



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

Consultation Paper

The Tenth Electricity Tariff Review

ETR 10 (2016-2017)

Wholesale Power Purchase 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.

24 February 2016

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1 Summary

The Energy Regulatory Office (ERO) is currently conducting the Regular Adjustment and Annual Update process of the Maximum Allowed Revenues (MAR) of the Regulated Companies in the Electricity Sector under the Tenth Electricity Tariff Review (ETR10). Deriving from this, ERO will update MAR of Public Electricity Supplier (PES) and will adjust MAR of Regulated Generator (KEK), Transmission and Market System Operator (KOSTT), Distribution System Operator (DSO) based on values set on Periodic Review made under ERT7 (2013- 2-17).

This Consultation Paper presents ERO's assessment of wholesale power purchase costs of PES. Along with this report, ERO will publish MAR assessment of Regulated Generator, KOSTT, DSO and PES.

Stakeholder comments

Public Consultation is at the heart of effective regulatory policy. ERO hereby presents the Regulated Companies and Consumers with the opportunity to examine the data and views presented in this Consultation Paper, with which they may disagree, and to comment on them by correcting a factual error, putting forward counter-arguments or providing new data which ERO may not have considered yet. 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 **09 March 2016**.

Alternatively, comments can be mailed to:

Zyra e Rregullatorit për Energji
Departamenti për Tarifa dhe Çmime
Rr. Dervish Rozhaja Nr. 12
Prishtinë, 10000, Kosovë

ERO's final assessment of DSO MAR and PES under ETR7	http://ero-ks.org/Tarifat/2013/Proceset%20e%20Shqyrtimit/eng/Evaluation_DSO_PES_22_March_2013.pdf
ERO's final assessment of KEK MAR under the process of periodic review-detailed assessment	http://ero-ks.org/Tarifat/2013/Proceset%20e%20Shqyrtimit/Vlersimi_perfundimtar_per_Gjenerim_22Mars2013.pdf
KEDS WHPC application submitted under the third process of Regular Adjustment (ETR10)	http://www.ero-ks.org/2016/Tarifat/Aplikim_per_Cmimin_me_Shumice_per_vitin_2016.pdf

1 Regulated Price 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 assets 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.

In accordance with Pricing Rules, secondary legislation of ERO which sets electricity tariffs, Energy Wholesale Purchase Costs which are returned to public supplier in order to compensate conducted expenditures for power purchase to supply regulated costumers. These costs are updated each year for different input values which affect supply cost. During the calculation of Energy Wholesale Purchase Costs, ERO reviews and resets forecast prices of import and export, resets/actualizes the level of allowed losses in system and costs related to them, and set the availability target for regulated generator based on maintenance and reparation of assets and plants planned schedule.

Table 1. Factors affecting Energy Wholesale Purchase Costs

Generating Unit Availability	Generating Unit Availability has increased continuously during the last decade but due to last interruptions caused by the explosion in Kosova A Power Plant , an increase of imported energy is imposed in the consumer portfolio.
System losses reduction	During ETR 6, ERO set targets for losses reductions in distribution for the next six years (3 percentage points for the first three years and 2.5 percentage points for three other years – 1 year under ETR 6 and 5 other years under ETR 7). Losses covered by tariffs will be almost halved (reduction of 16.5 points percentage) up to 2017.
Reduced Import Costs	Import Prices under ETR 9 are lower than the ones allowed under ETR 7 due to a decrease of electricity prices in the market. This trend of decline in prices will continue during ETR10 too.

2 Introduction

Energy Regulatory Office (ERO) is currently conducting the Regular Adjustment and the Annual Update process on Maximum Allowed Revenues (MAR) of Regulated Companies in Electricity Sector under Tenth Electricity Tariff Review (ETR10).

In the first part of this process, ERO reviews Energy Wholesale Purchase Costs (WHPC) caused by KESCO (Public Electricity Supplier, PES) in electricity purchase by generators and imports to supply costumers in accordance with regulated tariffs (this currently includes all costumers¹)

Stakeholder comments

Public Consultation is at the heart of effective regulatory policy. ERO hereby presents the Regulated Companies and Consumers with the opportunity to examine the data and views presented in this Consultation Paper, with which they may disagree, and to comment on them by correcting a factual error, putting forward counter-arguments or providing new data which ERO may not have considered yet. 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 **09 March 2016**.

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¹ All costumers in Kosovo have the right of choosing their supplier .But, according to the Law on Energy Regulator; it will be required by ERO to regulate tariffs of costumers where it is considered that there is not an effective supply competition.

3 The Regular Adjustment Process

In 2013 ERO conducted the Periodic Review Process (ETR7) during which it set the Maximum Allowed Revenues for the next four Relevant Years for the Regulated Generator (KEK), and five years for Transmission and Market System 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 differences between the allowed and conducted ones. 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 Expenditures. Instead, during Regular Adjustments, ERO only mechanically adjusts the differences between allowed and conducted 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 Use of Transmission 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;

4 Review of KESCO's application

KESCO's estimated WHPC are comprised of the sum of purchases from KEK (which represent 77% of KESCO's estimated power purchase costs for 2016), from other smaller generators located within Kosovo (5% of total purchase costs) and imports (18% of total purchase costs). A number of other adjustments are made by applying the annual adjustment formulae set out in ERO's Pricing Rules. Expected revenues from exports and sales to unregulated customers are deducted to give the resulting amount to be recovered from customers supplied by KESCO at regulated tariffs. For 2016, KESCO has also proposed the inclusion of an allowance for Imbalance Costs (discussed further in detail below).

The prices of purchases of power generated from KEK are determined by the approved MAR, the application for which is discussed above. Of the other components of the WHPC calculation, the most significant are the assumptions made on the future energy balance, which determines the volume of imports and exports, and on import prices. KESCO's proposals with respect to each of these are discussed below. Also discussed below is the request on allowance for Imbalance Costs which despite that they make a relatively small part of the evaluated total of WHPC, raises important issues of principle.

4.1 Energy balance

For previous reviews, ERO's approach to determining the energy balance used to calculate WHPC has been as follows:

- Use KEK's and other Kosovo-located generators projections and export volumes as those contained in the annual energy balance. Use projected purchases on energy balance.
- Recalculate distribution and transmission losses using these projected sales but applying the loss targets (as a percentage) approved by ERO and set under the multi-year tariff rather than the projected losses contained in the MED-approved energy balance.
- Calculate imports as a residual so that the sum of energy entering and energy exiting the transmission system balances.

In its application on WHCP, KESCO has proposed an alternative approach. This is to use the MED-approved energy balance to determine volumes of purchases of imports. The difference between the volumes of losses calculated using the ERO-approved loss targets and those included in the MED-approved balance is then calculated and multiplied by the average wholesale price to obtain the cost

of the 'excess' losses included in the MED-approved balance. This cost is then deducted from the WHPC, calculated using the MED-approved energy balance to obtain the final allowed WHPC.

KESCO's view is that this is less distorting and more transparent than ERO unilaterally adjusting the MED-approved balance. ERO agrees that this revised approach has merits. However, we advise against making adjustments to the current ERO approach at this time given this may well be perceived as a further *ad hoc* amendment by ERO to its procedures and methodologies. Instead, ERO intends that this change be incorporated into the revised MAR models to be prepared during 2016 and are communicated to stakeholders at that time outside the tariff review cycle.

4.2 Import prices

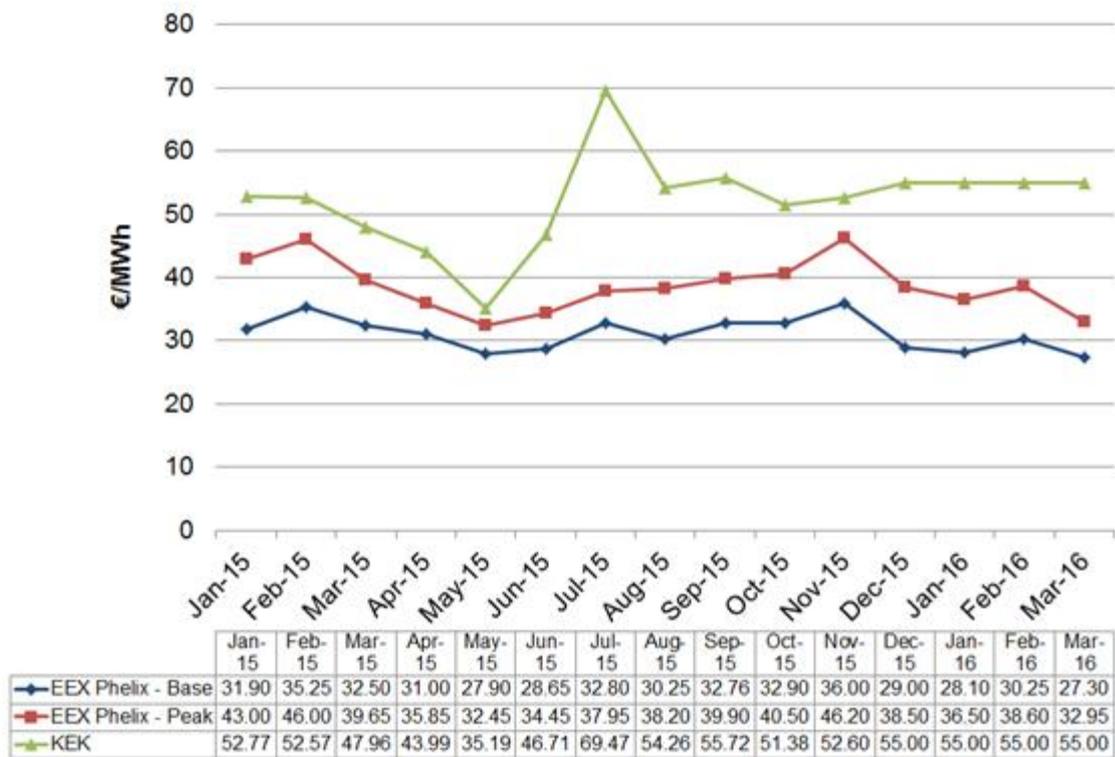
In calculating WHPC, KESCO has applied an assumed average import price of 55 €/MWh for 2016. This compares to an actual average price for January-November 2015 of 51.83 €/MWh.

The chart below shows the actual and requested import prices for KESCO as compared to the prices of base and peak Phelix traded on the European Energy Exchange (EEX), which has been selected as being probably the most reliable power trading exchange in Europe. Key points are that:

- EEX prices forecast for 2016 are currently trading below 2015 levels, while KESCO is proposing an increase in allowed prices relative to 2015 actual costs.
- The average margin during 2015 between KESCO's import prices and the prices of peak Phelix futures contracts was ~12 €/MWh (which was inflated by the high prices of KESCO's imports in July 2015²).
- For 2016, the average price for peak Phelix is ~35 €/MWh. KESCO has conducted an average price of 51.8 €/MWh in 2015 compared to 55 €/MWh required. For the purposes of its calculations, ERO has applied an import price of 51.8 €/MWh as the mid-point of this range.

² The price spike in July 2015 results from the very high prices (up to 142 €/MWh) paid for day-ahead and intra-day imports on 23-24 July 2015. We assume that these represent emergency purchases made in response to a failure by KEK's generating units.

Figure 1: Monthly Phelix prices and KESCO import costs compared



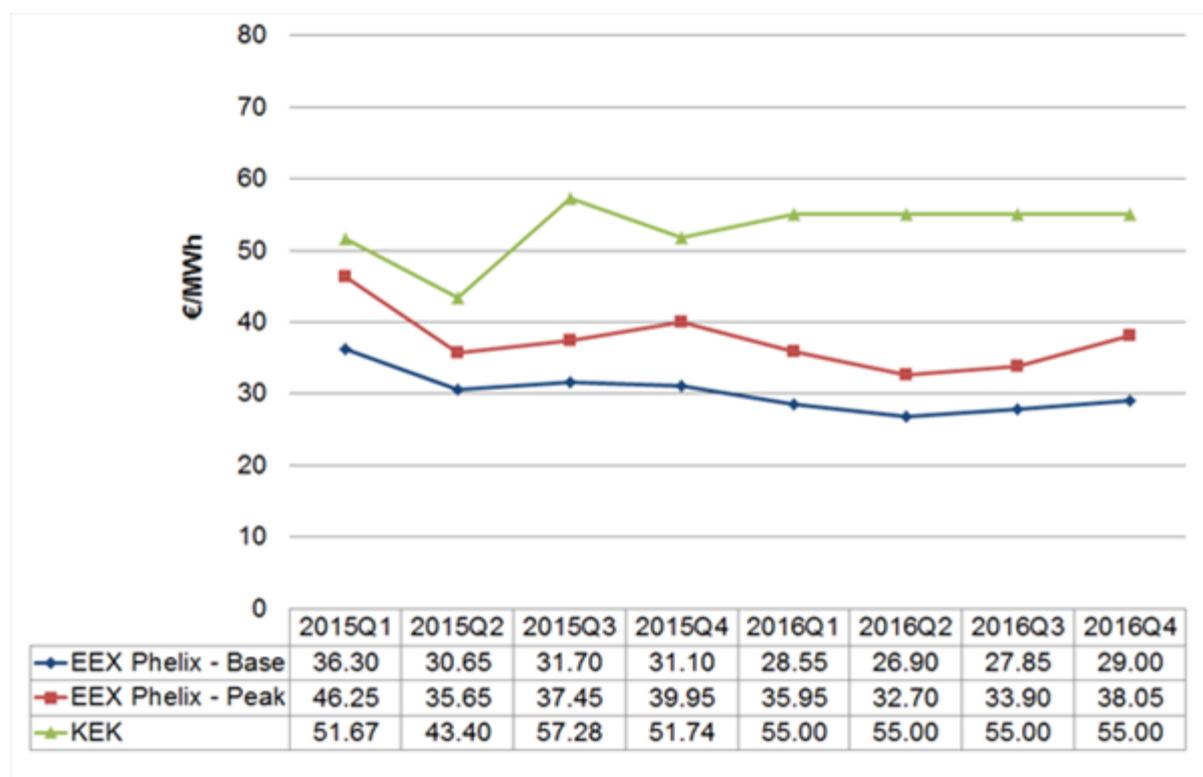
Notes:

Actual import costs for KESCO are available for January 2015 to December 2015 only.

Phelix contract price is that shown for last trading day of the relevant contract during the preceding month. For January 2016 onwards, prices are shown as at 14 December 2015.

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Figure 2: Quarterly Phelix prices and KESCO import costs compared



Notes:

Actual import costs for KESCO for 2015Q4 are calculated using October 2015 and November 2015 data only.

Phelix contract price is that shown for last trading day of the relevant contract during the preceding quarter. For 2016, prices are shown as at 14 December 2015.

4.3 Imbalance costs

In its application, KESCO has included a requested allowance of € 4.9 million covering its expected financial liabilities for imbalance costs.

ERO's observations are that:

- Imbalance charges are not yet being applied. Therefore, KESCO incurs no extra financial costs on imbalance.
- On average, KESCO should be expected to achieve a zero net balance. Including an allowance for imbalance costs implies that ERO would expect KESCO to be consistently out of balance across the year. This removes the incentive for KESCO to seek to ensure it is in balance—which is part of the purpose of the balancing mechanism in the first place.
- Under the Bulk Supply Agreement (BSA) between KEK and KESCO, any imbalance costs to KESCO that are the result of a failure by KEK to deliver against the nominated requirements of KESCO are to be compensated by KEK. Therefore, there would be no financial impact on KESCO for imbalances caused by KEK.

Given these observations, ERO considers that inclusion of imbalance costs into WHPC would be inappropriate and that the requested allowance should be rejected by ERO.

4.4 Export Sharing Factor

KESCO has requested that ERO reduce the Export Sharing Factor (the percentage of export revenues passed through to customers in the form of a reduction in WHPC recovered from regulated tariffs) from 100% representing full pass-through of export revenues to 80%. KESCO argues that this will provide incentives for it to maximise revenues from exporting which will, in turn, reduce costs for customers in Kosovo and reduce the problems of excess generation in summer off-peak periods³.

The Export Sharing Factor is an Input Value used in the calculation of the PES MAR. Therefore, this request will be discussed as part of ERO's review of the PES MAR application and is not considered further here.

5 Calculation of WHPC

5.1 Energy balance

The Energy Balance used for calculating WHPC is provided below. This is prepared as described in Section 4.1.

Table 1: Energy Balance used for the calculation of Wholesale Power Costs of the Public Electricity Supplier

Energy Balance		ETR ₉ Allowed	ETR ₉ Actual	ETR ₁₀ Proposed
KEK Generation		5,570.9	5438.1	5512.2
Kosovo A	GWh	1,775.6	1905.371	1983.4
Kosovo B + Cogeneration	GWh	3664.81	3582.2	3687.5
Cogeneration	GWh	-49.49	-49.5	-38.7
Other Transmission Connected Generation				158.2
HPP Ujmani	GWh	84.0	107.8	95.0
Other (HC Lumbardhi 1, HC EGU Belaj, HC EGU Decani)				63.2
Transmission-connected Demand		723.6	671.8	677.2
Ferronikeli	GWh	632.0	584.3	586.5
Trepca	GWh	25.9	24.0	
Sharrcem	GWh	65.8	63.5	90.7
Other Transmission - level consumption		272.9	240.8	272.9

³ For a discussion of these problems and options for addressing them, refer to the accompanying Consultation Paper on the Regulated Generator (KEK) MAR.

Mine consumption	GWh	138.0	114.2	121.0
Kosova A Power Plant self-consumption	GWh	134.1	101.4	115.3
Kosova B Power Plant self-consumption			25.2	36.7
Transmission Losses	%	1.8%	1.77%	1.80%
		110.9	110	114.0
Energy Entering Transmission System	GWh	6,162.9	6217.8	6,331.8
Exports	GWh	638.3	552.5	1,061.5
Total Production	GWh	5,654.9	5545.9	5,607.2
Imports	GWh	508.0	779.9	661.3
Energy Required to meet Transmission Load	GWh	1,744.9	1575.1	2,125.6
Energy Required to meet Distribution Load	GWh	4,418.0	4642.7	4,206.2
Distribution-embedded generation	GWh	46.6	33.8	64.2
Distribution Consumption	GWh	4,464.6	4677	4,270.4
Distribution losses and unbilled energy				
Technical and commercial losses	%	23.13%	28.0%	20.6%
	GWh	979.0	1241.5	830.9
Unbilled energy	%	5.21%	5.3%	5.7%
	GWh	232.5	246.5	243.3
Total losses	GWh	1,211.4	1488.0	1,074.2
Sales to final customers	GWh	3,253.1	3188.5	3196.2

5.2 Allowed Transmission Losses

The Allowed Level of Transmission Losses has been set at 1.8% as established during the Periodic Review Process.

5.3 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 ETR6 review. The loss target has been reduced in line with Decision 399 of the ERO Board. The allowed level of losses of 23.1% for 2015 (ETR9) (excluding unbilled costs) is reduced to 20.6%.

5.4 MAR of Regulated Generator

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 €146.8 million.

5.5 Import and export prices

As discussed in Section 4.2, the average import price used for the WHPC calculation has been reduced from the value of 55 €/MWh assumed by KESCO to 51.8 €/MWh.

For consistency, the same downward adjustment has been applied to the average export price assumed by KEK of 28.03 €/MWh which will be used in WHPC calculations. The export price set by ERO is the same as generation price by KEK.

5.6 S-factor and adjustments interest rate

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. 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). The value obtained is the investment business loan rate for loans up to 1 year as reported for December 2015 (the most recent date for which this is available) which is 9.27%.⁴

The final interest rate used for adjustments is this lending rate less the EURIBOR for December 2015 (-0.131%⁵ - EURIBOR rate with a quarter maturity)=9.14 %

5.7 Adjustments for allowed and actual power purchase costs for 2015

During each relevant tariff year, ERO updates Energy wholesale costs of PES for changes between forecasts and actual costs of energy for the previous year. The total of allowed costs of energy purchase in 2015 was € 157.5 million, and those conducted by PES were € 162.7 million. The difference of -5.2 million was returned with the interest rate applied, as specified in paragraph 2.2 of Schedule 1 of PES Rule on Prices.

5.8 ERO's calculation of WHPC

ERO's calculation of WHPC, applying the above assumptions and corrections, is shown below.

Table 2 Wholesale Power Costs (WHPC) calculation summary

Wholesale Power Purchase Costs		ETR _g Allowed	ETR _g Actual	ETR ₁₀ Proposed
Domestic generation				
KEK Generation	€/MWh	26.47	26.33	28.03
	€000s	140,276.74	136,384.54	146,882.25
HPP Ujmani & BRE transmission connected	€/MWh	27.50	27.50	41.80

⁴ <http://bqk-kos.org/repository/docs/2015/BQK-BMS%20nr%20160pdf>

⁵ <http://www.euribor-rates.eu/euribor-rate-3months.asp>

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	€000s	2,310.00	2,663.22	6,613.97
Generation in distribution level (average)	€/MWh	43.80	43.80	57.52
	€000s	2,040.86	1,432.28	3,694.51
Imports				
Contracted imports	GWh	507.96	684.31	661.30
	€/MWh	55.00	51.76	51.76
	€000s	27,937.80	35,416.74	34,225.95
Exports				
Contracted exports	GWh	638.30	552.52	1,061.50
	€/MWh	30.80	33.31	28.03
	€000s	19,660.71	18,406.44	29,758.84
Power purchase costs				
KEK Generation	€000s	140,276.74	136,834.54	146,882.25
Other domestic generation	€000s	4,350.86	4,095.50	10,308.48
Imports	€000s	27,937.80	35,416.74	34,225.95
Total power purchase costs	€000s	172,565.40	176,346.78	191,416.68
Exports	€000s	-19,660.71	-18,406.44	-29,758.84
Subsidies	€000s	0.00	0.00	0.00
WHEC + WHCC	€000s	152,904.70	157,940.34	161,657.84
Retail Purchase Margin				
Retail Purchase Margin	%	3%	3%	3%
Retail Margin costs	€000s	4,587.14	4,738.21	4,849.74
WHPC				
WHPCat-1 - WHPCft-1	€000s	-6,944.80	0.00	5,186.71
It	%	0.11	0.00	0.09
(WHPCat-1 - WHPCft-1)*(1+It)	€000s	-7,857.41	0.00	5,660.55
WHPCf	€000s	149,634.42	162,678.55	172,168.13
Weighted Average Power Purchase Cost (WHEA)				
	€/MWh	28.24	29.23	34.01