



Republika e Kosovës
Republika Kosova - Republic of Kosovo

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



Consultation Report on Maximum Allowed Revenues

Periodic Review for DSO

Second Regulatory Period (2018-2022)

DISCLAIMER

This Consultative Report has been prepared by ERO for the purpose of providing information to stakeholders of the energy sector. The report does not present any decision of ERO and should not be interpreted as such.

24 August 2018



Contents

1	Introduction.....	3
2	Regulatory approach in the electricity sector	3
3	Determination of Maximum Allowed Revenues	4
3.1	Methodology.....	4
3.2	System Cost Structure.....	5
4	Review Process	6
5	Operational and Maintenance Costs (OPEX) SRP2	7
5.1	Basic Opex.....	7
5.2	Costs of losses	9
6	Capital costs SRP2	11
6.1	Regulated Asset Base.....	11
6.2	Capital Expenditures SRP2	12
6.3	Depreciation.....	14
6.4	Allowed Return	15
7	Deductions from MAR.....	16
7.1	Non-tariff incomes and excluded costs	16
8	Regular adjustments of 2017 and FRP1	17
8.1	Adjustments to the inflation rate	17
8.2	Adjustments of pass-through costs	17
8.3	Adjustments to cost of losses	17
8.4	Assessment of Realized Electricity Balance – billing correction	18
8.5	Adjustment to unregulated revenues.....	19
8.6	Adjustments to the revenue correction factor	19
8.7	Other technical adjustments.....	20
8.8	Summary of adjustments.....	20
8.9	Adjustments to capital investments at FRP1	20
9	Maximum allowed revenues including adjustments.....	22



1 Introduction

The Energy Regulatory Office (ERO) is conducting the Second Periodic Review of the Second Regulatory Period (SRP2), which includes the period from 1 April 2018 to 31 March 2023, to determine the Maximum Allowed Revenues (MAR) for The Transmission System and Market Operator (TSO/MO) and the Distribution System Operator (DSO).

This **Consultative Report** sets out ERO's proposals for MAR to be covered by KOSTT during the second regulatory period SRP2. The approved MAR will determine the tariffs for the use of the Distribution System, to be charged to the Distribution System Users. Costs resulting from the use of the Distribution System will be included in the end-user charges. Comments on this Consultative Report can be submitted electronically via e-mail at ero.pricing-tariffs@ero-ks.org or in printed form at the following address:

Energy Regulatory Office
Department for Tariffs and Pricing
Str. Dervish Rozhaja N. 12
Prishtina, 10000, Kosovo

The last date for comments is **7 September 2018**.

After reviewing the comments received, ERO will publish the **Final Report along with responses to comments** by 14 September 2018.

2 Regulatory approach in the electricity sector

During SRP2, only the transmission services costs (provided by KOSTT) and distribution services (provided by KEDS) are subject to regulation by ERO. This marks a major change from ERO, where wholesale energy costs and retail supply costs for customers served by the Public Electricity Supplier are also regulated by ERO. In this sense, the price of electricity production by KEK JSC is not subject to regulation, i.e. this price is not approved by ERO from 1 April 2017. This change comes after the 2016 adoption of the new legislation, regulating the energy sector, in accordance with the European Union Directives. With the new laws, regulation of final tariffs has been eliminated for all customers, thus opening the electricity market for competition. However, ERO will continue for a while to regulate the tariffs for categories enjoying the right to supply universal services by the supplier selected by ERO. It should be noted that all customers have the right to freely choose their supplier under competitive market conditions and in the event of a failure of their supply by these suppliers, then supply will be guaranteed through the Suppliers of Last Resort (SLR)¹. In addition, ERO monitors the competition of the power supply market on a continuous basis and may intervene when identifying behaviour that harms the competitive market.

¹ The USP and SLR rules are available on the ERO website at: [http://ero-ks.org/2017/Rregullat/Rregulla%20per%20Vendosjen%20e%20te%20Hyrave%20per%20Furnizuesin%20me%20Sherbim%20Universal%20\(%20Rregulla%20per%20te%20Hyrat%20e%20FSHU\).pdf](http://ero-ks.org/2017/Rregullat/Rregulla%20per%20Vendosjen%20e%20te%20Hyrave%20per%20Furnizuesin%20me%20Sherbim%20Universal%20(%20Rregulla%20per%20te%20Hyrat%20e%20FSHU).pdf)



3 Determination of Maximum Allowed Revenues

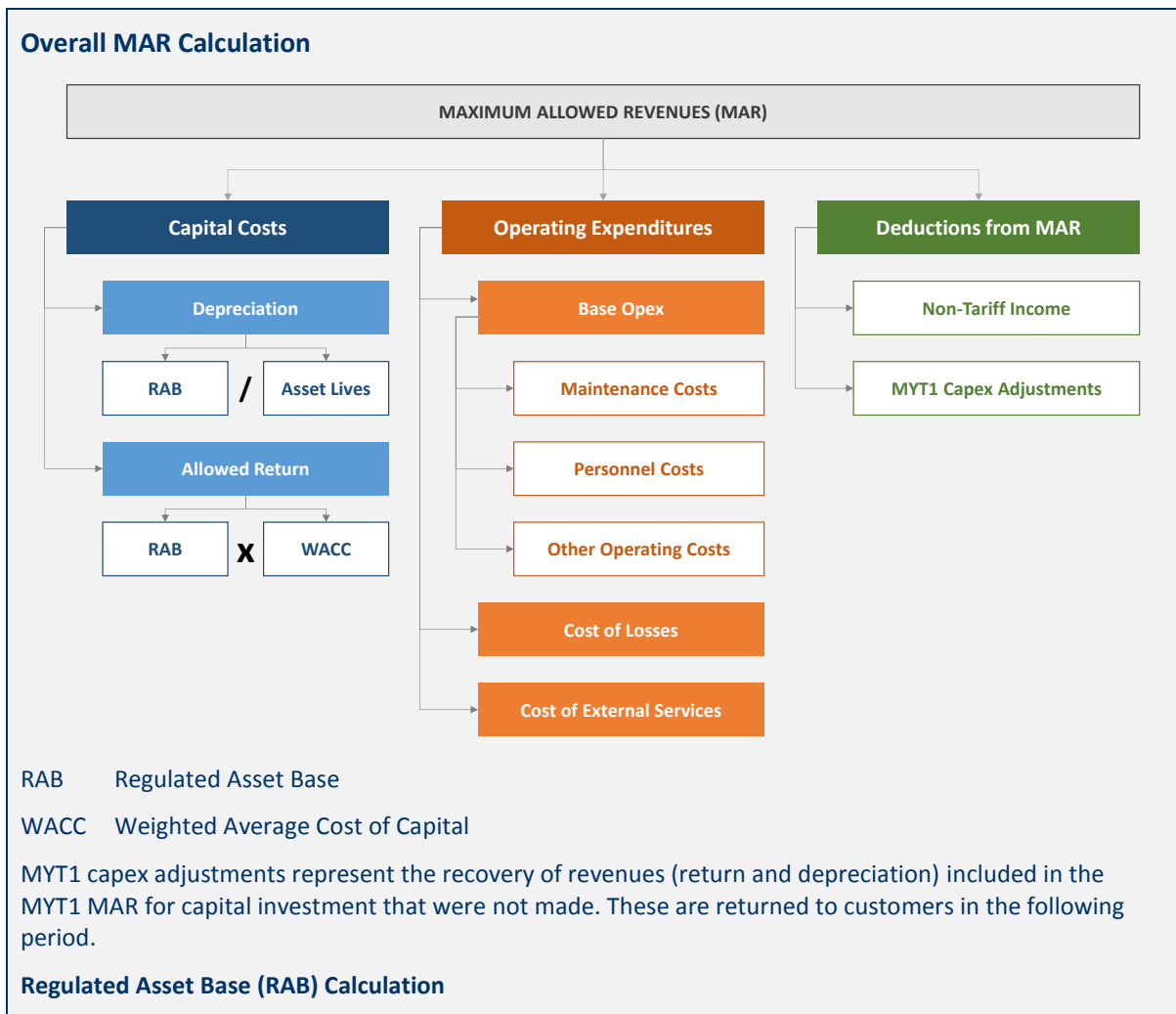
3.1 Methodology

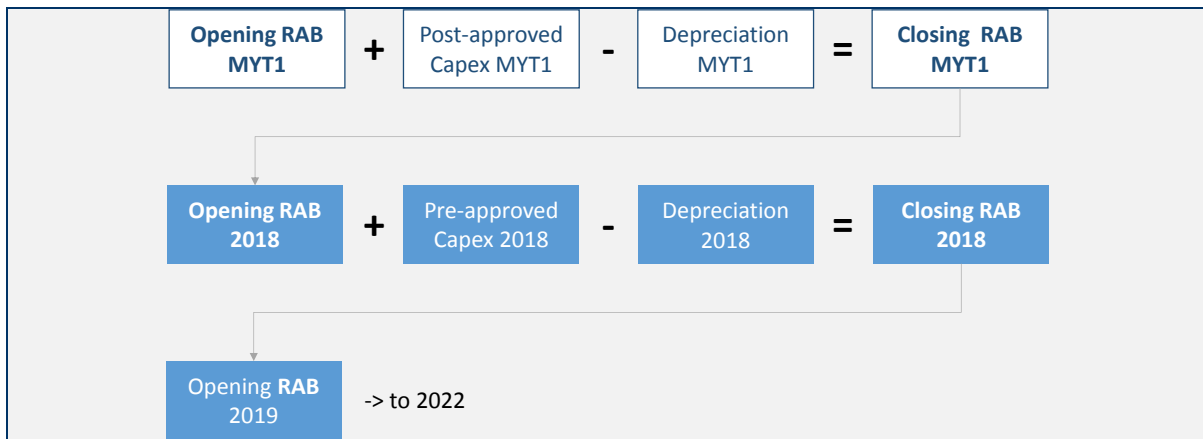
For each regulated entity, ERO sets the MAR to be applied for each year of the SRP2 period. MAR is initially calculated on an annual basis and can be 'profiled' over the whole period to avoid major year-over-year changes in tariffs. MAR is subsequently updated annually within the SRP2 period for the differences between allowed and realized costs and revenues that are beyond the control of the licensee.

The MAR calculation follows the same approach for each entity and is summarized below. For a more complete description of MAR calculation, methodologies and processes of adjustment, refer to the Rule for DSO Revenues published on ERO's website:

<http://ero-ks.org/2017/Rregullat/Rregulla%20per%20te%20Hytrat%20e%20OSSH.pdf>

Figure 1: Calculation of Maximum Allowed Revenues





Calculations are conducted and approved in real terms (excluding inflation) and then adjusted for actual inflation.

Post-approved capex represents the final capital expenditures² (“capex”) approved for addition to the RAB during MYT1 following review by ERO of actual against planned projects and actual against pre-approved costs. Pre-approved capex represents the forecast capital expenditures approved for inclusion in MYT2 revenues. Following the conclusion of the MYT2 period, these will be subject to review of actual outcomes against pre-approved projects and costs and the RAB for the following period will be updated accordingly.

Cost of losses calculation

Unit Cost (€/MWh)	X	Energy Distributed (MWh)	X	Loss Allowance (%)	=	Cost of Losses (€)
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Unit costs and volumes of energy distributed are forecast at the start of the MYT period. Within the period, the allowed cost of losses passed-through to customers is updated annually for differences between actual and forecast costs and volumes. The loss allowance percentage for each year is set ahead of the MYT period and is not adjusted during the period.

3.2 System Cost Structure

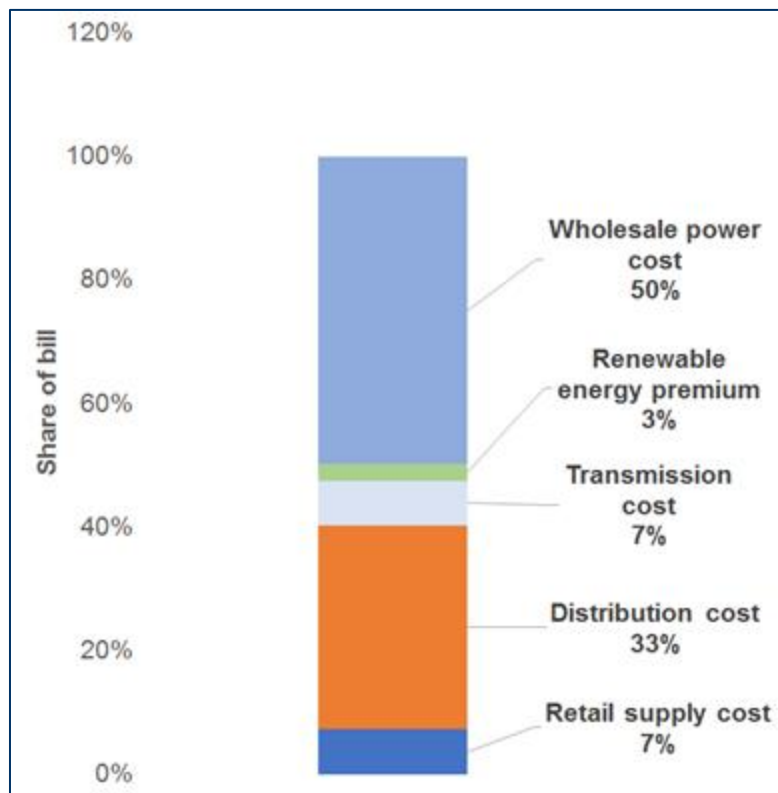
In 2017, distribution services accounted for about 33% of the average of end-user invoice. The regulated and combined transmission and distribution services accounted for about 40% of the invoice. The single largest component of invoices is the wholesale energy cost (purchase costs from domestic generators and imports) accounting for half of the final invoice. Renewable energy premiums represent payments made to renewable energy generators to cover the difference between their incentive tariff and the wholesale market price representing about 3% of system costs. Other cost components are also the retail supply costs, which account for about 7% of total costs.

The cost components are shown in the figure below.

² In this paper, the term “capex” is used to refer to expenditures to purchase physical assets. The term “capital costs” is used to refer to the corresponding cost allowance included in MAR. This allowance is the sum of the return on and depreciation of the physical assets and does not equal capex. For example, for an asset with an investment cost of €10 million, a life of 40 years and a WACC of 5%, the capex is equal to €10 million and is spent before commissioning of the asset into service. The annual capital costs, which are incurred in each year in which the asset remains in service, are equal to the sum of: (i) depreciation of the asset of €0.25 million annually (€10 million divided by a 40-year life); and (ii) the return on the asset, equal to €0.5 million in Year 1 (5% WACC multiplied by the opening asset value of €10 million) and declining thereafter as the asset’s value is depreciated over time.



Figure 2: System cost components



Note: The data shown in the figure are for 2017

4 Review Process

The steps so far in the review process have been as follows:

- The SRP2 review started in May 2017 when ERO issued an Initiative Report that specified the process and schedule of review.
- Subsequently, ERO prepared and issued data templates in May 2017, to be completed by KOSTT and KEDS.
- In June 2017, ERO issued Consultative Reports for Revenue values for MAR calculations covering the proposed Weighted Average Cost of Capital (WACC), allowances for electricity network losses and useful life of assets (used for depreciation purposes). KOSTT and KEDS commented on these proposals in July 2017.³
- KEDS documentation for SRP2 was submitted to ERO on 12 September 2017 in the form of completed data templates and supporting documentation.

³ Copies of consultation documents about input values are available on ERO's website at: <http://www.ero-ks.org/w/index.php/shqip/tarifat-dhe-imet-mainmenu-95/energija-elektrike-mainmenu-96/proceset-e-shqyrtimit-mainmenu-174>



- Between September and November 2017, ERO and its consultants consulted with KEDS to review their documents and data for resolving discrepancies and consistency shortages in the data provided and to identify the additional data required.
- On 4 April 2018, ERO has published responses to stakeholders' comments on regulatory parameters.
- ERO has received additional comments on regulatory parameters and has reviewed them.
- On 20 August 2018, the Board of ERO made a decision regarding the regulatory parameters for the second regulatory period (SRP2).

The following sections summarize the review conclusions undertaken by ERO on the KEDS MAR proposals. Based on this, ERO's draft proposals for MAR, to be covered by KEDS during SRP2, have been presented. Although extensive analysis has been carried out, some ambiguities remain, where additional information from licensees has been requested. These are listed in the relevant sections of this report.

5 Operational and Maintenance Costs (OPEX) SRP2

5.1 Basic Opex

The basic opex consists of several main categories: maintenance costs, other operational costs and other costs that are outside the control of KEDS. The approach taken by ERO to set the values for each of these categories for the SRP2 period is the same as that in FRP1 and can be summarized as follows:

- The initial value for SRP2 in 2018 was initially set equal to the allowed value at closing (instead of the realized one) for FRP1 in 2017, taking into account the need for a higher performance system over the next period, which is also related to many additional legal obligations that the operators will have. This ensures that licensees are not allowed to exceed the expenses that are under the control of the licensee, while the licensees will have incentives to save on certain operational categories.
- This initial value for SRP2 then adjusts to changes in costs arising from regulatory or legal obligations that are considered to be out of control of KEDS. For SRP2, ERO has included the lease costs for Trepča's assets, as a new obligation for KEDS, costs related to work experience. These costs are reflected in OPEX.
- The OPEX estimated for the SRP2 period is divided into several main categories. The efficiency factor has not been applied solely at the "Lease for Trepča's assets" line, considering it as not controllable by KEDS, whereas the efficiency factor has been applied for other lines.
- In order to monitor the quality of service and performance, "Repair and Maintenance" line costs have been estimated as a separate OPEX line. The basis for estimating these costs is the average level achieved in 2014-2017.



- The OPEX line "Other operational expenses" has been calculated as difference of total OPEX from the "Repairs and Maintenance" line and "Rent for Trepça assets". The costs for the "Rent for Trepça assets" line are related to the rent costs of the electricity distribution infrastructure owned by the Trepça Enterprise. For this purpose, KEDS has requested to be allowed 300,000 Euros per year. ERO proposes that this be reduced to 246,000 Euros, which is the average of payments made between 2013 and 2017 (FRP1 period).
- Estimated operational expenses for 2018 are then foreseen for the remainder of the SRP2 period, adjusting for expected improvements from annual efficiency. ERO will also issue a separate report to explain how these efficiency factors are assigned. For SRP2, ERO proposes to apply an annual efficiency factor of 1.5% starting from 2019 (i.e., KEDS is expected to reduce opex by 1.5% per year in real terms before inflation).
- The costs of joint services are not in the Operations and Maintenance costs, in this sense, DSO costs are net of revenues and costs from joint services.

The sharing factor of savings for savings exceeding the efficiency factor for operational costs will be shared between licensees and customers by the 50/50 factor. In the case of spending over the allowed level, the change of such costs will be covered by the DSO, except to the expenditures that are outside the control of DSO.

Investment costs, i.e. depreciation and return costs will be adjusted on the reasonable current basis, considering the prices per unit on the market, for the realized investment amounts. If the DSO fails to implement capital projects in accordance with the schedule given in the approved investment plan, then the DSO must notify the regulator.

In order to encourage performance improvement, if the realized losses are lower than the allowed losses, all savings will remain with the licensee, and if the target is not reached, the cost will be covered by the licensee.

It should be noted that this approach is different from that requested by KEDS in its application where an estimate of operational costs was prepared for each year of the SRP2 period and no continuous improvement in efficiency was assumed. This difference in approach helps explain the major differences that result between KEDS request and proposals from ERO.

Proposed allowances for opex, developed as explained above, are presented in the table below.



Table 1: Basic Opex Proposals

€000s	SRP2				
	2018	2019	2020	2021	2022
	Proposed	Proposed	Proposed	Proposed	Proposed
Proposed by KEDS					
Repair and Maintenance	6,851	6,883	7,018	7,121	6,917
Other operational expenses	23,592	23,854	24,240	24,628	25,058
Rent for Trepça assets	300	300	300	300	300
Total OPEX	30,743	31,037	31,558	32,049	32,275
ERO Proposals					
Repair and Maintenance	4,032	3,971	3,911	3,853	3,795
Other operational expenses	21,418	21,152	20,892	20,637	20,387
Rent for Trepça assets*	246	246	246	246	246
Transferable costs ⁴	n/a	n/a	n/a	n/a	n/a
Total OPEX	25,696	25,369	25,049	24,735	24,428

Note: The efficiency factor is not applied in the line "Rent for Trepça assets".

5.2 Costs of losses

To predict the costs of distribution losses, it is initially required to create an energy balance from which the total volume of revenues in the distribution system can be estimated, allowance of distribution losses and energy purchase costs to cover lost volumes.

The energy balance used for this purpose has been developed by ERO by implementing the following main principles:

- Energy sales to customers connected to the distribution use the forecasts provided by KEDS, as a Distribution System Operator, updated for 2018.
- Electricity losses, calculated using the allowed loss target by ERO, and this amount is then added to sales to earn the total energy supplied through the distribution system.

The estimated cost of purchasing losses has used the prices realized in 2017 from the domestic market of 35.43 €/MWh and energy purchases from the import of 44 €/MWh. From this, it results that the purchase price for losses is around 42 €/MWh for 2018, with a trend decrease of about 40 €/MWh in the next four years for SRP2. These values have been applied for the regulatory period for the purpose of calculating the initial cost of losses.

Although the cost of losses are updated annually, however, it is necessary to forecast cost of losses to determine the initial MARs.

⁴ Transferable costs that relate to DSO obligations for the System Operator and Market Operator will be assessed after the MAR Determination of the TSO/MO.



Differences arising from different forecasts of allowed prices and quantities between ERO and KEDS are not relevant because they will be adjusted on an annual basis, being considered as costs beyond KEDS control.

Allowance of distribution losses is based on the decision of ERO's Board for the loss reduction target and the allowed loss curve for SRP2 2018-2022.

Table 2: Proposals for the cost of losses

€000s	Unit	SRP2				
		2018	2019	2020	2021	2022
		Proposed	Proposed	Proposed	Proposed	Proposed
Proposed by KEDS						
Energy entering distribution	GWh	4,760	4,765	4,771	4,779	4,788
Allowed loss	%	21.90%	20.90%	19.89%	18.90%	17.90%
Losses	GWh	1,042	996	949	903	857
Purchase price	€/MWh	27.42	31.21	29.23	34.11	35.43
Total costs	€000s	28,582	31,081	27,735	30,805	30,364
ERO proposals						
Energy entering distribution	GWh	4,539	4,642	4,638	4,636	4,630
Allowed loss	%	18.80%	18.80%	17.60%	16.40%	15.10%
Losses	GWh	853	873	816	760	699
Purchase price	€/MWh	42	40	40	40	40
Total costs	€000s	35,844	34,906	32,650	30,412	27,964

Energy entering distribution includes supplies to northern Kosovo

The allowed level of distribution losses has also included the energy spent in northern Kosovo as energy entering the DSO. If this energy will not be treated in the future as part of the DSO, then the target of losses will change. However, depending on the treatment of energy entering the distribution system, after the application of any loss target, the volume of losses should be the same.

Table 3: Approaches to calculating allowed losses

Approach	Unit	2018	2019	2020	2021	2022
Allowed losses (including physical flows of the north)	%	18.80%	18.80%	17.60%	16.40%	15.10%
Allowed losses (excluding physical flows of the north)	%	19.95%	19.95%	18.67%	17.39%	16.04%
Volume of losses ⁵	GWh	853	873	816	760	699

Within the SRP2 period, annual adjustments for the allowed cost of losses will be made for the differences between the total distributed volumes of forecasted and realized energy as well as the

⁵ The amount of losses on actual basis may vary depending on energy flows



average purchase prices. Allowed losses (as a percentage) remains unchanged from what is shown here.

6 Capital costs SRP2

6.1 Regulated Asset Base

During FRP1, the incurred capital expenditures by KEDS differ from those allowed at the time of MAR approval in FRP1. This is for a variety of reasons, including: change of requests, delays in procurement and delivery, identification of lower cost alternatives, overestimation/underestimation of costs, etc. There are also differences between actual and approved projects and programs in FRP1.

For determining the Regulated Asset Base (RAB) for SRP2, ERO should identify which value of capital expenditure during FRP1 should be included in the RAB. The general principle applied by ERO is that the costs of approved projects will be accepted to licensees if they are fully delivered, and other projects that have been undertaken during the period but have not been approved will be subject to proof about the need for these projects and the reasonableness of their costs.

For the purposes of these proposals, ERO has included the capital expenditures (capex) realized in FRP1 as initial value in the RAB of SRP2. ERO has approved this approach on the following basis:

- There are minor differences between the approved capex values (€ 107.2 million) and realized for FRP1 (€ 100 million) and, consequently, differences between those allowed and realized will be compensated by tariffs in SRP2.
- The quality of distribution services has generally improved during the FRP1 period, which can be considered as the impact of capital investments allowed by ERO and benefit to customers.

Prior to the final decision of the KEDS MAR, ERO will review this approach and the capex value for the FRP1 included in RAB opening for SRP2. For this purpose, ERO has requested from KEDS to present additional information to explain and justify the difference between the approved and realized FRP1 capex.

However, in 2017, the financial statements show a difference compared to the value of investments reported by KEDS in the initial proposals, so this difference will be reflected in the consultation process. ERO's proposal for inclusion in the MAR of SRP2 of the value of invested assets is presented below:

FRP1 capital expenditures included in RAB opening for SRP2

<i>Capital investments</i>	€000s
FRP1 approved	107,249
FRP1 realized	100,003
Added to the RAB opening for SRP2	100,003



6.2 Capital Expenditures SRP2

ERO has conducted a comprehensive review of capital expenditures proposed by KOSTT for SRP2. ERO, with the support of USAID's consultancy, through the Repower Kosova project, conducted a technical and financial assessment of capital investments of FRP1 and assumptions for investments in SRP2.

This review has included the following elements:

- An initial review of the proposed projects and programs included in the 5 Year Network Investment Plan (5YNIP), which presents the capital expenditure proposed by KEDS versus those listed in the 10-Year Network Development Plan (10YNDP). This review identifies the following concerns:
 - The project Mitrovica-Shupkovc is not included in 10YNDP and no particular justification was given. This is removed from the capex allowed for SRP2 pending additional explanations from KEDS⁶.
 - Additional information is required for the projects for the transition to 20 kV identified in 10YNDP. It is not clear which of these projects are involved in 5YNIP (hence in the SRP2 capex). Also, there is no explanation for the time required for transition to 20kV, or KEDS to propose an incremental approach for switching through individual outputs and not a complete switch. Another necessary issue is the compilation of a detailed plan for adapting the existing 10/0.4kV substations owned by customers. In these proposals, ERO has not made any adjustments to the capex required for these projects but reserves the right to reduce or remove it in the final decision if no additional information is provided to address this concern.
 - KEDS has included € 35.7 million for replacement costs of existing household and small commercial meters with new smart meters. This represents one of the most influential aspects in capex for the SRP2. ERO considers that the justification given for this project is insufficient and proposes to remove it from the investment plan. More detailed clarifications are provided below.
 - Emergency investments – starting from the current conditions of the energy system, in particular in certain areas where the load has increased significantly, as well as the urgent need of integrating renewable energy sources, it is proposed that in the investment plan 2018-2022, at the level of distribution, to be included four additional projects for the reinforcement of the network. These investments amount to approximately € 4 million and comprise of: Dragash Project, which is related to the integration of renewable energy sources; as well as projects related to load support and security of supply such as Fushë Kosova project, Ferizaj project and Malisheva project. All these projects are considered necessary, taking into account the delays in investments at the transmitting level.

⁶ Due to commercial secrecy, the costs of individual projects are not shown in this published report.



- A review of KEDS average unit costs for key investment items versus regional operators to estimate cost justification. This review has concluded that KEDS proposed costs are within acceptable limits.
- Detailed cost benefit analysis (CBA) of major projects⁷, which should justify that they are needed and represent the lowest cost option. Where the CBA was not provided, the reason for its absence was addressed. ERO has concluded that the CBA's provided are adequate and reasonable in their assumptions. It has been noticed that no CBA has been offered for the meter replacement project, regardless of its size. The reason given by KEDS for this project is that this is a legal obligation, but ERO states that there is no legal obligation to install specific meters (such as smart meters). KEDS would have to submit a detailed study on the installation of such meters and then ERO to decide on its rationality.
- ERO's review also identified that KEDS investment plan assumes commissioning of 10 new HV/MV substations within the SRP2. Investing in the HV and HV/MV transformers in these substations is the responsibility of KOSTT, and investments in the MV part, mainly in new substations, are the responsibility of KEDS. However, 4 of the proposed substations do not appear in the respective investment plan of KOSTT. While ERO considers that the capex associated with these new substations should be removed, given the fact that KOSTT's investments are missing, it is not possible to identify separately the capex associated with them from the KEDS application. ERO has made some adjustments in accordance with the harmonized investment plan between KOSTT and KEDS, but it will also ask KEDS to provide other details related to these investments, and it will decide whether to include them or not.

Regarding the program for replacement of meters, KEDS has argued in the submitted documents that the installation of smart meters is a legal obligation. As noted above, ERO does not agree with KEDS ascertainment. The relevant obligation is defined in Article 23 of the General Conditions of Energy Supply and states as follows:

5. *Intelligent metering systems, which enable customers' active participation in the electricity supply market, may be installed, with due consideration of the following:*
 - 5.1. *the implementation of such metering or measurement systems may be subject to an economic assessment of all its long-term expenses and benefits for the market and individual customers, as well as of the form of intelligent metering which is economically feasible and cost-effective, and the reasonable timeframe for their distribution. Such assessments shall be conducted no later than 01 January 2020. In accordance with the said assessment, the Regulator shall prepare a timeline matrix for the implementation of intelligent metering systems, with the deadline set at no longer than within ten (10) years.*

⁷ Based on the Rule on Capital Investment Assessment, the AKB needs to be prepared for projects exceeding EUR 1 million.



- 5.2. *in the event that the installation of intelligent meters is positively assessed, at least eighty percent (80%) of customers shall be equipped with intelligent metering systems by 2025.*

So far, no feasibility study has been submitted and is therefore unsuitable for KEDS to assume that a future study will determine that smart meters have a net economic benefit and assume that any process for installing the meters is foreseen by ERO and should be completed by KEDS. In addition to the feasibility study, KEDS could propose an eventual pilot project that would serve the final assessment on the technical and economic justification of this project.

ERO agrees that the completion of the replacement of obsolete mechanical meters with digital meters is desirable and invites KEDS to submit a revised capex proposal based on this instead of the wider range of smart meters. This issue is subject to review by ERO and the revised plan can be included in the final decision on the MAR of KEDS.

A summary comparison of capital expenditure over the years as requested by KEDS application and ERO's proposals are given below. Presentation by KEDS represents an increase of EUR 54 million (54%) compared to the capex allowed for FRP1. Following the adjustment described above, ERO proposes an increase in capex for the next five year period of € 24 million compared to that in FRP1.

Table 4: Proposals for Capital Expenditures SRP2

€000s	Total	SRP2				
		2018	2019	2020	2021	2022
		Proposed	Proposed	Proposed	Proposed	Proposed
Submitted by KEDS						
Capital Expenditures	153,859	28,921	36,385	38,314	27,130	23,108
ERO's proposals						
Capital Expenditures	131,443	28,483	33,737	28,846	20,510	19,867

6.3 Depreciation

Depreciation is calculated differently for pre-FRP1 assets and for assets added to RAB during FRP1 and SRP2. For pre-FRP1 assets, a standard residual useful life is applied to the asset weighted average. Assets added during FRP1 are divided into one of three categories with an assumed average useful life of 5, 20 and 35 years. Assets added during SRP2 are allocated into one of the seven different asset useful lives ranges that are applicable to each. These categories and the associated asset lives are shown below. The proposal for categories and asset life are available on ERO's electronic page.



Table 5: Categorization and life of assets used for depreciation calculations (only those added to SRP2)

Asset type	Asset's useful life (years)
Administration Buildings	50
MV networks, substations, power transformers, and equipment	30
LV networks, substations, power transformers, and equipment	25
Transformer stations, (CTs and VTs) ⁸ and equipment	15
Metering devices and equipment and devices, trucks, cranes and other working machinery	10
Furniture, office equipment	7
Work equipment, reading equipment, vehicles, computers, IT equipment and software	5

Depreciation resulting from the above-proposed capital investments (additions) to SRP 2 is presented in the table below.

Table 6: Proposals to allow depreciation

€000s	SRP2				
	2018	2019	2020	2021	2022
	Proposed	Proposed	Proposed	Proposed	Proposed
Opening RAB	159,650	176,130	195,650	209,056	213,481
Investments (Additions)	28,483	33,737	28,846	20,510	19,867
Depreciation	12,003	14,218	15,440	16,085	17,467
Closing RAB	176,130	195,650	209,056	213,481	215,881

6.4 Allowed Return

The ERO Board has decided that the Weighted Average Cost of Capital (WACC) for KEDS for SRP2 should be 8.3% (calculated on a real basis).

Table 8: Allowed return proposals

€000s	Unit	FRP1	SRP2				
		2017	2018	2019	2020	2021	2022
		Allowed	Proposed	Proposed	Proposed	Proposed	Proposed
Average RAB	€000s		141,175	161,385	180,059	191,186	196,809
WACC – proposed		12.0%	8.3%	8.3%	8.3%	8.3%	8.3%
Return	€000s	15,966	11,717	13,395	14,945	15,868	16,335

⁸ CT and VT are current and voltage measuring transformers



7 Deductions from MAR

7.1 Non-tariff incomes and excluded costs

In the submitted documents, KEDS has foreseen non-tariff incomes from other unregulated activities. These revenues may result from the use of assets by other economic operators, incomes and taxes of new connections, sale and alienation of assets and revenues from other services. As the envisaged OPEX enables coverage of all costs, ERO, in order to avoid double counting, deducts these revenues from the final MAR.

Maximum allowed revenues should not cover the costs of carrying out any service (including services on electrical lines or facilities) designated as an excluded service. The estimate of these revenues is based on the revenues realized in the previous years; however, if there are differences between the forecasted unadjusted revenues and current ones, they will be adjusted annually. Non-tariff incomes and excluded costs are presented as negative values during the calculation of the final MAR. The value of these non-tariff incomes is projected to be constant during SRP2 in the amount of € 3.5m.



8 Regular adjustments of 2017 and FRP1

This section presents the calculations regarding the regular annual adjustments of 2017 and capital investment adjustments of FRP1. Calculation of these adjustments will be included in the determination of allowed revenues for the regulatory period 2018-2022.

8.1 Adjustments to the inflation rate

In order to make the calculation of adjustments related to the inflation rate, ERO has taken into account the inflation rate published by Eurostat for the Eurozone countries, which for the year 2017 was 1.4%.⁹

This rate applies to adjust operating costs, depreciation costs and return on equity. Following the application of the inflation rate of 1.4% to the above-mentioned costs, the cost value of 0.69 million euros is derived. Details of these calculations are presented in Table 10:

Table 7: Adjustments to inflation

Line	Unit	Allowed	HICP	Adjusted costs
OPEX	mil€	23.81	1.4%	0.33
Depreciation	mil€	9.39	1.4%	0.13
Return	mil€	15.99	1.4%	0.22
Total	mil€	49.20		0.69

8.2 Adjustments of pass-through costs

Due to the differences between forecasted energy and that realized by DSO related to DSO obligations to Market Operator (MO) and System Operator (SO), adjustments have been made to reflect these differences. The value of these adjustments is EUR -0.08 million.

8.3 Adjustments to cost of losses

Adjustment to the cost of losses to the DSO is done through the formula below:

$$(LSSCat-1 - LSSCft-1) * (1 + It)$$

The value of the adjusted cost for losses is EUR 9.26 million, which is due to the higher realized energy flows versus those forecasted and the average purchase price for 2017 losses in the distribution network. Calculation details are given in the table below.

⁹ https://www.ecb.europa.eu/stats/ecb_statistics/escb/html/table.en.html?id=JDF_ICP_COICOP_ANR&period=2017-12



Table 8: Adjustments to cost of losses

DSO MAR	Unit	ETR11 (2017) Allowed	ETR11 (2017) Realised
Indexing Parameter			
I_t	%		14.87%
Allowed Losses (LSSCt)			
LSSAt	%	18.13	18.13
REUEt	GWh	3,962.1	4,731.3
WHEAt	€/MWh	35.43	44.04
LSSCat-1	mil€		37.78
LSSCft-1	mil€	29.72	
Adjusted Costs	mil€		9.26

With:

$LSSA_t$	<i>allowed losses, presented as the percentage of the energy entering the distribution system in the relevant year t</i>
$REUE_t$	<i>energy units (MWh) or (GWh) entering the distribution system in the relevant year t</i>
$WHEA_t$	<i>average of the wholesale energy cost (€ / MWh) in the relevant year t</i>
$LSSCa_{t-1}$	<i>realized cost of allowed losses in the relevant year t-1, (calculated using allowed losses)</i>
$LSSCf_{t-1}$	<i>estimated cost of losses in the relevant year t-1, (calculated using allowed losses)</i>
I_t	<i>interest rate for the relevant year t, calculated based on EURIBOR plus 5%, where S is the value to be determined by the Regulator during periodic reviews reflecting the premium payable by the licensee for short-term loans over the EURIBOR rate</i>

8.4 Assessment of Realized Electricity Balance – billing correction

Following the assessment of data for 2017, reported as realized, ERO has noticed that an amount of energy of 85 GWh resulted to be unbalanced energy. This difference has been corrected by ERO with the aim of balancing electricity for 2017.

Electricity Balance analysis carried out for 2017 is presented in the table below:



Table 9: Billing correction

Electricity Balance at DSO	Unit	2017 Realization
Entering in DSO	GWh	4,996.6
Unbilled energy in the north	GWh	265.3
Entering in DSO, without unbilled energy of north	GWh	4,731.3
Entering in DSO, without unbilled energy of north	%	5.3%
Technical and commercial losses at DSO	GWh	1,199.0
	%	24.0%
Total losses	GWh	1,464.3
	%	29.3%
Remaining energy for billing	GWh	3,532.3
Billing by KEDS	GWh	3,447.1
Billing correction	GWh	85.2

The value of this remaining energy has been converted into billing energy based on the average price realized at the DSO in the 0.4kV category. Following application of that price, it turns out that the energy value as a billing correction at the DSO should be increased by EUR 1.9 million, i.e. consumers should be compensated for this value. Otherwise, not converting this energy as billing energy, it should be reflected at the DSO's losses.

8.5 Adjustment to unregulated revenues

Other revenues realized from unregulated activities such as: revenues from leasing of assets, revenues from different economic operators, sale of assets, different services to customers, etc., are deducted from the maximum allowed revenues. KEDS reported that the value of these revenues realized by DSO in 2017 is to be EUR 5.78 million, but ERO has received the realized value of revenues from services excluded from audited financial statements and subsequently deducted them from the proposed MAR for the upcoming regulatory period.

The value of revenue from excluded services after the application of the interest rate results to be - 8.52 million euros, therefore this value will be returned to customers through the application of tariffs in SRP2.

8.6 Adjustments to the revenue correction factor

The difference between Allowed Revenues from ERO for SHTE11 (2017) and Revenues realized by DSO during the same period is calculated according to the following formula:

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



With:

AAC_{at-1} Actual Allowed Cost as determined in Relevant Year t-1

ARR_{t-1} Is the Actual Regulated Revenues in Relevant Year t-1

I_t Interest rate for the relevant year t, calculated based on EURIBOR plus S%, where S is the value determined by ERO during periodic reviews reflecting the amount payable by the licensee for short-term loans

Instead of the actual allowable costs AAC_{at-1} , the allowed MAR is assumed since the adaptation costs, i.e. the current allowable costs, are carried forward in the forthcoming period, therefore AAC_{at-1} is considered to be equal to the allowed MAR.

The difference between MAR allowed by ERO of € 67.53 million and the realized (ARR) income by DSO of € 77.25 million (including billing correction and un-regulated revenues) will be adjusted in SRP2. The value of this adjustment after indexing the inflation rate results to be EUR -11.16 million (including billing correction of EUR 1.91 million).

8.7 Other technical adjustments

This includes adjustments due to the application of the updating of the data which, during the process of setting the maximum allowed revenue, was preliminary. These adjustments relate to the application of the updated HICP inflation rate and the revenue correction factor. The value of these adjustments is EUR 1.29 million.

8.8 Summary of adjustments

The total value of these adjustments is EUR -8.53 million. The summary of adjustment results is presented in the table below

Table 10: Summary of adjustments for 2017

Components of adjusted costs	mil€
Adjustments to the inflation rate	0.69
Transferable costs	-0.08
Cost of losses	9.26
Billing correction	-1.91
Unregulated revenues	-8.52
Revenue Correction Factor	-9.26
Other technical adjustments	1.29
Total	-8.53

8.9 Adjustments to capital investments at FRP1

There are a number of capital projects that were included in the approved FRP1 investment plan but which have not been implemented. In such cases, ERO applies the adaptation of the 'claw back' of



allowed depreciation and allowed return related to these projects that were included in MAR of FRP1. Customers will be compensated for these adjustments during SRP2. This prevents KEDS from benefiting from the proposal of investment projects where their costs are included in the MAR but which did not actually implement. Adjustments to the first regulatory period (FRP1) are calculated on the basis of assets that include grants and those that do not include grants. As in other adjustments, calculations are made taking into account the time value of money.

The value of adjustments (FRP1) is - EUR1.69 million. Calculation details are provided below:

Table 11: Adjustments to FRP1 for CAPEX

Allowed	Unit	2013	2014	2015	2016	2017
Depreciation	mil€	6.52	7.31	8.05	8.75	9.39
Return	mil€	8.38	10.47	12.38	14.22	15.99

Actual	Unit	2013	2014	2015	2016	2017
Depreciation	mil€	6.71	7.61	8.45	9.49	10.49
Return	mil€	8.27	9.89	11.39	13.15	14.86

Adjustments	Unit	2013	2014	2015	2016	2017	Total
Depreciation	mil€	0.19	0.30	0.41	0.74	1.09	2.73
Return	mil€	-0.11	-0.58	-0.99	-1.06	-1.13	-3.87
HICP			0.70%	0.43%	0.21%	0.20%	
It	%	15.58%	15.25%	14.87%	14.90%	14.87%	
Not levelled	%	0.15	-0.49	-0.89	-0.43	-0.04	-1.69
Levelled	mil€	-0.34	-0.34	-0.34	-0.34	-0.34	-1.69



9 Maximum allowed revenues including adjustments

The maximum allowed revenues for the second regulatory period presented in Table 12 will now be adjusted to reflect the adjustments of 2017 and adjustments of the first regulatory period in relation to capital investments. In order for the adjustments not to affect the DSO's financial liquidity, the value of these adjustments is distributed throughout the regulatory period 2018-2022; respectively their levelling is carried out.

Table 12: MAR proposed for SRP2

€000s	SRP2				
	2018	2019	2020	2021	2022
	Proposed	Proposed	Proposed	Proposed	Proposed
Basic Opex	25,696	25,369	25,049	24,735	24,428
Cost of losses	35,844	34,906	32,650	30,412	27,964
Depreciation	12,003	14,218	15,440	16,085	17,467
Allowed return	11,717	13,395	14,945	15,868	16,335
Excluded costs	-408	-408	-408	-408	-408
Non-tariff revenues	-3,500	-3,500	-3,500	-3,500	-3,500
Adjustments for 2017- levelled	-1,706	-1,706	-1,706	-1,706	-1,706
Adjustments FRP1- levelled	-339	-339	-339	-339	-339
Total proposed MAR	79,307	81,935	82,131	81,148	80,241