Consultation Paper

The Ninth Electricity Tariff Review

ETR9 (2015-2016)

DSO MAR Calculation (Relevant Year 3)

DISCLAIMER

This Consultation Paper has been prepared by ERO for the purpose of informing stakeholders. <u>It does not represent a decision by the ERO and should not be interpreted as such.</u>

9 March 2015

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Abstract

The Energy Regulatory Office (ERO) is currently conducting the Regular Adjustment and Annual Update process of the Maximum Allowed Revenue (MAR) of the Regulated Companies in the Electricity Sector on behalf of the Ninth Electricity Tariff Review (ETR9). Under this process, ERO will update the MAR of the Public Electricity Supplier (PES) and will adjust the MAR of the Regulated Generator (KEK), Transmission, System and Market Operator (KOSTT), Distribution System Operator (DSO) based on the figures set on the Periodic Review conducted under ETR7. This Consultation Paper presents ERO's assessment of any necessary adjustments to the Maximum Allowed Revenues (MAR) of the DSO. ERO will publish their assessment of the MAR of the Regulated Generator, KOSTT and PES alongside this report.

Stakeholder comments

ERO strongly believes that public consultation is at the heart of effective regulatory policy. ERO hereby presents the Regulated Companies and Consumers with the opportunity to examine the evidence and views presented in this Consultation Paper, with which they may disagree, and to comment on them by correcting a factual error, putting forward counterarguments or providing new data which ERO may not have already considered. Parties who wish to express their opinions on ERO's position are invited to submit their comments in writing to ero.pricing-tariffs@ero-ks.org no later than **23 March 2015.** Alternatively, comments can be mailed to:

Zyra e Rregullatorit për Energji
Departamenti për Tarifa dhe Çmime
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Related Documents

ERO's initial assessment of the DSO Reporting Formats submitted under the Periodic Review process	http://ero-ks.org/Price%20and%20Tariffs/2012/english/Vleresimi_fillestar_KEK_anglisht.pdf
ERO's provisional assessment of the DSO MAR under the Periodic Review process – Detailed Report	http://ero-ks.org/Tarifat/2012/Provisional_Evaluation_DSO_PES_eng.pdf
ERO's final assessment of DSO MAR under the Periodic Review Process – Detailed Report	http://ero-ks.org/Tarifat/2013/Proceset%20e%20Shqyrtimit/eng/Evaluation_KOSTT_22_March_2013.pdf
The Rule on Distribution System Operator Pricing (DSO Pricing Rule)	http://ero-ks.org/Rregullat/Rregullat_2011/English/DSO_Pricing_Rule.pdf
DSO's MAR application submitted under the Regular Adjustment 3 process (ETR9)	

1 Price Control Overview

The Energy Regulatory Office (ERO) is the independent institution which sets price controls for regulated companies which operate in the Kosovo regulated electricity market. Ideally, ERO would only set price controls for those segments of the electricity sector which are natural monopolies (Transmission and Distribution networks). However, as competition in Generation and Supply has not developed to a level which would produce a competitive price, ERO regulates these segments as well by setting tariffs which provide safeguards for customers in respect of prices charged in the absence of competition.

Price Controls are the tools employed by ERO in order to set the amount of money (the Maximum Allowed Revenues - MAR) that the Regulated Companies are allowed to recover for providing a regulated service. The MAR is set during Periodic Reviews by thoroughly analyzing the expenditures and investments that the Companies plan to make during the length of the price control. The level of the MAR is set to allow the companies to cover reasonable costs of operating and maintaining their plants and earn a reasonable return if they deliver the investment results approved upfront. Additionally, ERO sets efficiency targets which aim to increase the companies' operating efficiency and provide incentives or penalties if the companies fail to meet these targets.

The last Periodic Review was conducted by ERO in 2012 (ETR7) and set the MAR of the Distribution System Operator (DSO) for a five-year period until 2017. Having in mind the need for an intensive capital investment program to address bottlenecks in the distribution system and the high level of technical and commercial losses, ERO approved the DSO's plans to invest over €100 million over the regulatory period of five years.

Table 1 ETR7 DSO MAR at a glance

Distribution System Operator (DSO)	
Forecast investments (2013-2017)	€107.25 million over the regulatory period
Key projects	Reinforcement of the network (replacement of 10 kV and 0.4 kV lines); elimination of the bottlenecks, especially in the 35 kV and 10 kV overloads, Elimination of overhead lines which were considered a risk to the public
Efficiency incentives	16.5% (percentage point) loss reduction over 6 years – almost halving the losses by the end of the regulatory period. 5% efficiency factor applied for the last two years of the Regulatory Period.

1 Introduction

The Periodic Review process, conducted by ERO in 2013, set the Maximum Allowed Revenues of the Distribution System Operator (DSO) for a five-year period until 2017. According to the Rule on Distribution System Operator Pricing, within each of those five "Relevant Years" between 2013 and 2017, the Energy Regulatory Office undergoes a "Regular Adjustment" process. This process differs from a Periodic Review in that the Regular Adjustment process does not entail a detailed analysis of investment plans and operating and maintenance costs. Instead, the Regular Adjustment uses the results obtained during the Periodic Review process and adjusts the MAR to reflect changes between the costs which were forecasted during the Periodic Review and the actual costs incurred by the licensees due to reasons outside of the control of the licensee. During the Regular Adjustment process of the DSO ERO will:

1. Index the Allowed Operating and Maintenance Costs of all licensees for the Efficiency Factor which is set during the Periodic Review process and for Annual Inflation which is set using the Harmonized Index of Consumer Prices (HICP) for All Items in the Eurozone;
2. Set the Allowed Cost of Losses (LSSCt) for the DSO and update these to include the difference between allowed and actual cost of losses for the previous Regulatory Period, which may have arisen due to changes in wholesale power costs or changes in the flows of electricity in the transmission system;
3. Update the DSO MAR to reflect the difference between Allowed and Actual Regulated Revenues in the previous Relevant Year (t-1);
4. Set the resulting Distribution Operator Charges;

2 The structure of this paper

This Consultation Paper is organized as follows:

- Section 4 lays out the Energy Balance assumed by ERO for the second Relevant Year of the Regulatory Period;
- Section 5 reviews KOSTT's MAR application and provides ERO's proposal for KOSTT's MAR;
- Section 6 provides a Summary of ERO's proposals;

3 Energy Balance

The Energy Balance used for the Wholesale Power Costs (WHPC) calculation mainly made reference to the official energy balance approved by the Ministry of Economic Development for 2015[1]. The balance used for the WHPC calculation was built using a bottom-up approach with the level of exports used as a balancing factor between supply and demand in the country:

[1] http://bit.ly/17YNZn3

- The balance starts from the expected level of distribution level sales forecast by the Public Electricity Supplier in their application; unlike previous years, when ERO referred to the forecast level of sales in the MED Energy Balance to calculate the ERO Balance, this time ERO refrained from doing so as the MED energy balance foresees an increase in electricity demand of 17.9% which ERO considers highly optimistic. Instead ERO used the forecast sales estimation by PES.
- ERO's allowed level of losses and forecast distribution-embedded generation is added to sum of the total distribution level demand (including losses);
- Total distribution level demand plus transmission level demand is compared against net forecast domestic generation and energy balance imports. The difference is placed on exports.

The Energy Balance used for calculating WHPC is provided below:

Table 2 Energy Balance used for the calculation of Wholesale Power Costs of the Public Electricity Supplier

Energy Balance		ETR8 Allowed	ETR8 Review	ETR8 Actual	ETR9 Proposed
KEK Generation		5,525.0	5,098.1	4,858.0	5,570.9
Kosovo A	GWh	1,929.0	1,502.1	1,508.9	1,755.6
Kosovo B	GWh	3,595.95	3,595.95	3,349.07	3864.81
Cogeneration	GWh				-49.49
Other Transmission Connected Generation					
HPP Ujmani	GWh	82.0	82.0	101.5	84.0
Transmission-connected Demand		617.1	617.1	622.9	723.6
Ferronikeli consumption	GWh	526.7	526.7	537.0	632.0
Trepca	GWh	27.1	27.1	85.9	25.9
Sharrcem	GWh	63.3	63.3		65.8
Other Transmission - level consumption		283.1	283.1	227.7	272.1
Mine consumption	GWh	138.0	138.0	112.3	138.0
Kosovo A supply from Transmission	GWh	53.2	53.2	76.5	42.2
Kosovo B supply from Transmisison	GWh	91.9	91.9	39.0	91.9
Transmission Losses	%	1.8%	1.8%	1.8%	1.8%
	GWh	109.0	107.0	108.8	110.9
Energy Entering Transmission System	GWh	6,057.2	5,942.7	5,916.4	6,162.9
Exports	GWh	599.0	486.5	451.9	638.3
Total Production	GWh	5,607.0	5,180.1	4,959.5	5,654.9
Imports	GWh	450.3	762.7	867.5	508.0
Energy Required to meet Transmission Load	GWh	1,608.2	1,493.7	1,411.4	1,744.9
Energy Required to meet Distribution Load	GWh	4,449.1	4,449.1	4,504.9	4,418.0
Distribution Generation					
Distribution-embedded generation	GWh	46.3	46.3	49.9	46.6
Wind Power j.s.c.	GWh				
Distribution Consumption	GWh	4,495.4	4,495.4	4,554.8	4,464.6
Distribution losses and unbilled energy					
Technical and commercial losses	%	25.6%	25.6%	31.11%	23.13%
	GWh	1,098.2	1,098.2	1,346.2	979.0
Unbilled supplies	%	4.69%	4.69%	4.99%	5.21%
	GWh	211.0	211.0	227.3	232.5
Total losses	GWh	1,309.2	1,309.2	1,573.5	1,211.4
Sales to final customers	GWh	3,186.2	3,186.2	2,981.3	3,253.1

3.1 Allowed Transmission Losses

KOSTT has not reported the actual level of losses incurred during Relevant Year 2 in percentage terms. The Allowed Level of Transmission Losses has been set at 1.8% as established during the Periodic Review Process.

3.2 Allowed Distribution Losses

The distribution loss target has been calculated by subtracting 2.5% (percentage points) from the distribution loss target applied to technical and commercial losses set under the ETR8 review. The loss target has been reduced in line with Decision 399[2] of the ERO Board which set the regulatory parameters and incentive inputs for the Regulatory Period and the ETR6 review. The previously allowed target of 25.6% (excluding unbilled supplies) has now been reduced to 23.1%.

4 Maximum Allowed Revenues of the Distribution System Operator (DSO)

The Maximum Allowed Revenues of the Distribution System Operator (DSO) are set during Periodic Reviews for all of the Relevant Years of the Regulatory Period according to the DSO Pricing Rule. ERO uses the allowed operating and maintenance cost and capital investments information approved during the Periodic Review process and updates these to reflect, among others, the allowed inflation.

On each Regular Adjustment, the MAR of the DSO is reset according to the following formula (Schedule 1 Paragraph 2 of the DSO Pricing Rule):

$$MAR_t = OPMC_t + DEPC_t + RTNC_t + LSSC_t + LICC_t + KREV_t$$

Where

MAR_t	*is Maximum Allowed Revenues in Relevant Year t*
$OPMC_t$	*is allowed operating and maintenance costs in Relevant Year t*
$DEPC_t$	*is allowed depreciation in Relevant Year t*
$RTNC_t$	*is allowed return on capital in Relevant Year t*
$LSSC_t$	*is allowed cost of losses in Relevant Year t*
$LICC_t$	*is the Licence Fee in Relevant Year t*
$KREV_t$	*is the revenue correction factor in Relevant Year t*

The calculation of each of these MAR components is provided below.

[2] http://ero-ks.org/Vendimet/Shqip/2012/V_399_2012.pdf

4.1 Allowed Operating and Maintenance costs (OPMCt)

Allowed Operating and Maintenance costs are set during each Regular Adjustment through the following formula (Schedule 1 paragraph 2.1 of the DSO Pricing Rule):

$$OPMC_t = OPMC_{t-1} * (1 + CPI_{t-1}) * (1 – E_t)* (1 – P_t)$$

Where

$OPMC_t$	*is allowed operating and maintenance costs in Relevant Year t*
$OPMC_{t-1}$	*is allowed operating and maintenance costs in Relevant Year t-1, except for Relevant Year 1 when a value determined by the Regulator at the most recent Periodic Review shall be used*
CPI_{t-1}	*is the actual value of inflation in Relevant Year t-1, measured using the "Harmonised Indices of Consumer Prices (HICPs) – All Items, for the Eurozone" published by Eurostat, or any other measure of inflation that the Regulator determines is a better measure of the change in operating and maintenance costs over time and is allowed at a Periodic Review*
E_t	*is the Efficiency Factor in Relevant Year t, which is set at Periodic Reviews*
P_t	*is the Profiling Factor in Relevant Year t, which is set at Periodic Reviews*

The above mentioned formula assumes that ERO will smoothen and profile the OPMCt allowance during the Periodic Review process. As the OPMCt has not been smoothed nor profiled, the allowed Operating and Maintenance Costs for the second relevant year are calculated as the sum of the figure allowed by ERO in the Summary Model multiplied by the rate of inflation plus allowed operating and maintenance costs for the second Relevant Year. ERO has not applied an efficiency factor, as per the Regulatory Parameters Decision. The applied inflation rate is 0.97% and has been calculated from the Harmonized Index of Consumer Prices for all items in the Eurozone.

ERO has therefore calculated the OPMCt allowance for the Second Relevant Year of KOSTT with the following formula:

$$OPMC = OPMC_{t-1} *(CPI_{t-1}) * (1 – E_t) + OPMC_t$$

The allowed level of OPMCt is €26.2[3] million.

[3] ERO can apply profiling factor in order to minimize considerable differences occurred between actual regulating period and first year of the next regulative period.

[4] http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=prc_hicp_manr&lang=en

4.2 Allowed Depreciation (DEPCt)

The permitted change in Allowed Depreciation is set during each Regular Adjustment through the following formula (Schedule 1 paragraph 2.2 of the DSO Pricing Rule):

$$DEPC_t = DEPC_{t-1} * (1 + CPI_{t-1}) * (1 – P_t)$$

Where

$DEPC_t$	*is other allowed depreciation in Relevant Year t, which is smoothed such that it is constant over the Regulatory Period*
$DEPC_{t-1}$	*is allowed depreciation in Relevant Year t-1, except for Relevant Year 1 when a value determined by the Regulator at the most recent Periodic Review shall be used, which is smoothed such that it is constant over the Regulatory Period*
CPI_{t-1}	*is the actual value of inflation in Relevant Year t-1, measured using the "Harmonised Indices of Consumer Prices (HICPs) – All Items, for the Eurozone" published by Eurostat*
P_t	*is the Profiling Factor in Relevant Year t, which is set at Periodic Reviews*

The formula, as set in the Pricing Rule, again assumes that the depreciation allowances are smoothed and profiled over the regulatory period. Since no smoothing was applied during the Periodic Review process, applying the formula strictly as in the Pricing Rule would not match the intended DEPCt allowance for the second Relevant Year. ERO has therefore adopted the following formula:

$$\mathrm{DEPC} = \mathrm{DEPC}_{t-1} * (\mathrm{CPI}_{t-1}) + \mathrm{DEPC}_t$$

The allowed Depreciation costs for Relevant Year 3 are set to €8 million.

4.3 Allowed Return (RTNCt)

The indexation of the Allowed Return component to inflation is calculated with the following formula (Schedule 1 paragraph 2.3 of the DSO Pricing Rule):

$$RTNC_t = RTNC_{t-1} * (1 + CPI_{t-1}) * (1 – P_t)$$

Where

$RTNC_t$	*is other allowed return on capital in Relevant Year t, which is smoothed such that it is constant over the Regulatory Period*
$RTNC_{t-1}$	*is allowed return on capital in Relevant Year t-1, except for Relevant Year 1 when a value determined by the Regulator at the most recent Periodic Review shall be used, which is smoothed such that it is constant over the Regulatory Period*

CPI_{t-1}	*is the actual value of inflation in Relevant Year t-1, measured using the "Harmonised Indices of Consumer Prices (HICPs) – All Items, for the Eurozone" published by Eurostat*
P_t	*is the Profiling Factor in Relevant Year t, which is set at Periodic Reviews*

As in the OPMCt and DEPCt components calculation, ERO had not profiled or smoothed the Allowed Return during the Periodic Review. The formula above assumes that the allowed return component has been profiled and therefore applying it strictly leads to a situation where the TSMO does not recover the full allowed return. This component has therefore been calculated by the following formula:

$$RTNC = RTNC_{t-1} * (CPI_{t-1}) + (RTNC_t)$$

The allowed return of the TSMO for the second Relevant Year has been set at €12.4 million.

4.4 Allowed Cost of Losses (LSSCt)

Allowed Cost of Losses for the DSO have been calculated by applying the target set under the Regulatory Parameters Decision relevant to the third year of the regulatory period. This has lead to a reduction of 2.5% (points) from the target allowed on the Second Relevant Year. The resulting allowed distribution losses, excluding unbilled supplies, are 23.1%.

$$LSSC_t = LSSA_t * REUE_t * WHEA_t + (LSSCa_{t-1} – LSSCf_{t-1}) * (1+ I_t) + (LSSCa_{t-1} – LSAC_{t-1})*LSSF_t$$

Where

$LSSC_t$	*is allowed cost of losses in Relevant Year t*
$LSSA_t$	*is the Loss Allowance, which is a percentage of energy entering the Transmission System, in Relevant Year t*
$REUE_t$	*is the energy units (in MWh) entering the Distribution System in Relevant Year t*
$WHEA_t$	*is the average wholesale energy cost (in €/MWh) as determined using the allowed wholesale energy cost for the PES in Relevant Year t*
$LSSCa_{t-1}$	*is the actual allowed cost of losses in Relevant Year t-1 (calculated using the Loss Allowance)*
$LSSCf_{t-1}$	*is the forecast cost of losses in Relevant Year t-1 (calculated using the Loss Allowance)*
I_t	*is the interest rate for the Relevant Year t calculated based on EURIBOR plus S%, where S is a value to be determined by the Regulator at Periodic Reviews and which reflects the premium payable by the licensee for short-term loans above the EURIBOR rate*

$LSAC_{t-1}$	*is cost of losses actually incurred by the DSO in purchasing energy from the PES as compensation for energy lost on the Distribution System in Relevant Year t-1 (not calculated using the Loss Allowance)*
$LSSF_t$	*is the Loss Sharing Factor in Relevant Year t, which is set at Periodic Reviews*

The interest rate used to calculate the compensation between actual and allowed costs in the previous Relevant Year has been calculated using the S-premium set by ERO during the Periodic Review (15.0%) plus the current one year EURIBOR rate (0.25%[4]). The resulting interest rate used for adjustments has therefore been set to 15.25%. The calculation is summarized in the following table:

Table 3 Calculation of the Allowed Cost of Losses of the DSO

DSO MAR		ETR8 Allowed	ETR8 Review	ETR8 Actual	ETR9 Proposed
LSSAt	%	25.6%	25.6%	31.1%	23.1%
REUEt	GWh	4,284.4	4,284.4	4,327.5	4,232.1
WHEAt	€/MWh	27.3	29.5	31.2	28.2
LSSCat-1	€m			30.2	
LSSCft-1	€m	29.9			27.6
LSACt-1	€m			36.7	
LSSCt	€ m	23.8	26.3		22.8

The resulting allowed cost of losses under ETR9 is, therefore, €19.9 million.

4.5 Revenue Adjustment factor (KREVt)

The difference between the Maximum Allowed Revenues (MAR) allowed by ERO for the second Relevant Year and the Actual Regulated Revenues collected by DSO during the same period was calculated according to the following formula (Schedule 2 paragraph 2.5 of the DSO Pricing Rule):

$$KREV_t = (MAR_{t-1} - ARR_{t-1}) * (1+ I_t)$$

Where

ARRt-1	*is the Actual Regulated Revenues in Relevant Year t-1*
MARt-1	*is Maximum Allowed Revenues as determined in Relevant Year t-1*
It	*is the interest rate for the Relevant Year t calculated based on EURIBOR plus S%, where S is a value to be determined by the*

[4] Euribor Rate for 19 February 2015 http://www.euribor-rates.eu/euribor-rate-12-months.asp

Regulator at Periodic Reviews and which reflects the premium payable by the licensee for short-term loans above the EURIBOR rate

The difference between the MAR allowed by ERO of €63.9 million and the ARR collected by the DSO of €61.2 million is returned to the DSO MAR with interest.

4.6 Other adjustments

This section of the report clarifies the impact of other adjustments which were made to the MARs of the regulated licensees as a result of various unbundling activities or employee transfer arrangements which were not taken into account during the Regulatory Period when the original MARs of the sector were set.

HQ allocation costs are related to the agreement between KEK and KEDS about the transfer of employees after final KEDS unbundling. The agreed allocation of employees between these two entities, and therefore the share of HQ costs which is allocated based on the number of employees, differed from the employee allocation numbers originally assumed by ERO under the Periodic Review process. ERO therefore updated the OPMCt allowance to reflect employee allocation agreement achieved between KEK and KEDS. The change in allocation of the HQ costs does not result in an increase in tariffs as it simply constitutes a movement of revenues from one licensee to another.

5 DSO MAR Summary

The overall level of KOSTT MAR allowed for the second Relevant Year is €66.8 million as summarized in the following table.

Table 4 DSO Relevant Year 3 MAR summary proposal

DSO MAR		ETR8 Allowed	ETR8 Reviewed	ETR8 Actual	ETR9 Proposed
Indexation parameters					
Efficiency Factor	%	0.00%	0.00%		4.00%
Profiling Factor		0.00	0.00		0.00
HICP	%	0.70%	0.70%		0.97%
Euribor	%	0.58%	0.58%		0.25%
S-factor	%	15.00%	15.00%		15.00%
It	%	15.58%	15.58%		15.25%
Operating and Maintenance Costs (OPMCt)					
$OPMC_t = OPMC_{t-1} * (1 + CPI_{t-1}) * (1 – E_t) * (1 – P_t)$	€m	18.6	18.6		26.2
Adjusted OPEXwithout HQ	€m				14.8
Health Insurance	€m	0.2	0.2		0.4
Asset Insurance	€m	0.8	0.8		0.8
HQ Allocation	€m	1.1	1.1		3.0

DSO-PES Personnel transfer	€m				7.6
Intercompany charge	€m				-0.3
HQ adjustment	€m				-0.2

Allowed Depreciation (DEPCt)

$DEPC_t = DEPC_{t-1} * (1 + CPI_{t-1}) * (1 – P_t)$	€m	7.3	7.3		8.0

Allowed Return (RTNCt)

$RTNC_t = RTNC_{t-1} * (1 + CPI_{t-1}) * (1 – P_t)$	€m	10.5	10.5		12.4

Allowed Losses (LSSCt)

Allowed Losses					
LSSAt	%	25.6%	25.6%	31.1%	23.1%
REUEt	GWh	4,284.4	4,284.4	4,327.5	4,232.1
WHEAt	€/MWh	27.3	29.5	31.2	28.8
LSSCat-1				30.2	
LSSCft-1		29.9			27.6
LSACt-1				36.7	
LSSCt		23.8	26.3		22.8

Adjustments

Adjustments (HQ allocation)	€m	1.1	1.1		
Adjustments (Insurance)	€m	0.2	0.2		
Adjustments (Asset Insurance)	€m	0.5	0.5		
Unregulated Revenues	€m	1.2	1.2		-2.0
			0.6		

KREV

KREV	€m	3.0	3.0		3.1

MAR

	€m	63.9	66.4	61.2	70.7