
- " p_{LC} – part of the transmission fee to be paid by customers referring to capacity
- p_{LE} – part of the transmission fee to be paid by customers referring to energy
- p_R – price of excessive take-off of reactive energy

p_{SC} – price of secondary energy control

p_{SCPP} – the price of active power at the bus bar of the generation unit which delivers the power of secondary control (control power plants)

p_{TCPP} – the price of active power at the bus bar of the generation unit which delivers the power of tertiary control (control power plants)

PV – purchase value of fixed assets

RAB – regulatory asset base

ROA – return on assets

$ROE(\%)$ – return on equity

RR_G – part of revenue requirement pertaining to network fees paid by generators

RR_{ISO} – revenue requirement for performance of the regulated activity (service) of the ISO

RR_{ISOG} – part of the Independent System Operator's revenue requirement pertaining to the tariff paid by generators

RR_{ISOL} – part of the Independent System Operator's revenue requirement pertaining to the tariff paid by customers

R_{OTH} – other revenues referring to the regulated activity including the revenue from the allocation of the right to use cross-border transmission capacities and the net amount (revenue - expenditure) based on the Inter-TSO Mechanism – ITC Mechanism)

RR_L – revenue requirement referring to customers

RR_{TR} – revenue requirement for performance of the regulated activity (service) of the Transmission Company

SCADA – Supervisory Control and Data Acquisition

SETSO – Southeastern European Transmission System

$T(\%)$ – effective tax rate on profit, relevant for the tariff period

TC – total capital from the balance sheet

W_C – active electric

W_G – active electric energy injected in the transmission network by generators connected to the transmission network

W_i – annual generation of i plant

WACC – weighted average cost of capital

WC – value of working capital

Article 4

Goals and Principles

- (1) When determining tariffs, the following goals and principles shall be taken into account:
 - impartiality, transparency, and prevention of discrimination;

- incentive for efficiency of the regulated entities and transmission network users;
 - incentive for mechanisms for the increase of the energy efficiency;
 - establishment of stable relationships on the electricity market and stable conditions for investors into the energy sector;
 - incentive for transmission network development in order to continuously maintain or increase the quality of supply.
- (2) In order to achieve goals and principles referred to in the previous paragraph, tariffs shall be established on justified costs of business, operation, maintenance, replacement, construction or reconstruction of facilities and equipment, including a reasonable amount of return on investment, depreciation and taxes and taking into consideration the environmental protection.

Article 5

Types of Tariffs

Tariffs issued by SERC shall be transmission fees, tariffs for the Independent System Operator and tariffs for ancillary services.

Article 6

Voltage Levels

Tariffs shall be charged to the customers who are connected to the voltage levels of 400 kV, 220 kV and 110 kV.

Article 7

Tariff Elements

- (1) Tariffs shall include the following elements:
- peak capacity;
 - active power injected in the transmission network by generators connected to the transmission network;
 - take-off of active power;
 - excessive take-off of reactive power.
- (2) Measuring of peak load and active power, and, excessive take-off of reactive power shall be defined by the Grid Code, and, the Grid Code and Article 32 of this Methodology respectively.
- (3) When calculating monthly capacity and take-off of electric power, kilowatts (kW), kilowatt-hours (kWh), and kilovarhours (kvarh) shall be rounded to whole numbers.
- (4) Until the completion of metering at all metering points at which customers take over electricity, SERC may approve the tariff calculated on the basis of the revenue requirement and active power taken over.

Article 8

Differentiation of Tariffs

- (1) Tariffs may be differentiated by the following criteria:

- Seasonal tariff rates;
 - Daily tariff rates;
 - Tariff rates depending on the duration of the peak load;
 - Tariff rates depending on the consumption level (block tariff).
- (2) During the first few tariff periods, SERC may approve one-part tariffs, which shall be effective until the conditions for possibility of introduction of differentiated tariff rates are provided.

Article 9

Regulation of Prices (Tariffs)

Regulation of tariffs shall ensure:

- Long-term operation of companies engaged in regulated activities, with coverage of justified costs and appropriate return on assets;
- Improvement of operational productivity within regulated activities with reasonable and efficient investments;
- Justified development of the transmission network and operation of transmission network with the purpose of ensuring safe and quality supply of users.

II ELECTRICITY BALANCE

Article 10

Annual Balance in the Transmission Network

- (1) The Independent System Operator shall develop an annual balance of electricity in the transmission network comprising detailed data on the quantities for the following year.
- (2) The balance referred to in the previous paragraph shall be submitted to SERC not later than October 31st of the current year.
- (3) This balance shall, inter alia, serve as the basis for planning of the realization of regulated companies.

Article 11

Balance Elements in the Transmission Network

The Independent System Operator, in cooperation with the distribution system operators and generators, shall be obliged to develop the annual balance for the following year, with each individual month of the year comprising of the following:

- Quantities of the transmitted electricity and capacity for the eligible customers which are connected to the transmission network;
- Quantities of transmitted energy and capacity for tariff customers connected to the transmission network;
- Quantities of transmitted energy and capacity taken over by eligible customers connected to the distribution network;

- Quantities of transmitted electricity and capacity taken over by tariff customers connected to the distribution network;
- Quantity of active electric energy injected in the transmission network by generators connected to the transmission network
- Quantity of required ancillary services.

III TRANSMISSION FEE

Article 12

Funding of the Transmission Company

- (1) The Transmission Company shall be funded by providing services to customers and generators, which it shall charge and bill in accordance with approved tariffs, by allocating the right to use cross-border transmission capacities and by a net amount (revenue-expenditure) realized through the mechanism for compensation between transmission system operators (ITC mechanism).
- (2) The Transmission Company shall be funded by other sources as well, such as connection fees for connection to the transmission network.

Article 13

Method of the Postage Stamp

The non-transaction method of postage stamp shall be used to determine the transmission fee. The method shall be applied to all voltage levels and all types of users with single tariff rates on the territory of the entire Bosnia and Herzegovina.

Article 14

Transmission Fee

- (1) The transmission fee shall be allocated for covering operational costs of the Transmission Company.
- (2) The transmission fee shall be paid to the Transmission Company on a monthly basis.
- (3) The transmission fee shall be paid by customers and generators.
- (4) The transmission fee shall not include the connection charge.

Article 15

Determination of Transmission Fee

- (1) The transmission fee shall comprise the transmission fee paid by customers and the transmission fee paid by generators.
- (2) The transmission fee paid by customers shall comprise two components:
 1. Part of the transmission fee pertaining to energy p_{LE} which represents the ratio of the revenue requirement of the component for energy $k \cdot RR_L$ and energy taken over by customers W_C :

$$p_{LE} = k \cdot RR_L / W_C$$

where:

RR_L – part of the revenue requirement pertaining to network fees paid by customers

W_C – active electric energy taken over by customers

k – the ratio of the revenue requirement of the component for energy and total revenue requirement pertaining to customers.

2. Part of the transmission fee pertaining to capacity p_{LC} which represents the ratio of the revenue requirement of the component for capacity $(1-k) \cdot RR_L$ and peak load P_C measured at customers:

$$p_{LC} = (1-k) \cdot RR_L / P_C$$

where:

P_C – peak load measured at customers which represents an annual summation of all monthly maximum capacities measured at customers.

- (3) The ratio of the energy component and the capacity component shall be determined on the basis of a share of constant energy in an annual load diagram for the previous year. As an initial value, the share of capacity shall be determined in the amount of 35%.
- (4) The transmission fee paid by generators shall be:

$$p_G = RR_G / W_G$$

where:

RR_G – part of revenue requirement pertaining to network fees paid by generators

W_G – active electric energy injected in the transmission network by generators connected to the transmission network.

- (5) Part of the revenue requirement pertaining to network fees paid by generators can range from 0 to 10% of the revenue requirement for performance of the regulated activity of the Transmission Company RR_{TR} .

Article 16

Determination of the Revenue Requirement

- (1) The revenue requirement for performance of the transmission activity shall be formed on the basis of:
- operational and maintenance costs;
 - depreciation costs;
 - expenditures as determined by law;
 - return on assets.
- (2) Costs which relate to the performance of unregulated activities shall not be subject to regulation and shall be excluded from the regulated revenues. All costs and revenues pertaining to unregulated activities shall undergo accounting unbundling and be kept separately from those pertaining to the regulated activity.

- (3) The revenue requirement for performance of the regulated activity shall be calculated based on the following equation:

$$RR = C_{O\&M} + C_D + (RAB \times WACC) - R_{OTH}$$

where:

$C_{O\&M}$ - costs of operation and maintenance

C_D - depreciation costs

RAB - regulatory asset base

$WACC$ - weighted average cost of capital

R_{OTH} - other revenues which relate to the regulated activity including the net amount (revenues-expenditures) realized through the cross-border trade.

- (4) In case of a deviation from the planned scope of services, an adjustment of the revenue requirement for the next tariff period shall be made.

Article 17

Costs Operational and Maintenance

- (1) Costs of operation and maintenance ($C_{O\&M}$) shall be justified costs incurred due to operation (exploitation) and maintenance of the transmission network in accordance with the technical standards used in Bosnia and Herzegovina, applicable legal regulations and internal documents of the regulated company. These costs shall, inter alia, include the regulatory fee.
- (2) SERC shall recognize justified costs which may also be determined on the basis of benchmarking, taking into account specific characteristics of the regulated company.
- (3) SERC shall differentiate the portion of operation and maintenance costs which may be influenced by the regulated company during its operation, and which may be planned and controlled accordingly, from those costs which may not be controlled or planned.
- (4) Controlled costs of operation and maintenance shall be planned based on the business realization of the previous year. Uncontrolled cost shall be subject to a SERC assessment and may be taken into account when determining the revenue requirement, depending on the assessment.

Regulatory Fee

The amount of the regulatory fee, which the regulated company includes in costs of operation and maintenance, shall be determined by the SERC financial plan as prescribed by legal regulations.

Article 18

Depreciation

Calculation of depreciation shall be performed in accordance with adopted accounting policies defined in the Rules of Accounting or another internal document which is harmonized with the legal regulations and applicable international accounting standards. The depreciation cost calculated in this manner shall be recognized when calculating the revenue requirement.

Article 19

Return on Assets

- (1) Return on assets shall be calculated based on the regulatory asset base and the weighted average cost of capital:

$$ROA = RAB \times WACC$$

where

ROA - return on assets

RAB - regulatory asset base

WACC - weighted average cost of capital

- (2) Return on assets shall be calculated based on the value of the regulatory asset base taking into consideration the weighted average cost of capital. When calculating WACC, the ratio of capital and liabilities from the balance sheet shall be taken into consideration.

Regulatory Asset Base

- (3) The regulatory asset base (RAB), as the basis for calculation of return on assets, shall comprise the fixed assets and the required amount of fixed working assets (current assets).
- (4) The regulatory asset base shall include the purchase value of fixed assets, less accumulated depreciation. Granted assets, i.e. assets gained free of charge, shall not be included in the regulatory asset base.
- (5) The amount of working assets which shall be included in the regulatory base (working or circulating capital), shall be equal to net working capital and shall be calculated as the difference between total working or current assets and total liabilities falling due within one year.
- (6) The regulatory asset base with the view to calculate the revenue requirement shall be determined in the following manner:

$$RAB = PV - AD - GA + WC$$

Where:

PV - purchase value of fixed assets,

AD - value of accumulated depreciation of fixed assets,

WC - value of working (circulating) capital,

GA - granted assets.

- (7) The regulatory asset base may include only those assets which are used for the performance of regulated activities within the competence of SERC.
- (8) Investments in the fixed assets shall be estimated and recognized based on the maintenance of the required scope and standard quality of services in the regulated activity.
- (9) With the view to determine justification of every single investment in the fixed assets, which is performed within the regulated activity, SERC shall:

- Examine justification of an investment from the aspect of improvement of the quality and safety of supply, in accordance with the projected increase of demand;
 - Examine harmonization of investments with the existing development programs (plans).
- (10) SERC may determine to perform an audit of the regulatory asset base. For the purpose of establishing as realistic transmission fee as possible, the audit of the regulatory asset base may be initiated in any tariff period.

Weighted Average Cost of Capital

- (11) Weighted average cost of capital shall be used for the calculation of the rate of return according to the following formula:

$$WACC(\%) = \frac{EP}{TC} \times \frac{ROE}{1 - \frac{T}{100}} + \frac{DP}{TC} \times DI$$

Where:

EP – value of equity (value of capital from the balance sheet),

DP – value of liabilities (debt) (value of liabilities from the balance sheet),

TC – value of total capital from the balance sheet,

ROE (%) – return on equity,

DI (%) – costs of debt,

T (%) – effective tax rate on return, valid for the regulatory period.

- (12) WACC shall be calculated on the basis of the ratio between capital and liabilities during the test year. SERC may determine the planned (projected) ratio between the capital and liabilities which shall be used for calculation of weighted average cost of capital.
- (13) SERC shall approve the rate of return on capital for each tariff period.

Costs of Debt

- (14) Costs of debt shall be recognized on the basis of real obligations of the Transmission Company. For the future debts, the costs of debt shall be approved by SERC, taking into account the level of interest rate on the capital market.

IV TARIFFS FOR OPERATION OF THE INDEPENDENT SYSTEM OPERATOR AND TARIFFS FOR ANCILLARY SERVICES

Article 20

Funding of the Independent System Operator

- (1) The Independent System Operator shall be funded from the provision of system services, which are charged in accordance with tariffs approved by SERC and billed on a monthly basis.
- (2) Until the market mechanism becomes fully operational and objective conditions for more precise tariff pricing are created, SERC may approve ISO tariffs in accordance

with the concrete circumstances which exist at the moment of filing an application for approval of tariffs.

Article 21

Tariff for Operation of the Independent System Operator

The tariff for operation of the Independent System Operator shall be designed to cover ISO operational costs, which are incurred by the performance of activities as prescribed by Article 2 and Article 7 of the Law Establishing the Independent System Operator for Transmission System in Bosnia and Herzegovina (Official Gazette of BiH no. 35/04).

Article 22

Determining Tariff for ISO Operation

- (1) The tariff for operation of the Independent System Operator shall comprise the tariff for operation of the Independent System Operator paid by customers and the tariff for operation of the Independent System Operator paid by generators.
- (2) The tariff for operation of the Independent System Operator paid by customers shall be:

$$P_{ISOL} = RR_{ISOL} / W_C$$

where:

RR_{ISOL} – part of the revenue requirement of the Independent System Operator pertaining to the tariff paid by customers

W_C – active electric power taken over by customers.

- (3) The tariff for operation of the Independent System Operator paid by generators shall be:

$$P_{ISOG} = RR_{ISOG} / W_G$$

where:

RR_{ISOG} – part of the revenue requirement of the Independent System Operator pertaining to the tariff paid by generators

W_G – active electric power injected in the transmission network by generators connected to the transmission network.

- (4) Part of the revenue requirement of the Independent System Operator pertaining to the tariff paid by generators RR_{ISOG} can range from 0 to 10% of the revenue requirement for performance of the regulated activity of the Independent System Operator RR_{ISO} .

Article 23

Determining Revenue Requirement

- (1) The revenue requirement for performance of the ISO activities shall be determined on the basis of:
 - costs of operation and maintenance;
 - costs of depreciation;
 - expenditures as determined by law.

- (2) The revenue requirement for performance of the regulated activity shall be calculated on the basis of the following formula:

$$RR_{ISO} = C_{O\&M} + C_D - R_{OTH}$$

Where:

$C_{O\&M}$ - costs of operation and maintenance,

C_D - costs of depreciation,

R_{OTH} - other revenues relating to the regulated activity.

- (3) In case of a deviation of realized scope of services from the planned scope, an adjustment of the revenue requirement for the next tariff period shall be made.

Article 24

Costs of Operation and Maintenance

- (1) Costs of operation and maintenance ($C_{O\&M}$) shall be justified costs incurred during operation and maintenance of the ISO assets in accordance with technical standards applied in Bosnia and Herzegovina, applicable legal regulations and internal documents of the regulated company. These costs shall include costs of debt on loans and the regulatory fee.
- (2) SERC shall recognize justified costs which may be determined on the basis of benchmarking, taking into account specific characteristics of the regulated company.
- (3) Investments in fixed assets shall be estimated and recognized in accordance with the objective of maintaining the required scope and standard quality of services in the regulated activity.
- (4) In order to determine justification of every single investment in the fixed assets, which is performed within the regulated activity, SERC shall:
- Examine justification of an investment from the aspect of improvement of the quality and security of supply, in accordance with the projected increase of demand;
 - Examine harmonization of investments with the existing development programs (plans).

Article 25

Depreciation

Calculation of depreciation shall be performed in accordance with adopted accounting policies defined in the Rules of Accounting or another internal document which is harmonized with the legal regulations and applicable international accounting standards. The depreciation cost calculated in this manner shall be recognized when the calculating revenue requirement.

Article 26

Tariffs for Ancillary Services

- (1) Tariffs for system services shall be designed to cover costs of purchasing ancillary services. Ancillary services may be delivered by all entities in the power sector that have the capacity for provision of these services, primarily generators. ISO shall plan transactions between customers and entities delivering ancillary services in order to

meet the operational needs of the transmission network. In accordance with Article 10 of this Methodology, ISO shall be obligated to estimate the required scope of all ancillary services on an annual basis and determine a financial amount for each service separately on an annual basis as well as a total financial amount of all required ancillary services.

- (2) System, i.e. ancillary services shall be:
 - control of frequency and active capacity – primary, secondary and tertiary;
 - control of voltage and reactive capacity;
 - black start;
 - covering of technical losses of electricity in the transmission network;
 - excessive take-on of reactive energy;
 - balancing of non-allowed and unplanned deviations from the schedule exceeding the limits of determined tolerance level.
- (3) All operational costs related to purchasing of ancillary services shall be planned by ISO through the revenue requirement which is used for calculation of the tariff for the ISO operation.
- (4) ISO shall be obligated to prepare a list of generating units, i.e., power entities which have a technical possibility of providing ancillary services in Bosnia and Herzegovina, based on which SERC shall put forward a proposal for meeting the need for ancillary services.
- (5) By its decision, SERC shall determine the entities providing ancillary services and set tariffs for each service separately.

Article 27

Primary Control of Frequency and Active Capacity

Generating units shall provide primary control of frequency and active capacity at their own expense.

Article 28

Secondary and Tertiary Control

- (1) An ISO proposal for providing reserves for secondary and tertiary control shall include individually listed generation units which will provide the reserve and the scope of capacity reserve in MW which each unit is able to provide.
- (2) A charge for secondary and tertiary control shall comprise two parts as follows: a charge for capacity which is a fixed cost of a generating unit which provides the reserve and a charge for energy.
- (3) The capacity charge of secondary control shall be determined on the basis of the most expensive generating units among the units providing the service. The capacity charge of tertiary control shall be determined on the basis of the weighted average price of the generating units providing the service.
- (4) The price of electricity delivered through the tertiary control regime shall be determined as three times the value of the electricity price of the most expensive unit in the system.

Article 29

Control of Voltage and Reactive Capacity

Generating units connected to the transmission network shall maintain the voltage within prescribed limits at their own expense in accordance with the Grid Code and their operational charts.

Article 30

Black-start

Generating units with a black-start capability shall provide this service at their own expense.

Article 31

Costs of Losses in the Transmission Network

- (1) Calculation of justified costs, incurred due to losses of electricity in the transmission network shall be based on annual quantities of transmitted energy pursuant to Article 10 of this Methodology.
- (2) Each balance responsible party shall cover realized losses in the transmission network caused by its consumption. The related losses for each balance responsible party shall be determined by ISO on the basis of data on measuring at borders of the transmission network towards generating units, i.e., the distribution network, taking into account cross-border power exchange.
- (3) For eligible customers directly connected to the transmission network the price of electricity for covering of losses p_L shall be calculated in accordance with the following formula:

$$p_L = p_{Abos}$$

where:

$$p_{Abos} = \frac{\sum_{i=1}^N p_i W_i}{\sum_{i=1}^N W_i} \cdot k_g, \quad k_g \geq 1$$

p_{Abos} – average generation price of active energy at the generation bus bar within a balance responsible party on an annual basis

p_i – regulated generation price of active energy at the bus bar of generation unit i

W_i - annual generation of generation unit i

N - number of generating units for which the generation price is determined at the bus bar.

k_g – adjustment coefficient which is determined by a SERC decision.

- (4) In regular monthly reports, ISO shall present energy and financial positions of eligible customers connected to the transmission network and the distribution company of Brčko District BiH in relation to their respective balance responsible party.

Article 32

Excessive Take-on of Reactive Power

- (1) Excessive take-on of reactive power shall be a positive difference between the measured reactive power and reactive power which corresponds to the power factor $\cos \varphi=0,95$ inductivity, i.e. it is the reactive power exceeding 33% of active power which is taken over.
- (2) ISO shall calculate excessive take-on of reactive power from the transmission network on the basis of quantities measured on a monthly basis at eligible customers connected to the transmission network.
- (3) The price of excessive take-on of reactive power p_R shall be:

$$p_R = \frac{p_A}{7}$$

where p_A shall be an average generation price of active energy at the bus bar in Bosnia and Herzegovina on an annual basis.

- (4) ISO shall be obligated to determine participation of each generation unit in the total generation of reactive power and the total financial amount to be paid by eligible customers connected to the transmission network for excessive take-on of reactive power in the given monthly period. On the basis of these data, ISO shall present financial positions of balance responsible parties mutually as well as eligible customers connected to the transmission network in relation to their respective balance responsible party.

Article 33

Non-allowed Deviations of Schedule

Balance responsible parties causing deviations from the schedule which are higher than the prescribed tolerance level, shall be obligated to pay costs of deviations for all hours during which the deviation is measured. ISO shall keep records of non-allowed deviations from the schedule for each balance responsible party. By its decision SERC shall determine the price of non-allowed deviations taking into consideration the existing practice in the BiH system and the control block to which BiH belongs.

Article 34

Invoicing of Ancillary Services

- (1) Tariffs for ancillary services shall be calculated as the ratio of a total financial scope of an individual service and electricity taken from the transmission network in accordance with Article 10 of this Methodology.
- (2) Invoicing and paying of ancillary services shall be done on the basis of the ISO's calculation of ancillary services based on the Market Rules
- (3) This calculation shall be submitted to the balance responsible parties, eligible customers connected to the transmission network, the distribution company of Brčko District and SERC. The calculation shall include financial and energy positions of the balance responsible parties mutually as well as eligible customers in relation to their respective balance responsible party.

- (4) The ISO's monthly calculation and invoices delivered on the basis of that calculation shall be sufficient for suppliers and balance responsible parties, i.e., balance responsible parties and eligible customers, to enter obligatory relations.
- (5) Balance responsible parties shall be obligated to submit to ISO copies of invoices for the services delivered to customers during the given month.

V OTHER PROVISIONS

Article 35

Payment

- (1) The Transmission Company and ISO cannot arrange with transmission network users a deadline for payment of transmission fee and system services which is longer than 15 days from the day of delivery of an invoice, nor can they charge a higher default rate for untimely payments than stipulated by law for the area where the debtor's seat is located.
- (2) The provisions referred to in the previous paragraph shall also be applied by suppliers of ancillary services. Exceptionally, upon ISO's proposal, SERC may approve other conditions for payment of invoices for ancillary services.

Article 36

Interpretation

- (1) SERC shall provide interpretation of this document.
- (2) If an issue is not covered by this document, SERC shall decide on the manner of its resolving in each specific case or shall issue separate guidelines for the application of individual provisions of this Methodology.

Article 40

Publication

The revised text of the Methodology shall be published in the "Official Gazette of BiH".

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14 November 2011

Tuzla

Secretary

Edin Zametica, MSc