



ZYRA E RREGULLATORIT PËR ENERGJI  
ENERGY REGULATORY OFFICE  
REGULATORNI URED ZA ENERGIJU

# Consultation Paper

The Ninth Electricity Tariff Review

ETR9 (2015-2016)

Wholesale Power Costs Calculation

## DISCLAIMER

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

**09 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(2013-2017).

This Consultation Paper presents ERO's assessment of the Wholesale Power Costs of the PES. Alongside this report, ERO will publish their assessment of the MAR of the Regulated Generator, KOSTT, DSO and PES.

## 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](mailto:ero.pricing-tariffs@ero-ks.org) no later than **23 March 2015**. Alternatively, comments can be mailed to:

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Departamenti për Tarifa dhe Çmime  
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## Related Documents

ERO's final evaluation of DSO and PES MAR under ETR7	<a href="http://ero-ks.org/Tarifat/2013/Proceset%20e%20Shqyrtimit/eng/Evaluation_DSO_PES_22_March_2013.pdf">http://ero-ks.org/Tarifat/2013/Proceset%20e%20Shqyrtimit/eng/Evaluation_DSO_PES_22_March_2013.pdf</a>
ERO's final assessment of KEK MAR under the Periodic Review Process – Detailed Report	<a href="http://ero-ks.org/Tarifat/2013/Proceset%20e%20Shqyrtimit/Vlersimi_perfundimtar_per_Gjenerim_22Mars2013.pdf">http://ero-ks.org/Tarifat/2013/Proceset%20e%20Shqyrtimit/Vlersimi_perfundimtar_per_Gjenerim_22Mars2013.pdf</a>
ERO's Wholesale Power Cost Consultation Paper under ETR8	<a href="http://ero-ks.org/Tarifat/2014/FPEE_Kalkulimet_e_te_Hyrave_te_Lejuara_Maksimale_Raporti_Perfundimtar_SHTE8_final.pdf">http://ero-ks.org/Tarifat/2014/FPEE_Kalkulimet_e_te_Hyrave_te_Lejuara_Maksimale_Raporti_Perfundimtar_SHTE8_final.pdf</a>
ERO's Extraordinary Review Consultation Paper	<a href="http://ero-ks.org/Tarifat/2014/Raport_vleresues_shqyrtimi_i_jashtzakonshem_10_8_2014.pdf">http://ero-ks.org/Tarifat/2014/Raport_vleresues_shqyrtimi_i_jashtzakonshem_10_8_2014.pdf</a>
KEDS WHPC application submitted under the third Regular Adjustment 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 regulated electricity market in Kosovo. 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.

According to the Pricing Rules, ERO's secondary legislation governing electricity tariffs, the Wholesale Power Costs are those costs which are recovered by the Public Supplier in order to compensate the expenses incurred for purchasing electricity to supply to regulated customers. These costs are updated annually in order to the volatile input values which have an impact on the supply costs. During the Wholesale Power Cost calculation, ERO reviews and resets the forecast import and export prices, resets the level of allowed losses in the system and their associated costs and sets the availability target for the regulated generator based on planned maintenance and rehabilitation schedule of plant and equipment.

**Table 1** Factors affecting Wholesale Power Costs at a glance

Wholesale Power Costs (WHPC)	
Generation unit availability	The availability of generating units has increased consistently over the last decade however recent outages due to the Kosovo A explosion have imposed an increase in the share of imported energy in the consumption portfolio.
Reduction of system losses	During ETR6, ERO set the annual distribution loss reduction targets for the next 6 years (1 year under ETR6 and 5 years under ETR7). The losses recovered by tariffs will nearly be halved (16.5% percentage point reduction) by 2017.
Reduced import costs	Import prices under ETR9 are lower than those allowed for under ETR8 due to the fall of energy prices in the market.

## 1 Introduction

The Energy Regulatory Office is currently in the process of conducting the ninth electricity Tariff Review for the Public Electricity Supplier (PES) and the Regular Adjustment for the Second Relevant Year of the ETR7 Tariff Review for the Regulated Generator (KEK), Transmission, System and Market Operator (KOSTT) and the Distribution System Operator (DSO).

In 2012/2013 ERO conducted the Periodic Review Process (ETR7) during which it set the Maximum Allowed Revenues for the next five Relevant Years for the Regulated Generator (KEK), the Transmission System and Market Operator (KOSTT) and the Distribution System Operator (DSO). According to the Pricing Rules, a Regular Adjustment process shall be undergone between each Relevant Year of the Regulatory Period in order to calculate the permitted change in Maximum Allowed Revenues. The Regular Adjustment Process differs from a full-blown Periodic Review in which ERO would undergo a detailed review of the Allowed Operating and Maintenance Costs, allowed losses and efficiency factors and Allowed Capital Expenditure Programs. Instead, during Regular Adjustments, ERO only mechanically adjusts for differences between allowed and actual values of what has already been allowed during Periodic Reviews. During this Regular Adjustment process 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 Availability Target of the Regulated Generator;
3. Set the Energy Charge and the Capacity Charge of the Regulated Generator;
4. Update the Allowed Lignite Supply Costs (LGSCt) of the Regulated Generator. This update includes the pre-set Operating and Maintenance Costs, Depreciation and Allowed Return of the Mine by following the same principles as for the Regulated Generator. The pre-set LGSCt will include the difference between actual and allowed lignite supply costs in the first Relevant Year of the Regulatory Period;
5. Update the Other Fuel Costs (OTFCt) of the Regulated Generator to include differences between allowed and actual costs in the first Relevant Year of the Regulatory Period;
6. Calculate the Wholesale Power Purchase Costs which include the cost of purchasing power from the Regulated Generators, Imports and the Retail Margin. These are updated to reflect the difference between allowed and actual power purchase costs in the previous Regulatory Period;
7. Set the Allowed Cost of Losses (LSSCt) for the Transmission System and Market Operator (KOSTT) 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;
8. Update TSO MAR to reflect revenues generated through the Inter-TSO Compensation Mechanism;
9. Update TSO MAR to reflect the difference between Allowed and Actual Regulated Revenues in the previous Relevant Year (t-1);
10. Set the Transmission Use of System, Market Operator and System Operator Charges;

11. Set the Allowed Cost of Losses (LSSCt) for the Distribution System Operator (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 Distribution system.
12. Update DSO MAR to reflect the difference between Allowed and Actual Regulated Revenues in the previous Relevant Year (t-1);
13. Set the Distribution System Operator Charges;
14. Calculate the Allowed Retail Costs of the Public Electricity Supplier, which include the costs of operating and maintaining the PES activity, corporate costs, depreciation allowances and other reasonable costs of the PES;
15. Set the new PES MAR by including the difference between allowed and actual billing in the previous Regulatory Period;
16. Set the new Retail Tariffs;

## 2 The structure of this paper

This Consultation Paper is organized as follows:

- Section 3 lays out the Energy Balance assumed by ERO for the second Relevant Year of the Regulatory Period;
- Section 4 lays out the MAR for Regulated Generator
- Section 5 reviews the Wholesale Power Costs (WHPC) application and sets out ERO's proposals for the Allowed Wholesale Power Costs for the next Regulatory Period;

## 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<sup>2</sup>. 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:

- 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	3,864.81	
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 Transmission	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%	23.1%	
	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

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 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 Regulated Generator MAR

The calculation of the Regulated Generator MAR is provided in a separate consultation paper. The allowed level of KEK MAR considered under the WHPC calculation is €140.2 million.

## 5 Wholesale Power Costs (WHPC) of the Public Electricity Supplier (PES)

This section of the Consultation Paper presents ERO's views on the allowed Wholesale Power Costs (WHPC) which the Public Electricity Supplier (PES) will be allowed to recover through the regulated tariffs. According to Article 13 of the Public Electricity Pricing Rule, wholesale Power Costs include:

- Wholesale Capacity Costs (WHCC) which represents costs which are meant to cover capacity charges from domestic generation capacities, which is contracted for guaranteeing security of supply and which is dedicated to regulated customers;
- Wholesale Energy Costs (WHEC) which comprise of:
  - The costs of purchasing electricity from domestic generation;
  - Energy import costs;
  - Energy export costs (as a negative cost), which are subject to an export sharing factor;
  - Net imbalance costs – which are subject to an imbalance sharing factor.
- A Retail Margin which provides a reasonable return to the PES to compensate it for the risk it assumes while offering standard services to regulated customers.

The export sharing factor is momentarily set at 100% which implies that all of the energy export revenues are excluded from the calculation and returned to the customers (as a negative cost). There are no imbalance costs at the moment therefore the net imbalance a cost of the calculation is set to zero.

## 5.1 WHPC and Circularities generated by the Rules

Wholesale Power Costs, as defined by the Pricing Rule, generate a number of circularities which need to be dealt with in modeling the calculations.

One of these circularities arises due to the deduction of losses revenues from the WHPC. Paragraph 5 of Article 13 of the PES Pricing Rule states that revenues of the PES from sales of losses to the TSO and the DSO should be deducted from the wholesale energy costs. However these revenues are the product of the volume of allowed losses (in GWh) and the weighted average power purchase costs (WHEA – expressed in €/MWh). The latter depends on the wholesale power costs which is dependent on the PES revenues from losses. This presents a circularity issue as the losses revenues depend on the WHPC and vice-versa.

Another circularity arises due to the fact that Regulated Generator revenues (part of the WHEC component of WHPC) include the costs of System Operator (SO) charges which are paid by the Regulated Generator. SO charges depend on transmission losses and these depend on the Weighted Average Power Purchase Costs (WHEA) which depends on Power Purchase Costs which depend on Regulated Generator Revenues, including SO Charges. This presents a further circularity.

In calculating the WHPC of the Public Electricity Supplier under the ETR9 review, ERO has adopted the same approach as in ETR8. ERO will undertake a review of the Pricing Rules to resolve the issues related to the circularities and will consult all stakeholders before reaching a final decision.

## 5.2 S-factor and interest rate for adjustments

According to Schedule 1 Article 2.1 of the PES Pricing Rule, the interest rate applicable to the MAR of PES in any Relevant Year is calculated based on EURIBOR plus S% where S is a value determined by the Regulator at Annual Updates which reflects the premium payable by the licensee for short term loans. This is different from the principle applied in the other Pricing Rules<sup>3</sup> where the S value is set during Periodic Reviews and is kept constant throughout the Regulatory Period.

ERO has reset the S value for adjustments of the Public Electricity Supplier as follows:

The Kosovo Lending Rate has been obtained from the Kosovo Central Bank's Monthly Statistics Bulletin Table 14.2 (ODC Effective Interest Rates – loan interest rates)<sup>4</sup>. The value obtained is the investment business loan rate for loans up to 1 year.

The final interest rate for adjustments is the value for December 2014 (10.8%) less the EURIBOR for December 2014 (0.330%<sup>5</sup> – 1-year EURIBOR for December 2014) + 0.252% (the current EURIBOR rate<sup>1</sup>) = 10.72%.

## 5.3 Adjustments for allowed and actual power purchase costs for 2013

During each Annual Update ERO adjusts PES' Wholesale Power Costs for the differences between forecast and actual power costs in the previous year. Total power purchase costs allowed under 2015 after the Extraordinary Adjustment were €169.1 million whereas those actually incurred by PES

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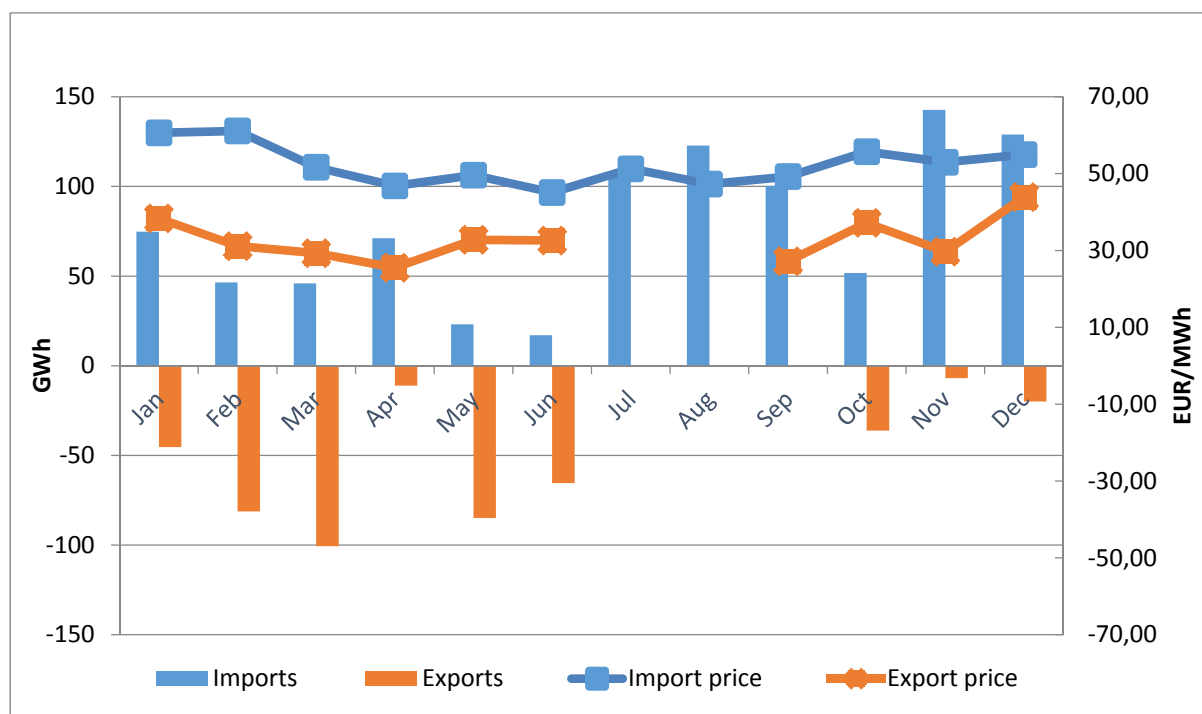
<sup>6</sup> Euribor rate for 19 February 2015 (<http://www.euribor-rates.eu/euribor-rate-12-months.asp>)

were €162.1 million. The difference of -€6.9 million is clawed back with the applied interest rate as specified in Paragraph 2.2 of Schedule 1 of the PES Pricing Rule.

### 5.1 Forecast import price

The average import price incurred by KEDS was lower than the price assumed by ERO during the ETR8 adjustment and extraordinary review. The actual import and export prices and volumes are provided in the chart below:

**Figure 1 Actual imports and exports volumes and prices in 2015**



The forecast import price for 2015 has been estimated by using the European Energy Exchange changes in futures prices between 2014 and 2015 and by applying this to the actual 2014 import price incurred by KEDS. The trend was calculated using the Phelix Peak load Futures contracts, which reflect the forward price of power in Germany, Austria and large parts of Europe. The Phelix Peak load Futures contracts are traded in the European Energy Exchange (EEX) and they are calculated daily as the average price for peak load electricity traded in EEX. Contracts with maturity dates of one quarter for the four quarters in 2014 and 2015 were used and the price taken was the price of the contract on the last trading day of the contract. Based on this principle, ERO proposes an average import price of 55 €/MWh for 2015.

**Table 3 Wholesale Power Costs (WHPC) calculation summary**

Wholesale Power Purchase Costs		ETR8 Allowed	ETR8 Review	ETR8 Actual	ETR9 Proposed
<b>Domestic generation</b>					
KEK Generation	€/MWh	25.3	25.3	25.2	26.47
	€000s	139,535	128,754	122,188	140,277
HPP Ujmani	€/MWh	27.5	27.5	27.5	27.5
	€000s	2,255	2,255	2,584	2,310
Distribution-connected generation (average)	€/MWh	43.8	43.8	43.8	43.8
	€000s	2,028	2,028	2,028	2,041
<b>Imports</b>					
Contracted imports	GWh	450.3	762.7	867.5	508.0
	€/MWh	60.0	60.0	52.5	55.0
	€000s	27,017	45,760	45,509	27,938
<b>Exports</b>					
Contracted exports	GWh	599.0	486.5	451.9	638.3
	€/MWh	30.0	30.0	32.9	30.8
	€000s	17,970	14,596	14,851	19,661
<b>Power purchase costs</b>					
KEK Generation	€000s	139,535	128,754	122,188	140,277
Other domestic generation	€000s	4,283	4,283	4,612	4,351
Imports	€000s	27,017	45,760	45,509	27,938
<b>Total power purchase costs</b>	<b>€000s</b>	<b>170,835</b>	<b>178,797</b>	<b>172,309</b>	<b>172,565</b>
Exports	€000s	-17,970	-14,596	-14,851	-19,661
Subsidies	€000s	0	0	0	0
WHEC + WHCC	€000s	152,865	164,201	157,458	152,905
<b>Retail Margin</b>					
Retail Margin	%	3%	3%	3%	3%
Retail Margin costs	€000s	4,586	4,926	4,724	4,587
<b>WHPC</b>					
WHPCat-1 - WHPCft-1	€000s	-13,384.0	-13,384.0	0	-6,944.8
It	%	13.14%	13.14%	0	10.72%
(WHPCat-1 - WHPCft-1)*(1+It)	€000s	-15,142.8	-15,142.8	0	-7,857.4
<b>WHPCf</b>	<b>€000s</b>	<b>142,309</b>	<b>153,984</b>	<b>162,182</b>	<b>149,634</b>
<b>Weighted Average Power Cost (WHEA)</b>					
	€/MWh	27.3	29.5	31.2	28.2