



Republika e Kosovës  
Republika Kosova - Republic of Kosovo

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



## Final Report -Weighted Average Cost of Capital

### Third Periodic Review of Input Values for the Regulatory Period 2023-2027

#### Responses to Comments

#### STATEMENT

This Report of Responses is prepared by ERO with the purpose of informing stakeholders in the energy sector. The report does not represent a decision of ERO and should not be interpreted as such.

07 November 2022

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## List of abbreviations

The abbreviations used in this Response to Comments paper have the following meaning:

DSO	Distribution System Operator
ERO	Energy Regulatory Office
ENCS	Energy Community Secretariat
KOSTT	Transmission System and Market Operator J.S.C
KEDS	Kosovo Electricity Distribution Service J.S.C
kWh	Kilowatt-hour
MAR	Maximum Allowed Revenues
ME	Ministry of Economy
MO	Market Operator
MYT	Multi-Year Tariff
TSO	Transmission System Operator
WACC	Weighted Average Cost of Capital

## 1 Introduction

Based on the mandate given by the Law on Energy Regulator and the rules approved on Maximum Allowed Revenues for the Transmission System Operator and Market Operator (TSO/MO – KOSTT) and Distribution System Operator (DSO – KEDS), ERO has started the Periodic Review for the Third Multi-Year Tariff (MYT3) process to determine the Maximum Allowed Revenues (MAR) of the licensees KOSTT and KEDS for the next 5-year regulatory period 2023-2027 (1 April 2023 – 31 March 2028).

As part of this current review, ERO will determine a number of key input variables to the MAR calculation. These inputs include the Weighted Average Cost of Capital (WACC) of the TSO/MO and the DSO.

ERO published a Consultation Report on its WACC proposals on 13 September 2022, ahead of which the TSO/MO and DSO had provided their estimates of the WACC. ERO received comments to these proposals from the TSO/MO and the DSO. This document reviews and responds to those comments.

This remainder of this report is structured as follows:

- Section 2 provides a summary of ERO's proposals given in the Consultation Report;
- Section 3 presents the comments of the TSO/MO and the DSO on these proposals alongside ERO's responses;
- Appendix 1 presents the tabular summary of the received comments

## 2 ERO Proposal in the Consultation Paper

ERO proposed a real pre-tax WACC of 7.52% to 7.84% for the TSO/MO and the DSO in its Consultation Paper of 13 September 2022. Table 1 shows the values and basis of each parameter used by ERO in determining the WACC.

**Table 1 Initial ERO Proposal for WACC in MYT 3**

<b>Parameter</b>	<b>ERO's Proposal MYT 3</b>	<b>Basis</b>
Real risk-free rate	3.65%	Average interest rate on 7-year and 10-year securities of the Government of the Republic of Kosovo from 2017 to 2022.
Debt premium	1.72% to 2.12%	Calculated as the difference between the risk-free rate and the average costs of 5 to 10-year investment loans published by CBK for the periods 2016-2022 and 2020-2022.
<b>Real cost of debt</b>	<b>5.37% to 5.74%</b>	<b>Calculation</b>
Tax rate	10%	Kosovo's statutory corporate income tax rate
Equity beta	0,88	Average equity betas set for TSOs and DSOs in comparable countries (accounting for differences in gearing and tax).
ERP	5.04% to 5.30%	Based on the ERPs of regulatory determinations used in other countries (with the low value based on comparable countries, and the high end based on a wider set of countries).
<b>Cost of equity, real pre-tax</b>	<b>8.96% to 9.24%</b>	<b>Calculation</b>
Gearing	40%	Notional gearing consistent with past determinations.
<b>WACC, real pre-tax</b>	<b>7.52% to 7.84%</b>	

### 3 Stakeholder comments and ERO's responses

Both the TSO/MO and the DSO provided detailed responses to ERO's WACC proposal. Stakeholder comments, and ERO responses, are provided below.

#### 3.1 Summary of TSO/MO's comments

The TSO/MO proposed a real, pre-tax WACC of 8.68%, somewhat above ERO's proposal of 7.52% to 7.84%. The values for each parameter used to determine their evaluation are shown in the following table, alongside ERO's initial values from its Consultation Report for comparison.

**Table 2 Comparison of the reviewed proposal of WACC from TSO/MO and ERO's initial proposal**

Parameter	ERO's Initial Proposal	TSO / MO Proposal
Real risk-free rate	3.65%	3.65%
Debt premium	1.72% to 2.12%	2.80%
<b>Real cost of debt</b>	<b>5.37% to 5.74%</b>	<b>6.45%</b>
Tax rate	10%	10%
Equity beta	0.88	1.00
ERP	5.04% to 5.30%	5.50%
<b>Cost of equity, real pre-tax</b>	<b>8.96% to 9.24%</b>	<b>9.15%</b>
Gearing	40%	40%
<b>WACC, real pre-tax</b>	<b>7.52% to 7.84%</b>	<b>8.68%</b>

The TSO/MO agreed that ERO's proposed gearing (40%) is appropriate and did not object to ERO's proposed risk-free rate of (3.65%), using both of these in its WACC proposal. However, the TSO/MO disagreed with ERO's proposals over the other parameters, namely the:

- cost of debt premium,
- equity beta, and
- equity risk premium.

The TSO/MO's comments on each of the parameters above, and ERO's responses, are provided further below. Whilst using the same framework to calculate the WACC, the TSO/MO commented that practically all input parameters are based on 'soft' data, rather than hard data specific to Kosovo and that *"In a regulatory environment, the cost of capital should be based on the cost of debt and cost of equity of the licensee"*. The TSO/MO also commented that the use of the Capital Asset Pricing Model (CAPM) was tenuous given the absence of functioning capital markets in Kosovo. In determining the appropriate cost of capital for the Licensee, ERO considers it appropriate to use some data that are

not necessarily specific to the Licensee, or even Kosovo. For example, neither the risk-free rate nor equity risk premium are Licensee specific. More broadly, whilst there are a range of alternative ways to estimate the cost of equity, and the CAPM has some limitations in the places where there is lack of equity market, however it remains a widely used by regulators and provides an established framework within which the issues of risk and return can be debated and understood.

The TSO/MO also recommended that the details underlying future tariff decisions should be formally disclosed and documented, including in relation to the data, assumptions and calculations used in producing the WACC (e.g. by summarizing the WACC as in the above table). ERO agrees and will continue to ensure the basis of its WACC determination are clear.

### *Cost of debt premium*

ERO determined the cost of debt based on a risk-free rate (3.65%) plus a debt premium (1.72% to 2.12%). The TSO/MO did not object to the value proposed by ERO for the risk-free rate (whilst making several observations about it) but recommended a higher debt premium of 2.8%. The TSO/MO considered this premium to be *“more in line with what a spread would be in Kosovo if there were a market for corporate debt.”*, noting it to be the same as used in MYT1 and below that used in MYT2 (3.5%). The TSO/MO supported this debt premium by reference to:

- An implied debt premium of 2.61% based on the difference between current interest rates on new loans to industry (6.26%) published in the Monthly Statistics Bulletin of CBK for July 2022 and ERO’s proposed risk-free rate (3.65%), and
- The current spreads on high-quality US corporate bonds over US Treasury bonds being 2% (for 10-years bonds) and 2.7% (for 20-year bonds).

In calculating the 2.61% debt premium, the TSO/MO relied on data from the Monthly Statistics Bulletin of CBK - the same source for the data ERO used to calculate the debt premium. In its calculation, the TSO/MO used the then latest available (July 2022) interest on loans of *all* maturities to industry.<sup>1</sup> The maturities of the loans, therefore, covered both short term loans (up to one year) and longer term. ERO considers it appropriate to consider the debt premium using loans of longer maturity periods where that data is available, given the relatively long life of the assets of the TSO/MO (ERO used loans with durations of between 5 and 10-years). Accordingly, ERO does not consider the TSO/MO’s inclusion of these shorter period loans in calculating the debt premium appropriate. In addition, ERO does not consider it appropriate to rely solely on the latest value both because there is greater potential for anomalies in relying on a single value and the cost of debt allowance (in part) reflects an allowance for the costs of debt incurred historically (accounted for by looking at values over a number of years).

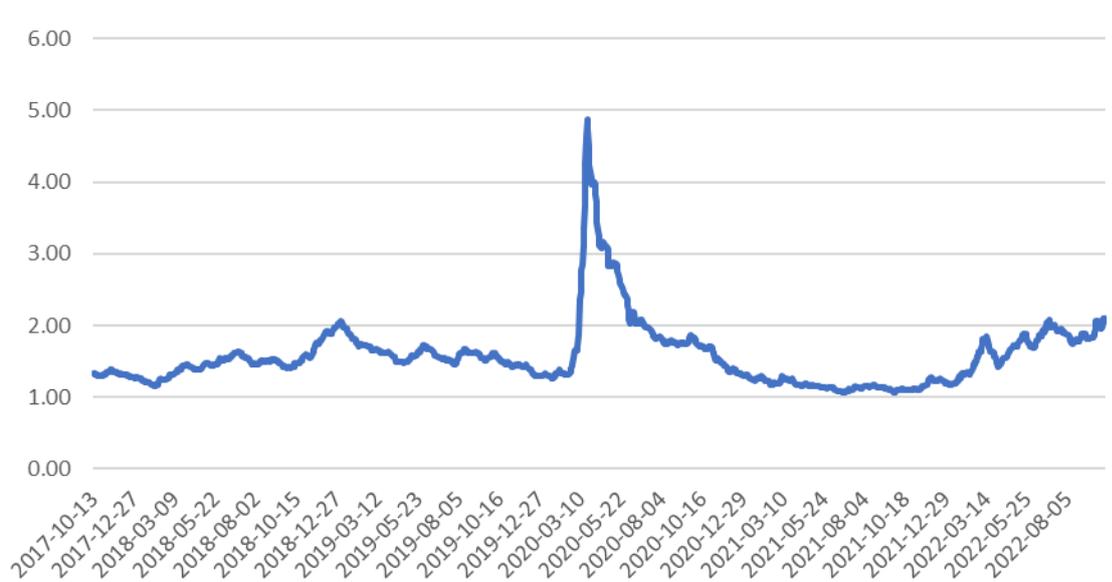
Regarding the spreads on high quality US bonds, the TSO/MO observes *“It is obvious that spreads in Kosovo would be higher than those.”* ERO agrees but also notes that the TSO/MO has again relied on current values, rather than averages over a period of time. The Figure below shows the spread on an index of US corporate bonds (with an investment grade rating of BBB) over the five years to mid-October 2022. The average spread over this period, which includes the spikes in spreads from the

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<sup>1</sup> The current latest value (August 2022) has fallen from 6.26% to 6.09%.

exceptional Covid-19 pandemic, was 1.56%. More recent values (at around 2%) are above this average, reflecting the current economic uncertainty that most countries are currently facing.

**Figure 1 Spread on US corporate bonds (BBB rated)**



Source: Ice Data Indices, LLC, ICE BofA BBB US Corporate Index Option-Adjusted Spread [BAMLC0A4CBBB], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/BAMLC0A4CBBB>, October 14, 2022.

### Equity beta

The TSO/MO stated that ERO did not analyze beta values for TSOs. This is incorrect. ERO conducted an analysis of the beta values of TSOs, as well as of DSOs, reported in the Consultation Paper. The analysis showed an equity beta set by regulators amongst comparable countries of 0.87 (compared to 0.88 for the DSOs). ERO proposed, given the relatively small difference, to set the TSO/MO beta at the higher value of 0.88.

The TSO/MO proposed an equity beta of 1, repeating the justification from its earlier proposal that it considers itself much riskier than the average firm (and that beta should be at least 1).

Beta is a measure of systematic risk (i.e. risk that cannot be diversified through an investor holding a portfolio of investments/assets), and shows how sensitive a particular company is to market movements. ERO considers some of the risk factors identified (e.g. worldwide inflation, material shortages, and supply chain issues) are not systematic risks that affect the TSO/MO uniquely, but risks that similarly affect the wider market, and do not therefore affect beta. Moreover, in setting the equity beta by reference to comparable jurisdictions, ERO consider that some of the other risks faced by the TSO/MO are similar to those faced by TSOs in those comparable countries and, therefore, reflected in the betas referenced. Finally, as the TSO/MO is subject to regulation, it enjoys protections that most typical firms do not benefit from (including inflation protection through index-linked revenues and certainty over recovery of past investments, through the RAB). ERO considers this provides for risk mitigation that the average firm, which is subject to competition, does not benefit from.

### Equity risk premium

The TSO/MO proposed an ERP of 5.5%, as it had in its initial proposal, based on “four credible recent studies by international organizations”. ERO is aware that there is a wide range of potential sources of ERPs and looked at these sources, amongst others. In its Consultation Report ERO chose to set the ERP consistent with its previous regulatory approach - by reference to the ERPs set by other European and regional regulators.

Arguably, the most definitive source of historical returns and risk premium is the DMS Database, analysis of which is published annually by Credit Suisse. Developed by Professor Elroy Dimson, Professor Paul Marsh, and Dr Mike Staunton (DMS), the database covers return across the main asset classes for 90 countries, with data for many markets covering up to 122 years (from 1900).

In the 2022 edition (Credit Suisse Global Investment Returns Yearbook 2022), the risk premium of US equities over bonds for the period 1900-2021 was 4.6%. As ERO noted in its Consultation Paper, relying on US data can be misleading as a result of success bias. For this reason, DMS also reports world returns excluding US, which over the same period of 1900-2021 were 2.8%. Both the US premium (at 4.6%) and the whole world (excluding US premium, at 2.6%) are notably below the value ERO had proposed based on regulatory precedent. In addition, it can be instructive to look at the Total Market Return (TMR), as the ERP is calculated as the TMR minus the risk-free rate. Adding the risk-free rate (3.65%) and the ERP (5.04% to 5.30%) proposed in the Consultation Paper results in a TMR in the range 8.69% to 8.95%. As a further point of comparison, DMS report the real return on US equities over the period 1900-2021 as 6.7%, and of the World excluding the US as 4.5%. Despite these references, ERO considers that its proposed ERPs (and resulting real TMR), set by reference to European and regional regulatory precedent are reasonable.

### 3.2 Summary of DSO’s comments

The DSO proposed a real, pre-tax WACC of 15.35%, approximately double ERO’s proposal of 7.52% to 7.84%. The DSO’s proposal is unchanged from its initial proposal which ERO reviewed ahead of its Consultation Paper of 13 September. The DSO has not addressed the inconsistencies that ERO highlighted in its Consultation Paper regarding the DSO’s WACC estimates.

The values for each parameter used by the DSO in its WACC estimate are shown in the following Table, alongside ERO’s initial values from its Consultation Paper for comparison.

**Table 3 Comparison of DSO’s revised WACC proposal and ERO’s initial proposal**

Parameter	ERO’s Initial Proposal	DSO Proposal
Real risk-free rate/reference rate	3.65%	1%(*)
Debt premium	1.72% to 2.12%	6.5%(*)
<b>Real cost of debt</b>	<b>5.37% to 5.74%</b>	<b>7,4%(**)</b>
Tax rate	10%	10%

Parameter	ERO's Initial Proposal	DSO Proposal
Real risk-free rate	3.65%	8.45%
Equity beta	0.88	1.00
ERP	5.04% to 5.30%	6,25%
Small company premium	n.a.	3.25%
<b>Cost of equity, real pre-tax</b>	<b>8.96% to 9.24%</b>	<b>19,94%</b>
Gearing	40%	36.63%
<b>WACC, real pre-tax</b>	<b>7.52% to 7.84%</b>	<b>15,35%</b>

Note: (\*) The DSO values reported against the risk-free rate are not directly comparable to ERO's. As described further below, the 1% is a "reference interest rate" (and does not include any implicit country risk premium). (\*\*) DSO values do not add up, which is assumed to be due to rounding.

The DSO did not agree with any of ERO's proposed values for the MYT3 WACC and stated that ERO's assessment of the WACC "*significantly endangers the financial stability of the company*". In its response the DSO provided no evidence or commentary as to the impact on the company's financial stability in support of this assertion.

The DSO discussed some of the parameters of the WACC, in each instance putting forward values that were higher than proposed by ERO. The components discussed below are:

- The cost of debt
- The cost of equity – comprising the risk-free rate, the equity beta, the ERP, and the DSO's proposal to include a small company premium

Gearing.

### 3.2.1 Cost of Debt

The DSO has retained a real cost of debt estimate of 7.4% from its initial proposal. This was based on a 1-year Euribor rate plus an uplift for a corporate spread of 6.5% for bonds rated BB-, B+ and B. This value appears to be based on a *nominal* Euribor rate, with no adjustment for inflation. The Pricing Rules require a real, not nominal, cost of debt and WACC. Assuming a forecast inflation rate of 2.7%<sup>2</sup>, for illustrative purposes, the nominal 7.4% cost of debt converts to a real cost of debt of 4.5% (using the Fisher equation). The precise basis of the spreads used to calculate the premium is unclear (e.g. are they spreads over the 1-year Euribor).

The DSO commented on a number of aspects of ERO's estimate of the cost of debt, which was based on average rates for investment loans with 5-year to 10-year maturities as published by CBK over the periods 2016-2022 (5.74%) and 2020-2022 (5.37%). First, the DSO noted that more recent data are available showing slightly higher values stating it is "*reasonable to account for the applicable interest rate as of the estimation date (July-22)*". The July 2022 value is 5.61% and the most recent value (August 2022) is 5.67%. For the reasons described in response to the TSO/MOs comments, ERO

<sup>2</sup> Based on the average forecast inflation (2023-27) for Kosovo in IMF WEO Database, October 2022.

prefers to refer to an average over a period of time. Second, the DSO expressed concern over the use of loans of 5-year to 10-year duration, noting that longer durations are more appropriate, reflecting the capital expenditure time horizon. ERO used the 5-year to 10-year loan values, as rates for the over ten years are sparsely reported. Based on the above argument given for TSO/MO and DSO, ERO in the final evaluation considers it appropriate that the cost of debt should be the upper threshold of the range 5.37%-5.74%, respectively 5.74%.

Finally, the DSO asked that the analysis include the expected impacts of the monetary policy of the World Central Banks. Future changes in interest rates are of relevance to the cost of any new debt being raised in the regulatory period, but not to the cost of existing debt. As an indication of potential future movements in interest rates, ERO has referred to the forward yield curve for 10-year (nominal) US Treasury bond yields.<sup>3</sup> This forward curve is shown in Table 4 – it represents the expected yield for a 10-year bond at certain times from now (e.g. 1 year hence, 2 years hence, etc.). The key feature of this curve is that it is very flat over the duration of the price control, suggesting that current yields represent a reasonable estimate of investors’ expectations for returns in 1-5 years’ time.

**Table 4 Forward curve of 10-year US Treasury bonds**

Bond tenor	0.5 year	1 year	2 year	3 year	4 year	5 year
10-year	3,96%	3,95%	3,94%	3,94%	4,00%	4.09%

Source: ERO analysis of US Treasury data (on 14 October 2022).

### Cost of equity

#### 3.2.2 Risk-free rate

In its initial proposal, the DSO proposed a Kosovo risk-free rate of 8.45%, comprising a risk-free rate of 1.22% (based on 20-year German Government bonds) and a Kosovo country risk premium of 7.23% (based on Damodaran, 2022). The DSO used this value to calculate the real WACC, although, whilst not made explicit by the DSO, this appears to have been a nominal risk-free rate, not a real risk-free, and therefore is overstated by inflation.<sup>4</sup>

The DSO restated this value of 8.45% in response to ERO’s Consultation Report and applied an addition in the latest estimation, putting the value at 7.9% to 8.0%. The approach, which is complicated and opaque, can be summarized as below

- Estimates of the risk-free rate to be applied in energy must be based on bonds of 20-years or more to match the underlying asset lives.

<sup>3</sup> US Treasury bonds are often referenced as a source for the risk-free rate and are used here given both the pivotal role of the US dollar in the global economy and the liquidity of markets in US Treasury bonds.

<sup>4</sup> Inferred from the values of the German bonds quoted.

- As Kosovo has issued no bonds of 20-years an estimate must be made for an implied 20-year Kosovan bond, taking the yield on the 10-year bonds as a starting point (4.4%).
- A compound annual growth in bond yields of 4.6% is applied to this starting (base) yield, based on average yields of bonds of European countries<sup>5</sup>, uplifted for additional risk associated with Kosovo.
- This results in an implied 20-year Kosovo government bond yield of 7.0%.
- The ratings based default spreads are then uplifted by a volatility factor (of 1.17) used by Damodaran and added back to the implied bond yields net of the default spread.
- The resulting implied 20-year Kosovo government bond yield is in the range 7.9% to 8.0%.
- A ratings based default spread of between 5.3% and 6.2% is deducted from this implied bond yield (giving values of 0.8% to 1.7%)

ERO recognizes that the DSO has not proposed using these resulting values and approach to set the real risk-free rate, but has a number of concerns:

- The values used in the calculation appear to be nominal not real (e.g. the chosen European bond yields) – for illustrative purposes, assuming forecast inflation of 2.7%<sup>6</sup>, the resulting 7.9% nominal risk-free rate converts to 5.0% real (using the Fisher equation).
- While Damodaran applies a Country Risk Premium and proposes a number of potential adjustments to it (such as the above volatility uplift), there is little academic support for these approaches.<sup>7</sup>
- The rules on revenues emphasize that on WACC the risk-free rate should be set “*using evidence on the cost of non-concessionary sovereign debt for Kosovo and/or, where this is unavailable or insufficient, the cost of non-concessionary sovereign debt for countries considered to have a similar credit status to Kosovo.*” The proposed approach is a significant step away from this approach (of using known data), instead relying on a subjective calculation with numerous assumptions to derive an implied estimate of Kosovo 20-year bond yields. In the Consultation Paper, ERO reported the real yields on a selection of countries in central and eastern Europe. Of these Hungary has the lowest credit rating and highest real yield (of 1.45% in April 2022) - ERO calculates the real yield in mid-October as 5.7%.<sup>8</sup>

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<sup>5</sup> Specifically, Germany, UK, Italy, France and Switzerland, who have longer maturity liquid bonds.

<sup>6</sup> Based on the average forecast inflation (2023-27) for Kosovo in IMF WEO Database, October 2022.

<sup>7</sup> See, for example, Kruschwitz, L., Loffler, A. and Mandl, G. *Damodaran’s Country Risk Premium: A Serious Critique*.

<sup>8</sup> This is based on an average inflation forecast of 4.92% (from 2023-2027) from the IMF and a yield of 10.86% on 10-year government bonds as at mid-October 2022.

### 3.2.3 Equity risk premium

The DSO proposed an ERP of 6.25% supported by evidence provided in its initial proposal. In its response to the Consultation Report it identified another information source, putting the ERP at 6.01% (Professor Damodaran's July 2022 estimate). In addition, the DSO identified concerns with the basis of ERO's proposed ERP (which relied on the averages of ERP's of other European regulators reported by CEER). Specifically, the DSO noted that its research had shown inconsistencies in how the ERP was calculated between jurisdictions (citing specific issues with the values for North Macedonia), and that there were differences both in the regulatory periods and when values were approved, with none reflecting actual economic conditions (which ERO interprets to mean none were set very recently in the current, challenging, economic conditions).

While some of the ERPs in the CEER dataset may have been set in the wake of the Covid-19 pandemic, and the associated economic and supply chain consequences, none will have been set reflecting the more recent issues, not least arising from energy and food supply changes. However, a key question is whether the ERP should be set on short term considerations or based on a longer-term view. Clearly, the ERP is not fixed. It can only be determined ex-post as the difference between a market return and risk-free rate. Given the recent rises in risk-free rates and the declining value of equities, realised equity premium are likely to currently be low and to remain low in the near to medium term. Such circumstances could be used to argue for setting a lower ERP in the short term. However, rather than second guess short term to medium term changes, there is merit in taking a view of the ERP over a longer-term horizon. In response to the TSO/MO's comments on the ERP above, ERO noted that the ERP it had proposed in its Consultation Paper was somewhat above the ERP based on US markets, and well above that for World markets (excluding the US) when taking a long-term perspective (122 years). Alongside this referencing and the review of the TMR (in relation to the long-term reviews of the TMR), ERO considers its proposed ERP (and resulting real TMR), set by reference to European and regional regulatory precedent is reasonable.

### 3.2.4 Equity beta

The DSO proposed an equity beta of 1, but provided no new evidence in support of this value. The DSO had previously presented a range for the unlevered beta. In its Consultation Paper ERO used data from the same source that the DSO used in setting the upper end of its range (CEER, 2022), but ERO's resulting equity beta estimate was 0.88.

### 3.2.5 Small company premium

The DSO proposed that due to its small size, it would have implied an addition of 3.25% to the cost of equity (a value it considered conservative – citing a value of 6.25% if it had considered the market capitalization criteria). The DSO also states that *“based on the best practice and methodology, it is commonly accepted that small companies tend to have higher return compared to large companies”*

ERO observes that is not common practice, let alone best practice, for regulators to include provision for a small company premium to the cost of equity. ERO's framework for setting the WACC (i.e. Schedule 4 of the Rule on Maximum Allowed Revenues of Distribution System Operator (Rule on DSO Revenues), 16 March 2017) does not include a small company premium. The DSO offers no evidence of any regulators including a small company premium to the cost of equity. The only jurisdiction in which ERO is aware of provision for a micro and small company premium is in Latvia. Whilst Latvia

and Kosovo have similar populations, Latvia is served by eleven DSOs and are, therefore, of much smaller size than the DSO.

### 3.2.6 Gearing

The DSO proposes gearing of 36.62% (the lower end of the range of 36.62% to 40% it presented in its initial proposal) and uses this value in calculating its WACC. The DSO states that the impact of applying 40% gearing is immaterial to the WACC. As the DSO consider this difference to be immaterial, ERO sees no reason to change the notional gearing from the 40% proposed in its Consultation Paper.

### The proposal for the Weighted Average Cost of Capital

Table 5 presents the proposal of ERO for MYT 3 WACC for TSO/MO and DSO

**Table 5 Proposed WACC for MYT 3 for TSO/MO (KOSTT) and DSO (KEDS)**

Parameter	MYT 3
Real risk-free rate	3.65%
Debt premium	2.09%
<b>Real cost of debt</b>	<b>5.74%</b>
Tax rate	10%
Beta equity	0.88
ERP	5.04%
<b>Cost of equity, real pre-tax</b>	<b>8.98%</b>
Leverage	40%
<b>WACC, real pre-tax</b>	<b>7.69%</b>

## Annex 1: Summary of stakeholder comments and ERO responses

Appendix 1	ERO response	Impact in initial proposal	
KOSTT	<p>Whilst using the same framework to calculate the WACC, the TSO/MO commented that virtually all input parameters are based on ‘soft’ data, rather than hard data specific to Kosovo and that <i>“In a regulatory environment, the cost of capital should be based on the cost of debt and cost of equity of the licensee”</i>. In determining and appropriate cost of capital for the Licensee, ERO considers it appropriate to use some data that is not necessarily specific to the Licensee, or even Kosovo. For example, neither the risk-free rate nor equity risk premium are Licensee specific.</p>	<p>In determining and appropriate cost of capital for the Licensee, ERO considers it appropriate to use some data that is not necessarily specific to the Licensee, or even Kosovo. For example, neither the risk-free rate nor equity risk premium are Licensee specific. More broadly, whilst there are a range of alternative ways to estimate the cost of equity, and the CAPM has limitations, it remains a widely used by regulators and provides an established framework within which the issues of risk and return can be debated and understood.</p>	<p>This comment has not changed ERO’s proposal on the WACC.</p>
KOSTT	<p>The TSO/MO also recommended that the details underlying future tariff decisions should be formally disclosed and documented, including in relation to the data, assumptions and calculations used in producing the WACC (e.g. by summarizing the WACC as in the above table).</p>	<p>ERO agrees and will continue to ensure the basis of its WACC determination are clear.</p>	<p>This comment has not changed ERO’s proposal on the WACC.</p>
KOSTT	<p>ERO determined the cost of debt based on a risk-free rate (3.65%) plus a debt premium (1.72% to 2.12%). The TSO/MO did not object to the value ERO proposed for the risk-free rate (whilst making several observations about it) but did recommend a higher debt premium of 2.8%. The TSO/MO considered this premium to be <i>“more in line with</i></p>	<p>In calculating the 2.61% debt premium, the TSO/MO relied on data from the Monthly Statistics Bulletin of CBK - the same source for the data ERO used to calculate the debt premium. In its calculation, the TSO/MO used the then latest available (July 2022) interest on loans of <i>all</i> maturities to industry.<sup>9</sup> The</p>	<p>This comment has not changed ERO’s proposal on the WACC.</p>

<sup>9</sup> The current latest value (August 2022) has fallen from 6.26% to 6.09%.

Appendix 1	ERO response	Impact in initial proposal	
<p><i>what a spread would be in Kosovo if there were a market for corporate debt.</i>”, noting it to be the same as used in MYT1 and below that used in MYT2 (3.5%). The TSO/MO supported this debt premium by reference to:</p>	<p>maturities of the loans, therefore, covered both short term loans (up to one year) and longer term. ERO considers it appropriate to consider the debt premium using loans of longer maturity periods where that data is available, given the relatively long life of the assets of the TSO/MO (ERO used loans with durations of between 5 and 10-years). Accordingly, ERO does not consider the TSO/MO’s inclusion of these shorter period loans in calculating the debt premium appropriate. In addition, ERO does not consider it appropriate to rely solely on the latest value both because there is greater potential for anomalies in relying on a single value and the cost of debt allowance (in part) reflects an allowance for the costs of debt incurred historically (accounted for by looking at values over a number of years).</p>		
<ul style="list-style-type: none"> <li>● An implied debt premium of 2.61% based on the difference between current interest rates on new loans to industry (6.26%) published in the July 2022 Monthly Statistics Bulletin of CBK and ERO’s proposed risk-free rate (3.65%), and</li> <li>● The current spreads on high-quality US corporate bonds over US Treasury bonds being 2% (for 10-years bonds) and 2.7% (for 20-year bonds).</li> </ul>			
KOSTT	<p>Regarding the spreads on high quality US bonds, the TSO/MO observes <i>“It is obvious that spreads in Kosovo would be higher than those.”</i></p>	<p>ERO agrees but also notes that the TSO/MO has again relied on current values, rather than averages over a period of time. Figure 1 shows the spread on an index of US corporate bonds (with an investment grade rating of BBB) over the five years to mid-October 2022. The average spread over this period, which includes the spikes in spreads from the exceptional Covid-19 pandemic, was 1.56%. More recent values (at around 2%) are above this average, reflecting the current economic uncertainty that most countries are currently facing.</p>	<p>This comment has not changed ERO’s proposal on the WACC.</p>

Appendix 1		ERO response	Impact in initial proposal
KOSTT	The TSO/MO stated that ERO did not analyze beta values for TSOs.	This is incorrect. ERO conducted an analysis of the beta values of TSOs, as well as of DSOs, reported in the Consultation Paper. The analysis showed an equity beta set by regulators amongst comparable countries of 0.87 (compared to 0.88 for the DSOs). ERO decided, given the relatively small difference, to set the TSO/MO beta at the higher value of 0.88.	This comment has not changed ERO's proposal on the WACC.
KOSTT	The TSO/MO proposed an equity beta of 1, repeating the justification from its initial proposal that it considers itself much riskier than the average firm (and that beta should be at least 1).	Beta is a measure of systematic risk (i.e. risk that cannot be diversified through an investor holding a portfolio of investments/assets), and shows how sensitive a particular company is to market movements. ERO considers some of the risk factors identified (e.g. worldwide inflation, material shortages, and supply chain issues) are not systematic risks that affect the TSO/MO uniquely, but risks that similarly affect the wider market, and do not therefore affect beta. Moreover, in setting the equity beta by reference to comparable jurisdictions, ERO consider that some of the other risks faced by the TSO/MO are similar to those faced by TSOs in those comparable countries and, therefore, reflected in the betas referenced. Finally, as the TSO/MO is subject to regulation, it enjoys protections that most typical firms do not benefit from (including inflation protection through index-linked revenues and certainty over recovery of past investments, through the RAB). ERO considers this provides for risk	This comment has not changed ERO's proposal on the WACC.

Appendix 1	ERO response	Impact in initial proposal
KOSTT	The TSO/MO proposed an ERP of 5.5%, as it had in its initial submission, informed by <i>“four credible recent studies by international organizations”</i> .	This comment has not changed ERO’s proposal on the WACC.
	mitigation that the average firm, which is subject to competition, does not benefit from.	
	<p>ERO is aware that there are a wide range of potential sources of ERPs and looked at these sources, amongst others. In its Consultation Paper ERO chose to set the ERP consistent with its previous regulatory approach - by reference to the ERPs set by other European regulators. Arguably, the most definitive source of historical returns and risk premium is the DMS Database, analysis of which is published annually by Credit Suisse. Developed by Professor Elroy Dimson, Professor Paul Marsh, and Dr Mike Staunton (DMS), the database covers return across the main asset classes for 90 countries, with data for many markets covering up to 122 years (from 1900). In the 2022 edition (Credit Suisse Global Investment Returns Yearbook 2022), the risk premium of US equities over bonds for the period 1900-2021 was 4.6%. As ERO noted in its Consultation Paper, relying on US data can be misleading as a result of success bias. For this reason, DMS also report world returns excluding US, which over the same period of 1900-2021 were 2.8%. Both the US premium (at 4.6%) and the world (excluding US premium, at 2.6%) are notably below the value ERO had proposed based on regulatory precedent. In addition, it can be instructive to look at the Total Market Return (TMR), as the ERP is</p>	

Appendix 1	ERO response	Impact in initial proposal	
		<p>calculated as the TMR minus the risk-free rate. Adding the risk-free rate (3.65%) and the ERP (5.04% to 5.30%) proposed in the Consultation Paper results in a TMR in the range 8.69% to 8.95%. As a further point of comparison, DMS report the real return on US equities over the period 1900-2021 as 6.7%, and of the World excluding the US as 4.5%. Despite these references, ERO considers that its proposed ERPs (and resulting real TMR), set by reference to European and regional regulatory precedent are justifiable.</p>	
KEDS	<p>The DSO did not agree with any of ERO’s proposed values for the MYT3 WACC and stated that ERO’s assessment of the WACC “<i>significantly endangers the financial stability of the company</i>”.</p>	<p>In its response the DSO provided no evidence or commentary as to the impact on the company’s financial stability in support of this assertion.</p>	<p>This comment has not changed ERO’s proposal on the WACC.</p>
KEDS	<p>The DSO has retained a real cost of debt estimate of 7.4% from its initial submission. This was based on a 1-year Euribor rate plus an uplift for a corporate spread of 6.5% for bonds rated BB-, B+ and B. This value appears to be based on a <i>nominal</i> Euribor rate, with no adjustment for inflation.</p>	<p>The Pricing Rules require a real, not nominal, cost of debt and WACC. Assuming a forecast inflation rate of 2.7%<sup>10</sup>, for illustrative purposes, the nominal 7.4% cost of debt converts to a real cost of debt of 4.5% (using the Fisher equation). The precise basis of the spreads used to calculate the premium is unclear (e.g. are they spreads over the 1-year Euribor).</p>	<p>This comment has not changed ERO’s proposal on the WACC.</p>
KEDS	<p>The DSO commented on a number of aspects of ERO’s estimate of the cost of debt, which was based on average rates for investment loans with 5-year to 10-year maturities as published by CBK over the</p>	<p>For the reasons described in response to the TSO/MOs comments, ERO prefers to refer to an average over a period of time. Second, the DSO expressed concern over the use of loans of 5-</p>	<p>This comment has not changed ERO’s proposal on the WACC.</p>

<sup>10</sup> Based on the average forecast inflation (2023-27) for Kosovo in IMF WEO Database, October 2022.

Appendix 1	ERO response	Impact in initial proposal	
	<p>periods 2016-2022 (5.74%) and 2020-2022 (5.37%). First, the DSO noted that more recent data are available showing slightly higher values stating it is “reasonable to account for the applicable interest rate as of the estimation date (July-22)”. The July 2022 value is 5.61% and the most recent value (August 2022) is 5.67%.</p>	<p>year to 10-year duration, noting that longer durations are more appropriate, reflecting the capital expenditure time horizon. ERO used the 5-year to 10-year loan values, as rates for the over ten years are sparsely reported.</p>	
KEDS	<p>The DSO asked that the analysis include the expected impacts of the monetary policy of the World Central Banks.</p>	<p>Future changes in interest rates are of relevance to the cost of any new debt being raised in the regulatory period, but not to the cost of existing debt. As an indication of potential future movements in interest rates, ERO has referred to the forward yield curve for 10-year (nominal) US Treasury bond yields.<sup>11</sup> This forward curve is shown in Table 4 – it represents the expected yield for a 10-year bond at certain times from now (e.g. 1 year hence, 2 years hence, etc.). The key feature of this curve is that it is very flat over the duration of the price control, suggesting that current yields represent a reasonable estimate of investors’ expectations for returns in 1-5 years’ time.</p>	<p>This comment has not changed ERO’s proposal on the WACC.</p>
KEDS	<p>In its initial proposal, the DSO proposed a Kosovo risk-free rate of 8.45%, comprising a risk-free rate of 1.22% (based on 20-year German Government bonds) and a Kosovo country risk premium of 7.23%</p>	<p>ERO recognizes that the DSO has not proposed using these resulting values and approach to set the real risk-free rate, but has a number of concerns:</p>	<p>This comment has not changed ERO’s proposal on the WACC.</p>

<sup>11</sup> US Treasury bonds are often referenced as a source for the risk-free rate and are used here given both the pivotal role of the US dollar in the global economy and the liquidity of markets in US Treasury bonds.

(based on Damodaran, 2022). The DSO used this value to calculate the real WACC, although, whilst not made explicit by the DSO, this appears to have been a nominal risk-free rate, not a real risk-free, and therefore is overstated by inflation.<sup>12</sup>

The DSO restated this value of 8.45% in response to ERO's Consultation Paper and adopted an additional estimation approach putting the value at 7.9% to 8.0%. The approach, which is involved and opaque, can be summarized as follow:

- Estimates of the risk-free rate to be applied in energy must be based on bonds of 20-years or more to match the underlying asset lives
- As Kosovo has issued no bonds of 20-years an estimate must be made for an implied 20-year Kosovan bond, taking the yield on the 10-year bonds as a starting point (4.4%)
- A compound annual growth in bond yields of 4.6% is applied to this starting yield, based on average yields of bonds of

- The values used in the calculation appear to be nominal not real (e.g. the chosen European bond yields) – for illustrative purposes, assuming forecast inflation of 2.7%<sup>15</sup>, the resulting 7.9% nominal risk-free rate converts to 5.0% real (using the Fisher equation).
- While Damodaran applies a Country Risk Premium and proposes a number of potential adjustments to it (such as the above volatility uplift), there is little academic support for these approaches.<sup>16</sup>
- The pricing rules on WACC are that the risk-free rate should be set *“using evidence on the cost of non-concessionary sovereign debt for Kosovo and/or, where this is unavailable or insufficient, the cost of non-concessionary sovereign debt for countries considered to have a similar*

<sup>12</sup> Inferred from the values of the German bonds quoted.

<sup>15</sup> Based on the average forecast inflation (2023-27) for Kosovo in IMF WEO Database, October 2022.

<sup>16</sup> See, for example, Kruschwitz, L., Loffler, A. and Mandl, G. *Damodaran's Country Risk Premium: A Serious Critique*.

Appendix 1	ERO response	Impact in initial proposal	
<p>European countries<sup>13</sup>, uplifted for additional risk associated with Kosovo</p> <ul style="list-style-type: none"> <li>• This results in an implied 20-year Kosovo government bond yield of 7.0%</li> <li>• A ratings based default spread of between 5.3% and 6.2%<sup>14</sup> is deducted from this implied bond yield (giving values of 0.8% to 1.7%)</li> <li>• The ratings based default spreads are then uplifted by a volatility factor (of 1.17) used by Damodaran and added back to the implied bond yields net of the default spread</li> <li>• The resulting implied 20-year Kosovo government bond yield is in the range 7.9% to 8.0%</li> </ul>	<p><i>credit status to Kosovo.”</i> The proposed approach is a significant step away from this approach (of using known data), instead relying on a subjective calculation with numerous assumptions to derive an implied estimate of Kosovo 20-year bond yields. In the Consultation Paper, ERO reported the real yields on a selection of countries in central and eastern Europe. Of these Hungary has the lowest credit rating and highest real yield (of 1.45% in April 2022) - ERO calculates the real yield in mid-October as 5.7%.<sup>17</sup></p>		
KEDS	<p>The DSO proposed an ERP of 6.25% supported by evidence provided in its initial proposal. In its response to the Consultation Paper it identified</p>	<p>While some of the ERPs in the CEER dataset may have been set in the wake of the Covid-19 pandemic, and the associated economic and</p>	<p>This comment has not changed ERO’s</p>

<sup>13</sup> Specifically, Germany, UK, Italy, France and Switzerland, who have longer maturity liquid bonds.

<sup>14</sup> Values are taken from Damodaran, 2022, and are variously based on averages for Albania, B&H, North Macedonia, Montenegro, and Serbia.

<sup>17</sup> This is based on an average inflation forecast of 4.92% (from 2023-2027) from the IMF and a yield of 10.86% on 10-year government bonds as at mid-October 2022.

Appendix 1	ERO response	Impact in initial proposal
<p>another information source, putting the ERP at 6.01% (Professor Damodaran’s July 2022 estimate). In addition, the DSO identified concerns with the basis of ERO’s proposed ERP (which relied on the averages of ERP’s of other European regulators reported by CEER). Specifically, the DSO noted that its research had shown inconsistencies in how the ERP was calculated between jurisdictions (citing specific issues with the values for North Macedonia), and that there were differences both in the regulatory periods and when values were approved, with none reflecting actual economic conditions (which ERO interprets to mean none were set very recently in the current, challenging, economic conditions).</p>	<p>supply chain consequences, none will have been set reflecting the more recent issues, not least arising from energy and food supply changes. However, a key question is whether the ERP should be set on short term considerations or based on a longer-term view. Clearly, the ERP is not fixed. It can only be determined ex-post as the difference between a market return and risk-free rate. Given the recent rises in risk-free rates and the declining value of equities, realized equity premium are likely to currently be low and to remain low in the near to medium term. Such circumstances could be used to argue for setting a lower ERP in the short term. However, rather than second guess short to near term changes, there is merit in taking a view of the ERP over a longer-term horizon. In response to the TSO/MO's comments on the ERP above, ERO noted that the ERP it had proposed in its Consultation Paper was somewhat above the ERP based on US markets, and well above that for World markets (excluding the US) when taking a long-term perspective (122 years). Despite this, alongside consideration of the TMR (its proposals implied relative to long-term TMRs), ERO considers that its proposed ERP (and resulting real TMR), set by reference to European and regional regulatory precedent is reasonable.</p>	<p>proposal on the WACC.</p>

Appendix 1		ERO response	Impact in initial proposal
KEDS	The DSO proposed an equity beta of 1, but provided no new evidence in support of this value. The DSO had previously presented a range for the unlevered beta.	In its Consultation Paper ERO used data from the same source that the DSO used in setting the upper end of its range (CEER, 2022), but ERO's resulting equity beta estimate was 0.88.	This comment has not changed ERO's proposal on the WACC.
KEDS	The DSO proposed that its small size warrants an addition of 3.25% to the cost of equity (a value it considered conservative – citing a value of 6.25% if it had considered the market capitalization criteria). The DSO also states that <i>“based on the best practice and methodology, it is commonly accepted that small companies tend to have higher return compared to large companies”</i>	ERO observes that is not common practice, let alone best practice, for regulators to include provision for a small company premium to the cost of equity. ERO's framework for setting the WACC (i.e. Schedule 4 of the Rule on Maximum Allowed Revenues of Distribution System Operator (Rule on DSO Revenues), 16 March 2017) does not include a small company premium. The DSO offers no evidence of any regulators including a small company premium to the cost of equity. The only jurisdiction in which ERO is aware of provision for a micro and small company premium is in Latvia. Whilst Latvia and Kosovo have similar populations, Latvia is served by eleven DSOs and are, therefore, of much smaller size than the DSO.	This comment has not changed ERO's proposal on the WACC.
KEDS	The DSO proposes gearing of 36.62% (the lower end of the range of 36.62% to 40% it presented in its initial proposal) and uses this value in calculating its WACC. The DSO states that the impact of applying 40% gearing is immaterial to the WACC.	As the DSO consider this difference to be immaterial, ERO sees no reason to change the notional gearing from the 40% proposed in its Consultation Paper.	This comment has not changed ERO's proposal on the WACC.