Republika e Kosovës
Republika Kosova - Republic of Kosovo

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

Consultation Report

Third Periodic Review of input values for TSO/MO and DSO (2023 – 2027)

Weighted Average Cost of Capital

STATEMENT

This Consultative Report has been prepared by ERO in order to inform stakeholders in the energy sector. The report does not represent any decision of ERO and should not be interpreted as such.

13 September 2022

Address: St. Bekim Fehmiu (Former Fazita Building), 2nd floor, 10000 Pristina, Kosovo
Tel: 038 247 615 ext. 101, Fax: 038 247 620, E-mail: info@ero-ks.org, web: www.ero-ks.org

Table of Contents

1 Introduction 3

2 Summary of WACC determination under MYT2 3

3 Overview of DSO and TSO/MO's WACC proposals 5

3.1 Evaluations on TSO/MO's proposal 7

3.2 Evaluations on DSO's proposal 7

4 ERO's WACC Proposal for MYT3 8

4.1 Cost of Debt 8

4.1.1 Risk-free rate 9

4.1.3 Debt premium 11

4.2 Cost of equity 12

4.2.1 Equity beta 12

4.2.2 Market Risk Premium 14

4.3 Gearing 15

4.4 Proposal for the Weighted Average Cost of Capital 16

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 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 and DSO, the subject of this document.

The remainder of this note:

- Outlines the WACC ERO set for MYT2;
- Summarises TSO/MO's and DSO's WACC proposals for MYT3, and
- Proposes values for each parameter of the WACC calculation and a resulting indicative WACC.

An appendix outlines the requirements of the rules on maximum allowed revenues with regard to the WACC.

Any comments on this consultation report should be submitted electronically via email at: ero.pricing-tariffs@ero-ks.org or submitted in hard copy at the following address:

Energy Regulatory Office – Pricing and Tariffs Department

Street: Bekim Fehmiu (Former Fazita Building), floor: 2, Pristina, 1000, Kosovo

Any comments from interested parties must be submitted by 28 September 2022 at the latest.

ERO reserves the right to publish any comment received in whole or in part, unless it is identified as confidential.

2 Summary of WACC determination under MYT2

The Weighted Average Cost of Capital of a company is the average cost of funds, which is calculated on the cost of capital currently used, as well as financial decisions made in previous periods. To select an average cost, the various sources of financing must be weighted according to the amount of each financing held by the company. These weightings for financing sources can be: according to book value or market values that represent the actual opportunity cost of financing.

One of the three main "building blocks" under ERO's methodology for determining the Maximum Allowed Revenues (MAR) is an allowed return, which is calculated as the product of the WACC and Regulatory Asset Base (RAB). The basic formula for WACC used by ERO is as follows:

$$WACC = (1 - g) * (r_E) / (1 - t) + g * (r_D)$$

where:

WACC Weighted Average Cost of Capital

g	Gearing = debt / (debt + equity)
r_E	Real cost of equity (expressed as a %)
r_D	Real cost debt (expressed as a %)
t	Kosovo corporate income tax rate

The cost of debt is estimated as the sum of a risk-free rate (cost of government debt) plus a company-specific debt risk premium. The cost of equity is estimated using the traditional Capital Asset Pricing Model (CAPM). Accordingly, the cost of pre-tax equity is calculated as:

$$r_{Ei} = r_f + \beta_i * ERP_m$$

where:

r_f	risk-free rate
ERP_m	equity risk premium applicable to the market as a whole
β_i	covariance between the returns on the individual equity asset and those of the market as a whole (the equity beta).

By decision of 20 August 2018, ERO set a real WACC of 8.3% for TSO/MO and DSO for MYT2. This compared to a real, pre-tax WACC of 12% in the previous regulatory period. The reasoning in the Decision noted the reduction was "*due to the change of many determinants of WACC in recent years, such as: financial and economic stability, improvement of the environment of doing business in Kosovo, the significant decrease in interest rates on investment loans, improved access to finance etc.*"

Table 1 summarizes ERO's evaluation of the WACC for the current (second) regulatory period. The approach to the determination of these parameters is further considered below, in developing proposals for MYT3.

Table 1 Approved values of WACC for MYT2 for TSO/MO and DSO

Parameter	Value
Real risk-free rate	3.7%
Debt premium	3.5%
Real cost of debt	**7.2%**
Tax rate	10%
Equity beta	1.00
ERP- Equity risk premium	4.5%
Cost of equity, real pre-tax	**9.1%**
Gearing	40%
WACC, real pre-tax	**8.3%**

Source: ERO.

3 Overview of DSO' and TSO/MO's WACC proposals

Both TSO/MO and DSO have submitted to ERO their proposals for the WACC for MYT3.

Table 2 below shows TSO/MO's and DSO's proposals for each of the WACC parameters, a summary of the basis of their proposed values and the resulting real, pre-tax WACCs.

Table 2 Summary of TSO/MO and DSO WACC proposals

	TSO/MO		DSO	
	Value	**Comments**	**Value**	**Comments**
Real risk-free rate	-	Based on the current yield of a 10-yr Hungarian government bond (8.76%) converted to real terms using the current HICP rate of 8.6% (and rounded to zero).	8.45%	Sum of regulated CRP (Premium of the risk of state) (7.23% - Based on Damodaran's rating based spreads for Albania, Montenegro, and Bosnia & Herzegovina) and yield on German risk 20-year bond as of 11 July 2022 (1.48%), adjusted for CDS (0.26%).
Debt premium	2.80%	Retained debt premium from MYT1	n.a	
Real cost of debt	2.80%	Sum of risk-free rate and debt premium	7.40%	The sum of a reference rate (1% - the 1-yr Euribor value as of 11 July) and a premium (6.5% - a rating-based spread for neighbouring countries).
Tax rate	10.00%		10.00%	
Equity beta	1.00	Based on TSO/MO being as risky as the "average" firm - whilst also noting that a value of greater than one can be argued for.	1.00	Based (approximately) on the average unlevered beta for Albania, North Macedonia, Montenegro and Slovakia (from CEER – Council of European Energy Regulators) of 0.62, converted to an equity beta using Kosovo's 10% tax rate and an assumed 40% gearing.
ERP	5.50%	5.5% proposed as a minimum value, with evidence cited showing a range of 5.5% to 7.4% (latter for Eastern Europe)	6.25%	A value based on the "*latest Deloitte advisory consensus (30 June 2022)*", which is derived from a TMR of 9.65%-10.32% minus a risk-free rate (of 3.38% based on 20-year Treasury bond) to derive an implied MRP in the range 6.27%-6.94%.
Small company risk premium			3.25%	An uplift to the cost of equity based on data from US for the "*additional risk inherited in the returns of small company stocks*", according to *"Deloitte methodology"*.
Cost of equity, real pre-tax	**6.11%**		**19.94%**	
Gearing	40.00%	TSO/MO agrees with ERO's previous assessment to use the lower end of a previously estimated range of 40% to 70%, as both DSO and TSO/MO gearing is below this level.	36.62%	Proposed a range from a minimum 36.63% (based on average of selected electricity distribution companies from Turkey, Spain, UK, Poland, Austria, Portugal, Italy) to 40% (average of gearing from CEER 2021 report of Albania, North Macedonia, Montenegro, and Slovakia).
WACC, real pre-tax	**4.79%**		**15.35%**	

Source: TSO/MO and DSO WACC proposals.

3.1 Evaluations on TSO/MO's proposal

At 4.8%, TSO/MO's proposed real pre-tax WACC for MYT3 is notably below the 8.3% of MYT2. In its proposal for WACC, TSO emphasizes that "*ERO adds the inflation rate to the WACC to have a nominal rate to apply to the Regulatory Asset Base - RAB to calculate the Allowed Return on Capital, which must be in nominal terms*" (pg. 1). At the prevailing HICP rate of 8.6%, TSO calculates the nominal pre-tax WACC as 13.4%.

ERO agrees that inflation needs to be accounted for in the return on capital but, for the avoidance of doubt, a real WACC is used in the calculation of the allowed return. RAB is adjusted for the actual inflation of each year of the regulatory period which is then multiplied by the real WACC to calculate the return cost of each relevant tariff year (RTNC - paragraph 2.3, Appendix 1, Rule on TSO/MO Revenues).

The main reason for the lower real WACC proposed by TSO/MO (compared to MYT2) is the risk-free rate. TSO/MO estimated the risk-free rate using the current yield on a 10-year Hungarian Government bond (8.76%) converted into real terms using the current HICP inflation rate (8.6%) and rounding the result to zero (compared to 3.7% at MYT2). ERO had referenced the use of a Hungarian bond in MYT2, as the highest level of the risk-free rate, but relied on rates for 7 and 10-year Kosovo government bonds.

ERO also notes that TSO/MO has included a debt premium of 2.8% in its proposal. This is the value used in MYT1 and lower than the value of 3.5% which was part of ERO's decisions for MYT2. This, combined with the lower risk free-rate, has resulted in TSO/MO's proposal for the real cost of debt in MYT3 being 2.8%, compared to 7.2% set by ERO for MYT2.

The risk-free rate also affects the cost of equity (via the above CAPM formula). TSO/MO proposes an equity beta of 1, consistent with ERO's value for MYT2 (and MYT1) but also proposes a slight increase in the equity risk premium ERP (to 5.5% from 4.5%, whilst noting that a higher value could be justified). The net effect is a proposed real cost of equity of 6.11% for MYT3 compared to the 9.11% set for MYT2.

3.2 Evaluations on DSO's proposal

At 15.35%, DSO's proposed real pre-tax WACC for MYT3 is almost twice the MYT2 value (of 8.3%) and over three times that of TSO/MO's proposal for MYT3 (4.8%). Aside from retaining an equity beta of 1 (in the calculation of the cost of equity), all DSO's proposed parameters are higher than at MYT2 and it has proposed an additional parameter is introduced to the calculation of the CAPM cost of equity.

The DSO proposal, in some parameters, has ambiguity or inconsistency in their use:

- DSO's cost of equity proposal includes a premium of small companies, which is a proposed addition to the CAPM, included with little explanation as to its justification on why it represents a systematic risk that can't be diversified. The premiums of small companies are included in cases where only the interest rates of loans of non-comparable companies are taken as a reference in determining the cost of debt, a case which is not relevant for DSO.

- DSO has proposed an equity beta of 1, consistent with ERO's value for MYT2. DSO proposed a minimum unlevered beta is 0.56 and a maximum of 0.62. At its proposed

gearing of 36.62%, this is equivalent to an asset beta of 0.85 to 0.94. An unlevered beta of 0.62 (DSO's maximum), requires a gearing of 40%. However, DSO's proposal for Equity Beta does not match the arithmetic results elaborated in DSO's proposal.

- There are apparent internal inconsistencies in the proposals:
  - DSO appears to use different risk-free rates in the calculation of the ERP and in calculating the cost of equity.
  - Setting aside the appropriateness of the approach, two different rating-based spreads are used for Kosovo – 7.23% in the calculation of the risk-free rate and 6.5% in the determination of the cost of debt.
  - As noted above, a gearing of 40% appears to have been used to re-lever the asset beta, but a gearing of 36% through the debt is proposed for weighting the costs of debt and equity. However, in the end the proposal for Beta is not based on any of the levels of the financing report, but 1 is taken.

4 ERO's WACC Proposal for MYT3

4.1 Cost of Debt

ERO has previously stated its intention to set the cost of debt by reference to TSO/MO's and DSO's actual cost of debt where it can be assured that these loans are carried out efficiently and represent the commercial cost of lending. In its WACC consultation for MYT2, ERO noted that TSO/MO's loans are below market rates[1] and that DSO had a single loan agreement, which is a very small sample on which to base an allowance for the cost of debt. Therefore, rather than use actual debt costs, ERO determined an allowance for the cost of debt as a risk-free rate plus a debt risk premium.

In its WACC proposal for MYT3, TSO/MO provided a calculation of its weighted average cost of debt of 3% in nominal terms, which (at the then prevailing HICP inflation rate of 8.6%) converts to a negative real cost of debt of -5.6%. We understand these are all concessionary loans, which are not necessarily representative of market rates and that TSO/MO cannot guarantee to ensure such interest rates in MYT3. While in the case of DSO, the level of the financing of investments through loans is significantly below 40% and there is still no credit agreement for financing the investment plan for MYT2.

Taking the above into account, ERO proposes to continue to calculate the cost of debt in MYT3 as an evaluated risk-free rate plus a debt premium.

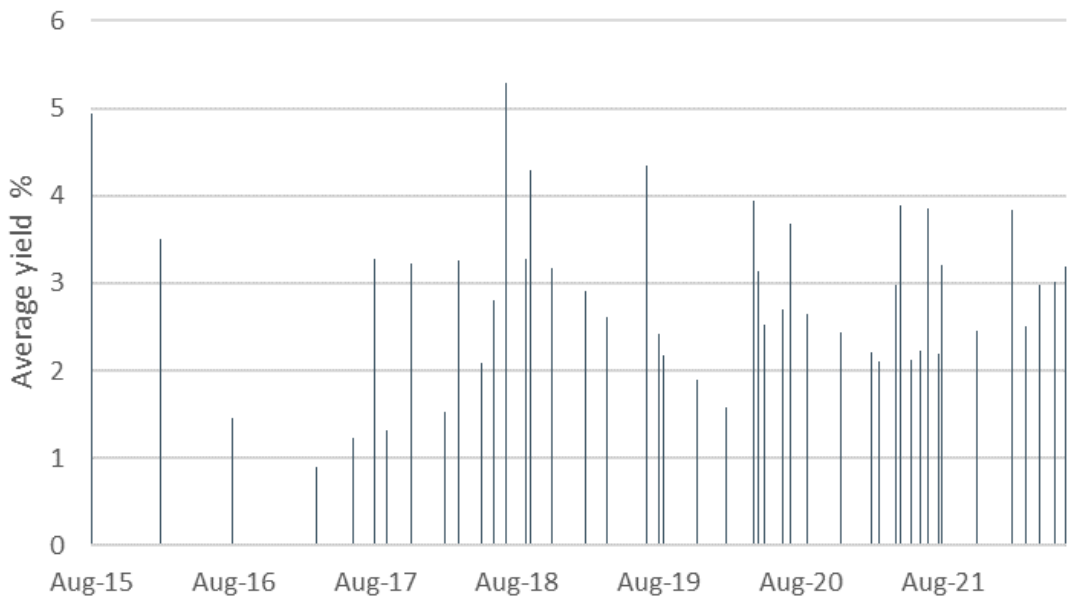
[1] "*the cost of these loans cannot be considered to represent the actual cost of TSO/MO for commercial debt*." (Pg. 10, consultation document).

4.1.1 Risk-free rate

The risk-free rate (rf) represents one of the components of the cost of debt, which is taken as a reference based on the data of the issuance of securities by the Government of the Republic of Kosovo, or if they are not available, the countries that have the same creditor status as Kosovo can be taken as a reference.

In MYT2 ERO set a real risk-free rate of 3.7% by reference to average income for 7- and 10-year Kosovo government bonds that were available at that time. Kosovo has issued numerous securities in recent years with maturities of 5-years and over. The income from issuances of these securities since August 2015 are shown in Figure 1.

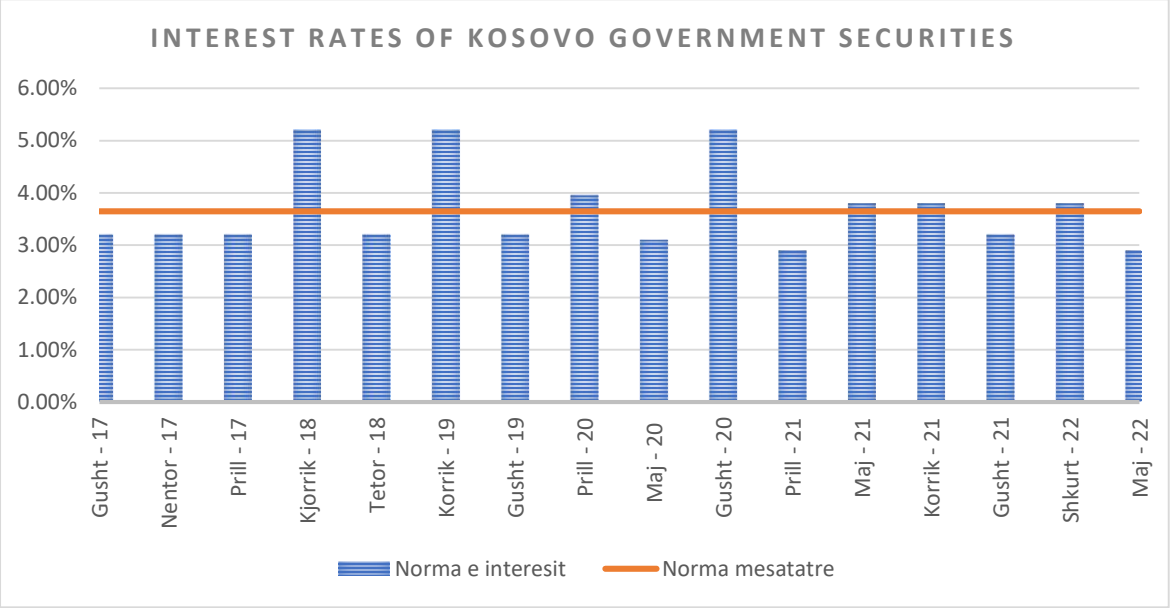
Figure 1 Income from Kosovo government securities (5+ years)



Source: Ministry of Finance

Since 2020, the (nominal) weighted yield on securities of 7- and 10-years has averaged 3.5%. Converting these to real terms, as described above, results in a real risk-free rate for Kosovo of 1.65%. These data are presented in Figure 2, which also shows the prevailing inflation rate in the month of the auction.

Figure 2 Kosovo government securities (7 and 10 years) since 2017



Source: ERO calculations from Ministry of Finance, IMF World Economic Outlook, and Kosovo Agency of Statistics data

From the data according to the figure above, it can be seen that the average interest rate for securities of the Government of the Republic of Kosovo is 3.65%, which the Regulator has taken as a reference of the risk-free rate in MYT3.

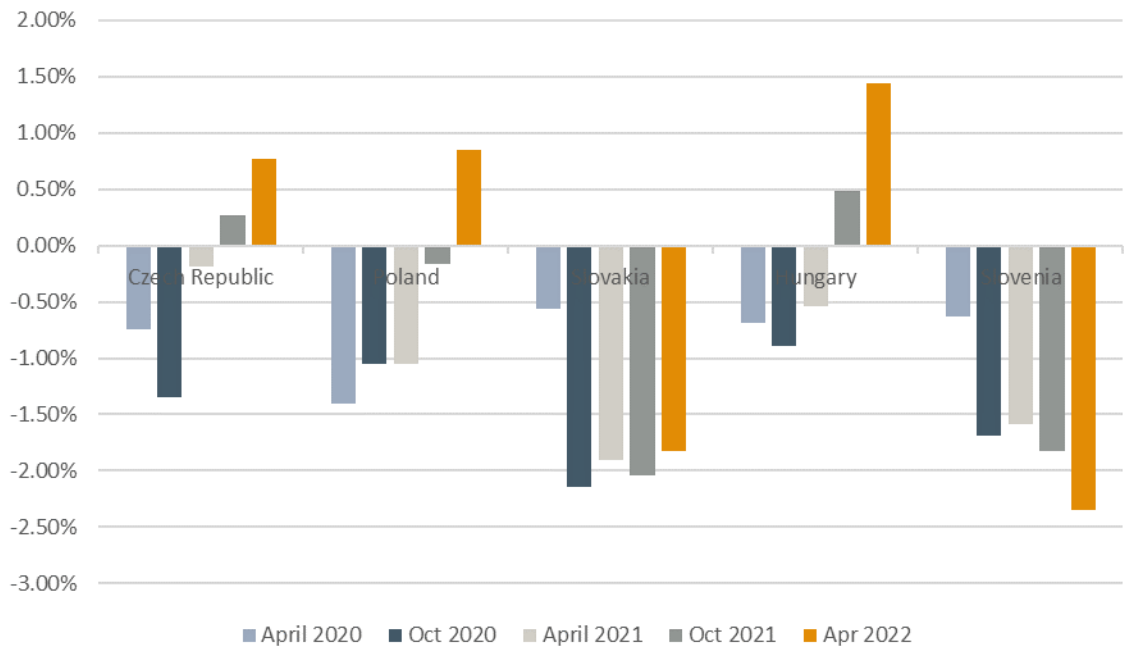
ERO notes that:

- Nominal yields on Kosovo government securities change little from year to year, despite rising inflation expectations from 2021. This leads to a declining real yield over time.
- Average real yields over the period are approximate to those estimated for MYT2 using pre-2018 data.

Figure 3, below, shows real yields[2] on 10-year government bonds for a number of central and eastern European countries for selected dates. These show a mixed experience across countries, with real yields in Slovakia and Slovenia being negative, but those in the Czech Republic, Poland and Hungary returning to positive values.

[2] The real values are converted from nominal terms using the same approach described for Kosovo (i.e. using the latest IMF inflation forecast available at the relevant date).

Figure 3 10-year bond yields for selected CEE countries, real terms



Source: ERO calculations from FRED and IMF World Economic Outlook data

ERO recognizes that, in the long-term, real yields cannot be expected to remain negative. Some of the above countries have already returned to positive real yields. Also, yields for emerging markets may also increase as global economic uncertainty rises, leading to growing risk perceptions and a 'flight to quality' among investors. **Given this, ERO proposes to keep as a reference the average rate of the Kosovo Government securities for MYT3 of 3.65%.**

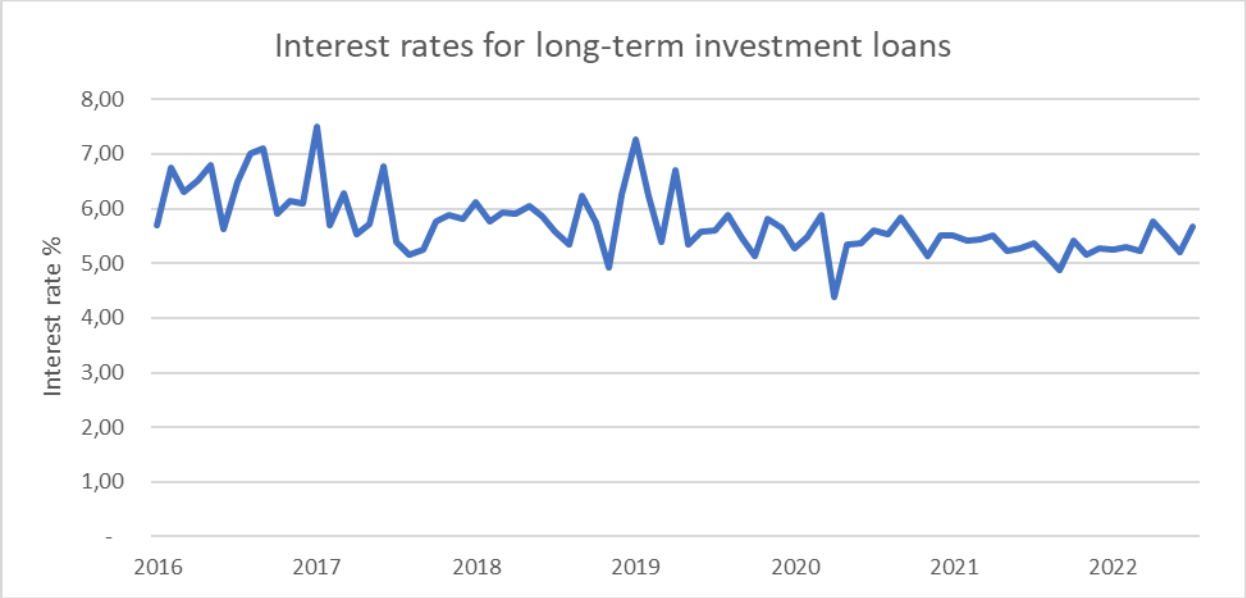
4.1.2 Debt premium

The debt risk premium is an additional rate above the risk-free rate, therefore constituting the cost of debt. For the determination of the debt premium, ERO has taken as a basis the average interest rates of the period 2016-2022, for investment loans with a maturity of 5-10 years. Given that the global economy, in recent years, has been characterized by several shocks, which in particular have affected the energy and financial sectors, ERO has analysed the debt premium for certain years, taking as a reference of the low range the year 2020-2022, as well as the high range for the years 2016-2022.

From the data of CBK on lending rates in Kosovo, it can be seen that during the years 2020-2022, the investment loans with a duration of 5 to 10 years (which ERO considers the most appropriate lengths of loan) have averaged 5.37% whereas in the period 2016-2022 were 5.74% (see Figure 4). Deducting the average interest rate for investment loans for the period 2020-2022 from the risk-free rate of 3.67 (for 7-year and 10-year securities), results in a real debt premium of 1.72%, which ERO proposes to use it as the lower end of range for the debt premium. For the highest end of the range, ERO proposes to keep as a

reference the relevant loan rates for the period 2016-2022, from the difference of which the debt premium of 2.12% results.

Figure 4 Effective interest rates on investment loans of 5 to 10 years



Source: Central Bank of Kosovo

4.2 Cost of equity

4.2.1 Equity beta

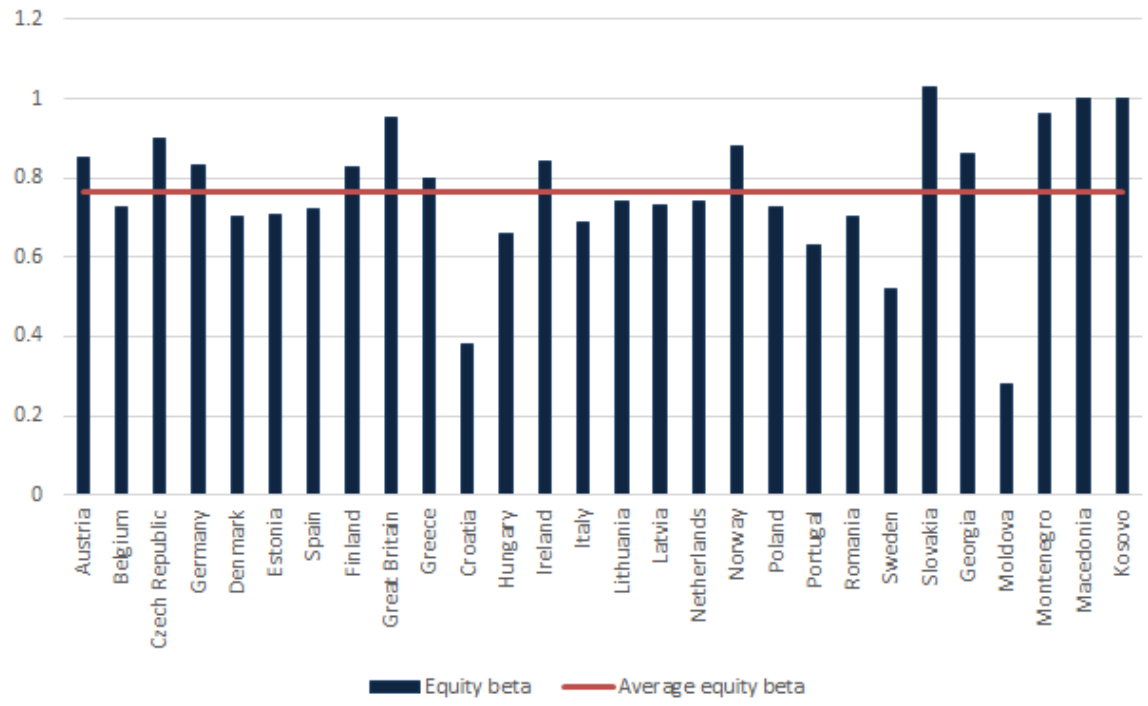
As TSO/MO and DSO are both unquoted companies, it is not possible to directly estimate their equity betas. In this situation, ERO, in common with other energy regulators, has set the equity beta by reference regulator precedent and to the betas of comparator companies.

TSO/MO considers itself much riskier than the average firm (represented by an equity beta of 1) but, while stating an equity beta greater than 1 could be argued for, proposed that a value of 1 be used. DSO provided a range for the *unlevered* beta (i.e. before taking into account the impact of gearing on risk) as 0.56 as a minimum and 0.62 as a maximum[3]. At a 10% tax rate, and using DSO proposed gearing of 36.63%, this equates to a range for the equity beta of 0.85 to 0.94. At a gearing of 40% it equates to a range of 0.90 to 0.99. DSO proposed an equity beta of 1.

[3] DSO stated this maximum was based on the average unlevered betas for Albania, North Macedonia, Montenegro and Slovakia, as presented by CEER through their "*Report on Regulatory Frameworks for European Energy Networks 2021*", Jan 2022.

ERO has revisited the latest data from CEER (Council of European Energy Regulators) on recent EU regulatory precedents (see Figure 5), which was also used by DSO in setting their maximum equity beta. ERO finds that the average equity beta (based on CEER's 2021 report) is largely unchanged, at 0.76 for both electricity transmission and distribution.[4]

Figure 5 Determinations of recent DSO equity betas



Source: CEER *Report on Regulatory Frameworks for European Energy Networks 2021.*

In accordance with the rule on revenues of network operators, ERO has taken into consideration data on applicable betas in similar companies in the international arena. As comparable countries, ERO has taken countries such as: Albania, North Macedonia, Montenegro, Greece, Georgia, Latvia, the Czech Republic and Slovakia. From the average data of the above-mentioned countries, it resulted that the leverage is 0.46, while the average corporate tax is 18.6%. ERO has converted these values into unlevered values, in order to remove the impact of debt and taxes on the Equity beta, and then adjusted them for Kosovo's parameters. Through this approach, which at the same time is considered the right approach for companies that are not listed, an equity beta for TSO and DSO of 0.87 and 0.88, respectively, results. Therefore, taking into account that comparable countries (except Greece) apply the same equity beta for TSO and DSO, and in our case the difference is insignificant, then ERO proposes to apply the equity beta

[4] Note: a reported equity beta of 6.58 for Albanian electricity DSOs has been excluded on the assumption it is an error.

of 0.88 for TSO/MO and DSO for MYT 3.

4.2.2 Market Risk Premium

ERP $_m$ – Equity risk premium is generally estimated by reference to the long-term differences between the return on equity and government securities. Estimates are sensitive to time periods, stock exchange used, securities selection and their terms and if calculations are performed using the arithmetic or weighted average. Given these complexities and the lack of relevant Kosovo market data, ERO's approach at both MYT1 and MYT2 was to refer to EU regulators decisions for MRP[5], appropriate to determine the value to be applied.

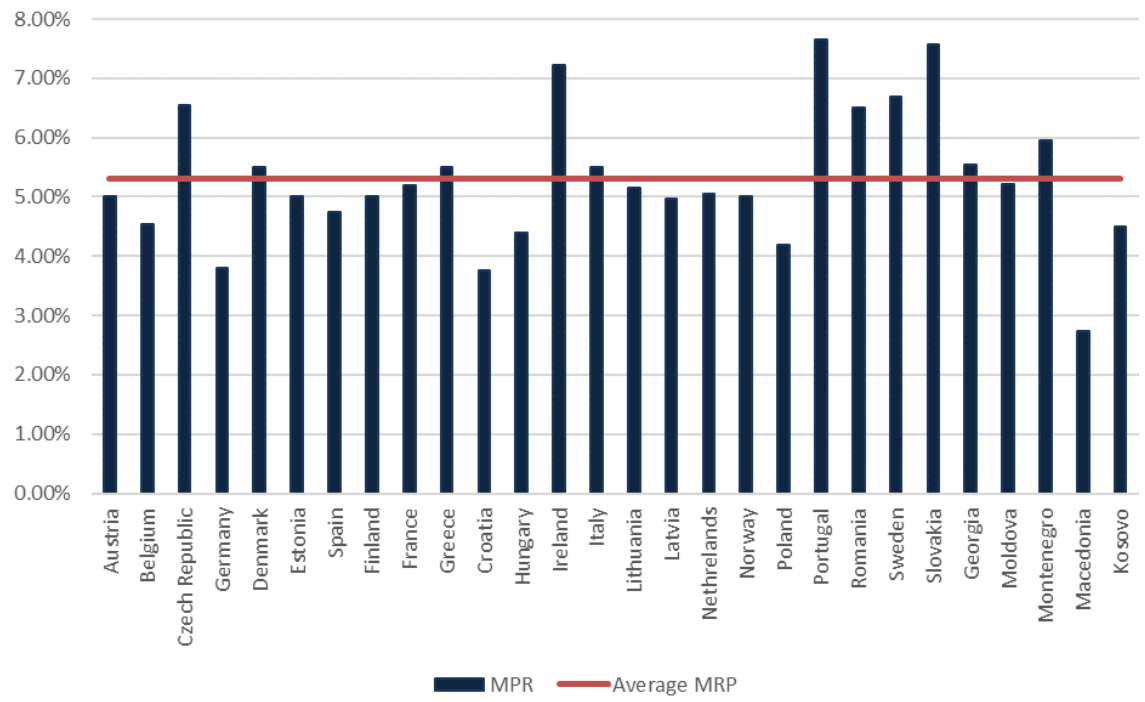
At MYT2, ERO set a MRP of 4.5%, a slight reduction from the 5.5% set at MYT1. This was based on the average MRP set by EU regulators and which reflected a slight downward trend compared to the decisions taken during and shortly after the 2008 global financial crisis (as was the case for MYT1, when ERO determined an ERP of 5.5%).

Referencing a number of studies, TSO/MO has proposed that the MRP be set at 5.5% (the same value as at MYT1), noting that this should be the minimum value. DSO proposes an MRP of 6.25%, citing a Deloitte estimate of 30 June 2022. They also cited a modified historical ERP of 6.47%, derived from the 2021 Stocks, Bonds, Bills and Inflation (SBBI) Yearbook based on US data. ERO has some concerns over the use of ERPs from the US that rely on long-term time series as they may overstate the premium due to survivor bias.

ERO has revisited CEER data on recent EU regulators decisions on the MRP (see Figure 6). The average MRP is now 5.3% (for electricity DSOs), which represents an increase in the MRP since MYT2.

[5] *CEER Report on Investment Conditions in European Countries*, CEER, March 2016.

Figure 6 Determinations of recent DSO ERPs



Source: CEER *Report on Regulatory Frameworks for European Energy Networks 2021.*

However, similar to the estimate of Beta equity, in addition to the CEER study, ERO also took countries such as: Albania, North Macedonia, Montenegro, Greece, Georgia, Latvia, the Czech Republic and Slovakia as comparable countries. From the average data of the above-mentioned countries, an ERP of 5.18% has resulted, while if Georgia is left out of the calculation (because its WACC is outside the average range of comparable countries), the ERP turns out to be 5.04%.

4.3 Gearing

ERO has previously determined (as part of the Sixth Electricity Tariff Review, 2012) that the appropriate gearing level of debt investments for regulated licensees lies between 40% and 70%. In MYT2, as DSO and TSO/MO had lower levels of gearing than this, ERO proposed that gearing for debt investments for each entity be set at 40%, i.e. the lower end of this range.

For MYT3, TSO/MO stated that its gearing is still below 40% and proposed a value of 40% is retained for calculating the WACC. DSO did not state its own gearing, but ERO has calculated it from their Financial Statements to be well below 40%. DSO presented evidence from comparator companies in proposing a range of between 36.62% to 40%, using the lower value in calculating the WACC.

ERO proposes that the leverage of 40% remains applicable even during MYT3, for TSO/MO and DSO.

4.4 The proposal for Weighted Average Cost of Capital

The following table provides ERO's proposal for MYT3 WACC for TSO/MO and DSO

Table 3 Proposed MYT3 WACC for TSO/MO and DSO and comparison to MYT2

Parameter	ERO's proposal MYT3
Risk-free rate	3.65%
Debt premium	1.72% - 2.12%
Real cost of debt	**5.37% - 5.74%**
Tax rate	10%
Equity beta	0.88
ERP	5.04% - 5.30%
Cost of equity, real pre-tax	**8.96% - 9.24%**
Gearing	40%
WACC, real pre-tax	**7.52% - 7.84%**