REGULATORY REPORT
Determination of Maximum Allowed Revenues for District Heating Gjakova JSC
Heating season 2023/2024

Pristina, November 2023

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1   Introduction

According to primary legislation- Articles 47 and 48 of the Law on Energy Regulator, the Energy Regulatory Office (ERO) is responsible for the determination of tariff methodology and approval of tariffs in the regulated energy sector; therein is a set of broad principles such as justification and non-discriminatory principles under which energy enterprises should recover all justified costs including the reasonable return on their investments. Also, Articles 18 and 19 of the Law on Thermal Energy determine that the supplier charged with public service obligation carries out the supply of thermal energy at regulated tariffs.

While the thermal energy sector in the transportation and distribution of thermal energy is classified as a natural monopoly, also due to the fact that there is still no competition in generation and supply, the district heating tariffs, containing all the above-mentioned components, are subject to approval by ERO.

In line with its legal obligations and powers, Energy Regulatory Office issued Thermal Energy Pricing Rule. This rule sets the procedures for submission, review of tariff application and approval of tariffs and Methodology on Calculation of Allowed Revenues and Tariffs.

For determination of allowed revenues for the heating season 2023/2024, the following are taken into account:

- Information provided by DH Gjakova in its tariff application for heating season 2023/2024;
- Other information from DH Gjakova within the framework of regulatory reporting for the previous season; In this regard, it should be emphasized that the historical data for DH Gjakova are incomplete due to the change in thermal energy production technology - specifically, the new biomass heating plant started regular operation in 2021.

   Procedure of tariff review process:

- **On 1 June 2023** –ERO issued a letter of notice on the commencement of the tariff review for DH Gjakova for the 2023/2024 season; this was followed by the request of ERO for data and information submitted on 02 June 2022, which described in detail the data and information that DH Gjakova shall submit for tariff review as well as the Plan and Schedule;
- **On 18 August 2023** –DH Gjakova, via e-mail, submitted the preliminary tariff application for 2023/2024 season, with the data and information required for tariff review;
- **On 11 September 2023 –**Following the analysis and evaluation of data and information submitted by DH Termokos, ERO sent the written comments, specifying requirements for correction, improvement and completion of the initial application;
- **On 18 September 2023** –DH Gjakova re-submitted the application with some of the corrections, improvements and supplements, required in ERO's comments, as well as responses to ERO comments.

2   Principles and Formulation of Tariff Methodology

For the purpose of determination of allowed revenues and thermal energy tariffs for 2023/2024 season, the methodology determined in Thermal Energy Pricing Rule is applied.

Principles

The basic principle of this methodology is that tariffs of utilities providing public services shall cover all justifiable costs - operational and capital, so that in one hand the customers should not pay excessively over the cost incurred for the provision of their service, while on the other hand the utility should recover all reasonable and justifiable costs plus a reasonable rate of return in capital investments. Final price of service is usually defined to include all operational expenses of utilities providing public services i.e. to recover cost of production, distribution and supply (operation and maintenance, fuel, salaries, network losses costs, common costs, administrative costs etc.) plus a reasonable return on its investments devoted to the public service provision.

Given that in some cases such regulation does not encourage enterprises to raise operational efficiency and stimulate cost savings, on the contrary, they may encourage over-investment in assets and also, taking into account the Regulator's obligation to protect customers, it is required that enterprises should not only prove the declared "reasonable expenses", but also show an increase in operational efficiency and costs. Such measures create the basis for coordination at the beginning of the tariff review, in which the Regulator rewards or punishes the enterprise for the increase or decrease in efficiency and cost control.

Formulation

For the purpose of calculation of allowed revenues and for final tariff calculation, Thermal Energy Pricing Rule (Annexes 1, 2, 3 and 6) provides the detailed formulation of Tariff Methodology. However, for consistency reasons, the formulation shall be shortly presented in this report too.

Schematically, the tariff methodology can be shown as below. The costs which the enterprise should recover are built up from its operational costs, depreciation representing the ability of the enterprise to replace its assets, costs of network losses and the return on the Regulatory Asset Base (RAB), which in fact represents the profit for the company.
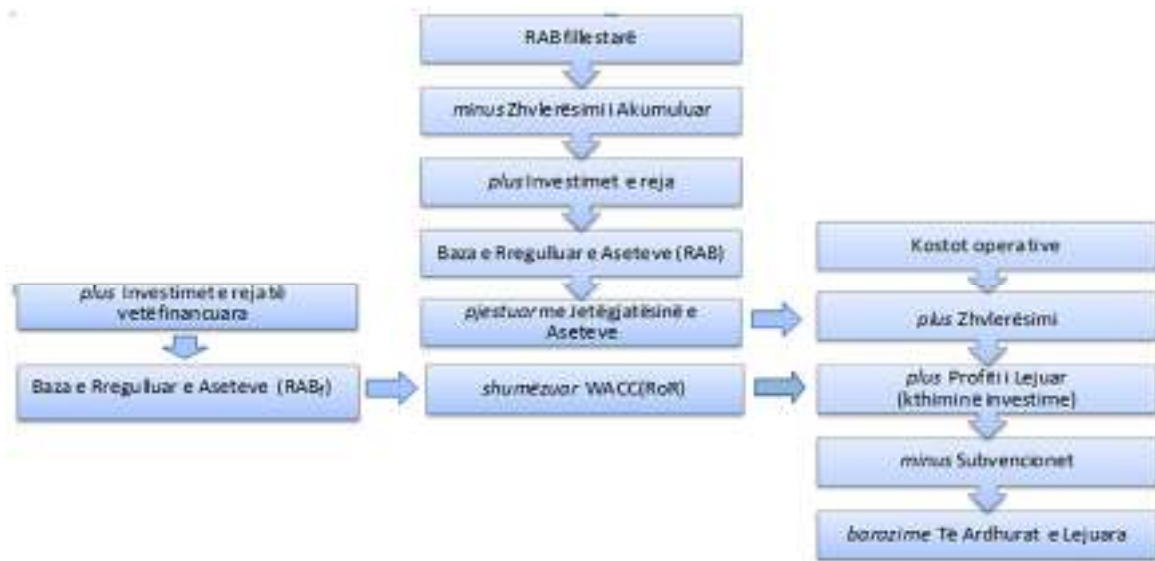
Figure 1: Allowed Revenues Calculation Scheme

Basic formula of regulation:

The allowed revenues are calculated according to the formula:
MAR = OPM + DEP + RTN + LOS + ADJ

Where:

MAR	Maximum Allowed Revenues;
OPM	Allowed operating and maintenance costs;
DEP	Allowed annual depreciation;
RTN	Allowed return on assets;
LOS	Cost of network losses;
ADJ	Adjustment of revenues.

The allowed revenues represent the annual cost of the enterprise and consist of: i) operational costs, which are "justifiable"; ii) annual depreciation; iii) cost of network losses; and iv) allowed return on Regulatory Asset Base (RAB).

Operational Costs consist of the sum of the fixed and variable costs as follows:

$OC = OC_F + OC_v$

Operational costs represent the total justified costs estimated for one year, including: i) costs of fuel, costs of thermal energy purchase and other costs such as electricity, water treatment chemicals, spare parts; ii) other system operation costs, repairs and maintenance; and iii) personnel costs and common costs. Allowed operational costs do not include: i) subsidies; ii) costs rejected by tax authorities and costs of setting aside and distributing reserves; and iii) lease payments for items not kept in the bookkeeping, financial or other unjustified costs.

The Regulatory Asset Base is calculated according to the formula:

$$RAB_t^{\text{end}} = RAB_n^{\text{start}} + INV_n + WC_n - DEP_{n-1} - DIS_{n-1}$$

The Regulatory Asset Base (RAB) represents the enterprise assets considered to be used and useful in the provision of public service, that include: i) starting Regulatory Asset Base (RAB_t^{start}), which actually represents the final RAB executed in the previous season 2022/23 (n-1), new investments when they are planned and approved by the Regulator (INV_n); iii)sufficient working capital of the company to perform its activities (WC_n); depreciation of assets carried out in the previous season 2022/23 (n-1) (DEP_{n-1}) and iv) Disposed Assets (DIS_{n-1})

ERO will take as a Rate of Return the value of WACC (Weighted Average Cost of Capital). WACC (%) is the sum of weighted average of the equity cost and debt cost, and is calculated according to the formula:

$$WACC = [(D/V) * k_d] + [(E/V) * k_e]$$

Where:

D/V-	Debt share of the total capital base
E/V -	Equity share of the total capital base
V -	Total capital base, which is the total of equity and debt
k_d -	Cost of debt
k_e -	Cost of equity

3   Determination of Allowed Revenues

For determination of Allowed Revenues of DH Gjakova JSC. for heating season 2023/2024, according to Thermal Energy Pricing Rule, ERO has undertaken the following:

1) Evaluation and determination of allowed operational costs;
2) Evaluation and determination of depreciation;
3) Determination of Allowed Return on RAB (return on investments), which includes:
    a) determination of RAB – evaluation and approval of assets of the company, verification and approval of planned investments and working capital; and
    b) calculation of the allowed Rate of Return (RoR)/ WACC;
4) Evaluation and determination of allowed cost for network losses.

In determining the allowed revenues, ERO has taken into account the following:

- Information provided by DH Gjakova in its tariff application for the 2023/2024 heating season- information regarding estimated revenues from the sale of heat and other related services, total forecasted costs, planned investments and assets, forecasted heat production and supply, as well as forecasted heating area;
- Information that ERO has ensured from the regular reporting of the previous seasons/years.

Knowing that forecasted information is key to determination of allowed revenues, it should be reliable and realistic. Generally, in forecasting/planning the business, a realistic approach should be applied, followed by a comprehensive assessment of multiple factors affecting the business; i.e assessment of the market and forecasting the expansion of customer base, assessment of production/supply

capabilities and financial capabilities of the company. Naturally, the proper forecasting/planning has to be based on the data that the company has realized during a certain period.

It must be noted here that DH Gjakova's tariff application was complete to an extent. However, in some of the data and information of the application were noticed inaccuracies, noncompliance and inconsistencies which, with some exceptions, were improved, explained and supplemented following ERO's comments and joint meetings between ERO and DH Gjakova.

In fact, regarding the forecasted information (as defined in Appendix 4 of the Thermal Energy Pricing Rule), DH Gjakova has submitted to ERO the statements/tables that include forecasted revenues and costs, technical data and customer data, operating assets and forecasted investments, for the one-year period that fully covers the heating season - period: 15 October 2023 – 14 October 2024. Whereas, as supporting documents it submitted: i) Audit Report as well as statutory and financial statements for 2022; ii) List of assets – detailed data on fixed assets where the initial value of the asset purchase is given; iii) planning of investments for a one-year period that includes the 2023/24 season; iv) planning for new connections for the 2023/2024 season, respectively the expansion of the customer heating area.

ERO has made efforts and has engaged the available expertise to make a realistic evaluation of the forecasted information submitted by DH Gjakova. A comprehensive analysis and evaluation of the presented information was conducted. With respect to this, it should be emphasized that the absence of historical data for previous seasons has presented additional obstacles due to the impossibility to compare the respective data from previous seasons, in order to carry out the accurate determination (forecast) of allowed revenues for 2023/2024 season.

3.1 Evaluation and determination of allowed operational costs

The plans for operating costs submitted by DH Gjakova for the one-year period covering the entire heating season 2023/2024, are structured as variable and fixed costs, a division which is mainly in accordance with the provisions of the Thermal Energy Pricing Rule, as well as advanced accounting principles and Kosovar Accounting Standards.

In this section, the forecasted expenses as presented by DH Gjakova and the allowed operating expenses that ERO has approved will be shown in a tabular manner (Table 1.) The table is followed by an analytical explanation of each item of operational costs.

Table 1: Costs presented by DH Gjakova JSC, and the ones allowed by ERO (in €)

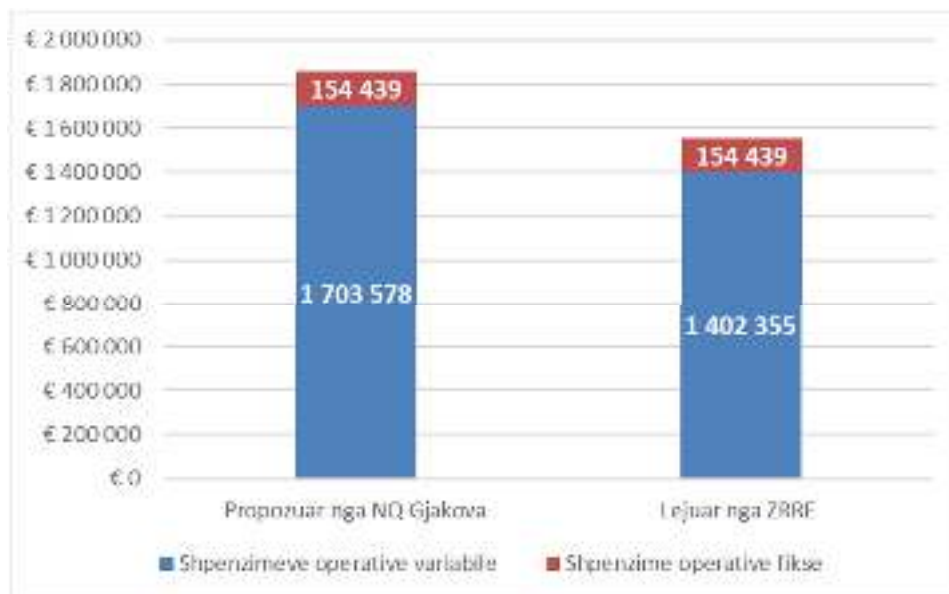|		Proposed by DH Gjakova	Allowed by ERO
	Variable Costs		
1	Biomass	1,516,117	1,239,365
2	Fuel	1,000	1,000
3	Electricity	41,860	38,762
4	Treated water	15,715	15,715
5	Water treatment chemicals	5,458	5,458
6	Personnel- direct labour	100,419	100,419
7	Annual licensing tax	1,247	1,636
8	Bad debt	21,762	-
	Total variable costs	**1,703,578**	**1,402,355**
	Fixed costs		
9	Repairs and maintenance	16,200	16,200
10	Materials and services	13,376	13,376
11	Administration Expenses	20,543	20,543
12	Personnel expenses	104,320	104,320
13	Sales and other administrative costs	0	0
	Total fixed costs	**154,439**	**154,439**
Total operational costs		**1,858,017**	**1,556,794**
	Fixed costs	**154,439**	**154,439**
	Variable costs	**1,703,578**	**1,402,355**

Figure 2: Schematic presentation of operational costs proposed by DH Gjakova and allowed by ERO for the heating season 2023/2024

<u>Analytical explanation</u>

Detailed explanations and justifications for determination/allowance of each group of costs, namely for the main positions of operational costs, are provided below.

Operational costs are initially presented for the entire plant, then the allocation of costs is conducted into variable and fixed costs for thermal energy for electricity generation costs.

<u>Variable costs:</u>

1. **Cost of heavy fuel oil – biomass (wood chips):**

   - The costs of biomass proposed by DH Gjakova is based on the biomass demand for HoB and CHP of 37,600 MWh/year and the caloric value of biomass LHV of 3.1 MWh/ton. Therefore, the biomass demand is 12,129 ton/year. The average costs of biomass are calculated as 125 €/ton, resulting in a total cost of the biomass of 1,516,117 € for 2023/24.

   - Evaluation – The forecast amount of fuel consumption – biomass – is derived from the overall energy balance (which includes thermal energy and electricity), which is described in details in chapter 4 of this report.

   - Based on ERO analysis, the biomass demand for HoB and CHP for the season 2023/2024 is 30,736 MWh. Considering the caloric content of the biomass, based on the data of DH Gjakova of 3.1 MWh/ton, the biomass demand is 9,915 ton/year.

   - DH Gjakova evaluated that the price of biomass for the season 2023/2024 will be 125 €/ton. DH Gjakova is in the process of procuring the biomass. Due to the lack of concrete contracts for supply with biomass, ERO will accept the value of 125 €/ton. This value will be updated if the supply contract is concluded prior to the approval of tariffs or will be considered with regular adjustments in the next tariff season.

     Therefore, **the total biomass cost** will be evaluated at **1,239,365 €.**

2. **Oil**

   - DH Gjakova has proposed the cost in the amount of 1,000 €/year, for the required fuel for functioning of the loading vehicle of biomass.

   - Evaluation – Taking into consideration the need for using the loader with wheels, and the costs for oil supply, ERO evaluates that the presented costs are justifiable, therefore ERO recognizes the proposed **oil** cost of 1,000 **€.**

3. **Electricity**

   - DH Gjakova has proposed the total electricity cost in the amount of € 41,860. The costs are derived based on the calculation of the electricity self-demand by CHP and HoB. The self-demand of CHP is 10% of the overall gross production of electricity. The self-demand for HoB is based in 8 kWHel/MWht and an electricity

gross production of 9,201 MWh/vit. The electricity will be purchased with a tariff of 7.13 cent per KWh. For the pumps, electricity consumption is reported in the previous season in the amount of 2,600 € (electricity for pumps). This value for the pumps was increased by 5% for the new season.

- Evaluation – ERO has recalculated the energy demand based on thermal balance presented in Chapter 4. The self-demand of CHP is 10% of the overall gross production of electricity (475.2 MWh). The self-demand for HoB is based on 8 kWHel/MWht and a gross production of thermal energy of 3,770 MWh/year. The electricity is foreseen to be purchased with an average tariff of 7.13 cent/kWh. For the pumps, electricity consumption in the previous season is reported in the amount of 2,600 € (energy for pumps). This value for pumps increased by 5% for the new season. The total evaluated expenses of **electricity** from ERO are **38,762 €**.

4. **Treated water and water treatment chemicals**

- DH Gjakova has proposed the cost in the amount of 15,715 €, for the forecast amount of water consumption for replenishment of the distribution system (primary network), as well as the cost for water treatment chemicals in the amount of 5,458 €.

- Evaluation – Taking into consideration the required consumption of water for the common replenishment of the system and also a part of network losses due to water leaks, ERO evaluates that the presented costs are justifiable, therefore ERO Recognizes the **proposed water cost** of **15,715 €** and **chemicals** in the amount of **5,458 €.**

5. **Personnel ("direct labour")**

- DH Gjakova presented the personnel cost - "direct labour", in the amount of 100,419 € for production and distribution. The staff of distribution and production is comprised of fourteen (14) staff members with a total annual staff cost of 75,266,52 € and the distribution staff is comprised of four (4) staff members with a total annual cost of 25,152,75 €.

- Evaluation – To evaluate the personnel cost presented by DH Gjakova, ERO has referred to the Audit Report on the financial statements for the year 2022. In these financial statements, it is noticed that the total amount of 'personnel expenses' for the year 2022 is €201,185 - gross wages: 195,209 and pension contributions payable by the employer: 9,530 €. Taking into account the personnel cost presented for the administrative and managerial staff, then ERO evaluates that the personnel cost presented by DH Gjakova corresponds to the amount of "personnel expenses" in the audited financial statements for 2022. ERO, therefore allows the **personnel cost - 'Direct labor'** in the amount of **€ 100,419.**

6. **Annual licensing tax**

- DH Gjakova has presented the expenses for license tax in the amount of 1,247 €. The value is taken from the company's accounting.

- Evaluation – In relation to the licensing tax, it shall be emphasized that the annual licensing tax is calculated based on ERO's Rule on Taxes which for the generation of energy from RES is set at 10% of net production. Based on this, ERO has calculated the annual licensing tax in the amount of 1,636 € - for the amount of net production of thermal energy 16,363 MWh.

7. Bad debt

- DH Gjakova has presented this cost in the amount of 21,762 €. While it has specified the allowed rate of 5%, it did not specify the amount used for the calculation.

- Evaluation – In line with the provisions of the Thermal Energy Pricing Rule, the cost of bad debt can be calculated as a reasonable share of the revenues of the enterprise. This 'reasonable share' shall be set in a manner that encourages the enterprise to add its efforts to increase the level of the collection of payments from customers, but at the same time takes into account that a considerable amount cannot be objectively collected, therefore shall remain as a debt that will not be realized. From what was said above, ERO considers that the level of bad debt of 5% is justifiable. ERO will calculate the bad debt as 5% of maximum allowed revenues for the thermal energy for the season 2023/2024. The bad debt will not be considered within OPEX, since it is calculated as a share of allowed maximum allowed revenues. The calculated amount of bad debt is 50,099 €.

From what was stated above, it results that **Variable Costs**, recognized by ERO are determined in the amount of **1,402,335 €.**

Fixed costs

8. Repairs and maintenance

- DH Gjakova, for the cost of repairs and maintenance, has planned a value of 3,200 €- due to the fact the heating plants and equipment are new and have just been built and are also under the warranty period from the contractor. However, DH Gjakova has foreseen the additional costs evaluated at 13,000 € for the maintenance of the main facility as well as accompanying buildings, including the maintenance of the heating plant yard. Therefore, DH Gjakova foresees a total amount of 16,200 € for repair and maintenance costs.

- Evaluation – Taking into account the justification mentioned above, ERO recognizes the repair and maintenance cost in the amount of 16,200 €.

9. Cost: Materials and services

- For this position, a value of € 13,376 was proposed by DH Gjakova. The numbers were taken from the analytical accounting and are referred to the following expenses:

production costs, different services, different pumps, fire extinguishers, gas, acetylene, oxygen, service costs, etc.

▪ Evaluation – Taking into account that the proposed value refers to the accounting values of the costs described for the previous periods, ERO allows the **'materials and services'** cost in the amount of **€13,376.**

10. Administrative cost

▪ DH Gjakova has proposed the administration cost in the amount of € 20,543 which reflects the usual expenses for office materials, information technology and communication. They have remained constant for the new season as well.

▪ Evaluation – ERO evaluates the amount presented as reasonable to cover the costs for ordinary administrative services and recognizes the proposed cost in the amount of **20,543€.**

11. Personnel cost ('different from direct labour')

▪ For the cost of personnel in the administration and other support services DH Gjakova presented the cost in the amount of € 104,320 which covers the gross salaries and pension contributions for the administration staff expenses (55,690.19 € in a year) and management costs (48,629.95 € in a year).

▪ Evaluation – To evaluate the personnel cost presented by DH Gjakova, ERO referred to the Audit Report on the financial statements for the year 2022. In these financial statements, it is noticed that the total amount of 'personnel expenses' for the year 2022 is € 204,739 - gross salaries: 195, 209 and pension contributions payable by the employer: € 9,530. Taking into account the cost of personnel "direct labor" presented for the staff directly engaged in production and distribution, then ERO evaluates that the cost of personnel presented by DH Gjakova corresponds to the amount of "personnel expenses" in the audited financial statements for 2022. ERO therefore allows the **cost of personnel - 'different from direct labor'** in the amount of **€ 104,320**.

From what was stated above, it results that **fixed costs** recognized/allowed by ERO are determined in the amount of **€ 154, 439.**

Allocation of cogeneration costs

The new biomass heating plant, in addition to two units (HoB boilers) for the production of thermal energy (heating) only, also has a co-generation unit (CHP) of thermal and electricity, which is planned to start this season. For this reason, there is a need to allocate costs in the costs related to thermal energy (heating) and electricity, in order to avoid any double presentation of costs during the determination of allowed revenues and heating tariffs. The allocation of co-generation costs is carried out based on the Methodology in appendix 7 of the Thermal Energy Pricing Rule, which included the allocation of operational and capital costs (assets); for this, the cost allocation method will be briefly presented at the beginning.

As described in appendix 7, the basic principle for the allocation of co-generation cost is the ratio between the consumption of fuel in the co-generation plant and the pre-assumed consumption of fuel in 'alternative forms of energy production'. By "alternative forms" is meant the traditional technologies

of separate production of thermal energy and electricity with the same capacity and using the same fuel.

Therefore, during the calculation of the ratio (proportion) is taken the planned production of electricity and thermal energy in the cogeneration unit, production efficiency of 'alternative forms' as specified in appendix 7 – efficiency of energy transformation from fuel to electricity (0.4) respectively thermal energy (0.9).

Using the formulas of appendix 7, the corresponding proportions were calculated in percentage: the proportion of fuel consumption for the production of electricity F_E=35.6%, and the proportion of fuel consumption for the production of thermal energy (heating) F_H=64.4%.

This proportion was then used to divide the operating costs (variable and fixed); specifically, since the subject of the tariff review is thermal energy, then the general operating costs are multiplied by F_H=62.1%, resulting in separate costs for thermal energy (heating).

Table 2: Division of expenses between electricity and heating

	Evaluated by ERO in €
Total variable expenses	1,402,355
Variable expenses for electricity	499,765
Variable expenses for heating	**902,590**
Total fixed expenses	154,439
Fixed expenses for electricity	55,038
Fixed expenses for heating	**99,401**
Total operational expenses for heating	**1,001,991**

Operational heating costs evaluated/allowed by ERO are in the amount of **1,001,991 €.**

In cases where the enterprise receives subsidies for operation (such as for the purchase of fuel), then according to regulatory practices the value of the subsidy is deducted from the value of operating costs, for the reason that the enterprise is not charged with a cost or a part of the cost which is covered by the subsidy.

- ERO bases the evaluation of the subsidy on a) the Agreement Financing of the Enterprise, between the Ministry of Economy and DH Gjakova JSC, dated on 03/05/2023 (amount €300,000); as well as b) the usual annual allocation of the budget for DH Gjakova from the Ministry of Economy in the amount of €300,000 (per calendar year), of which 50% (€150,000) will be used in the second half of the 2023/2024 season (i.e. in year 2024 of this season), and the remaining part (€150,000) will be used in the first half of the 2024/2025 season.

Therefore, ERO evaluates the subsidy for DH Gjakova in the season 2023/2024 in the total amount of 450,000 €; this will be deducted from the operational costs, consequently the **allowed operational costs** are calculated as follows:

OC$_{ALLOWED}$ = 1,001,991 € - 450,000 € = 551,991€

3.2 Determination of Regulatory Asset Base (RAB)

Determination of RAB is the main component for the calculation of annual depreciation and allowed return on assets, which presents the allowed profit from the regulated business activity.

The Regulatory Asset Base - in line with Appendix 2 of the Thermal Energy Pricing Rule, is calculated according to the formula:

$$RAB_n^{end.} = RAB_n^{start.} + INV_n + WC_n - DEP_{n-1} - DIS_{n-1}$$

where:

$RAB_n^{end.}$ –represents the assets planned for the season 2022/23 ('n');
$RAB_n^{start.}$ – Initial Regulatory Asset Base, which actually represents the final RAB, realized in previous season 2021/22 ('n-1');
INV_n –New investments planned and approved by the Regulator for a one-year period which includes the heating season 2023/2024;
WC_n –Sufficient working capital for the company to carry out its activities;
DEP_{n-1} –Depreciation of assets realized in previous season 2021/22 ('n-1'); and
DIS_{n-1} –Disposed assets in previous season 2021/2022 ('n-1').

1. Determination of existing assets

The existing assets represent the final RAB realized in the 2022/2023 season. These include the assets invested in the framework of the EU project, namely the new heating plant and the biomass cogeneration unit, as well as the assets invested in the framework of the SECO project, respectively the rehabilitation of the distribution network and thermal substations.

The existing assets allocated for thermal energy consist of the assets invested through two projects, in total value:

-	EU Project Assets: new heating plant and biomass cogeneration unit:	5,939,682 €
-	SECO Project Assets: Rehabilitation of the network and thermal substations:	3,380,396 €
-	**Total existing assets:**	**9,320,078€**

Financing manner:

All existing assets are a donation funded through EU and SECO projects.

The final value of assets allocated for heating in the 2022/2023 season was: **9,320,078€.**

2. Determination of allowed new investments

In new investments planned for the tariff review period: October 2023 – October 2024, the additional costs for 3 projects within the SECO project are presented.

• Rehabilitation of the heat distribution network as a donation within the SECO project – € 326,000
• Rehabilitation of heating substations as a donation within the SECO project – € 298,000

• Renovation of the SCADA system as a donation within the SECO project – €195,000.

These projects are presented in the Development Plan of the DH Gjakova system. Based on the comparison with the existing assets recognized in the 2022/2023 tariff review, and the total assets presented in the Regulatory Statement A - G1, G2: Statement of Operating Assets, ERO has adjusted the additional costs for the SECO project investments, according to Table 3.

Table 3: Comparison of assets recognized in 2022/2023 season and assets presented in 2023/2024

	Recognized in 2022/2023	Total presented assets 2023/2024	Difference (new assets) recognized by ERO
Rehabilitation of heat distribution network	€ 2,172,164	€ 2,612,164	€ 440,000
Rehabilitation of heat substations	€ 1,016,232	€ 1,300,232	€ 284,000
Renovation of SCADA system	€ 192,000	€ 195,000	€ 3,000
Total from the SECO project	€ 3,380,396	€ 4,107,396	€ 727,000

Referring to these project details, ERO recognizes these projects under new Investments for the tariff review period 2023/2024, in the presented value of **€727,000**.

Financing manner:
All existing assets are donation funded through SECO projects.

3. Disposals

Disposal refers to the assets that the regulated enterprise has removed from usage – assets that have been damaged to the extent that they cannot be repaired and used again, assets that have eventually been sold/leased (when they have been evaluated as unusable), etc.; According to the formula given at the beginning of chapter 3.2, the value of alienated assets is deductible (minus). As it was emphasized at the beginning of this chapter, DH Gjakova has not presented, as existing assets, the old assets – the old heavy fuel oil heating plant and the distribution network, therefore disposals are not taken into account in this tariff review.

4. Depreciation of assets realized in previous season 2022/23

The annual depreciation of assets realized in the season 2022/2023 is **372,074**.

5. Determination of Working Capital
According to the relevant provisions of the Thermal Energy Pricing Rule - Appendix 2, working capital is usually determined to allow working capital for a period not longer than one month, respectively the value of average monthly income. Consequently, ERO determines the ratio 1/12 in the maximum revenues allowed for the 2023/2024 season. These are calculated based on the general MAR for the 2023/2024 season and its value is **€78,779**.

Summary of the determination of RAB and RAB$_f$

The following table presents the summary of integral components and respective values of the Regulatory Asset Base (RAB) and Regulatory Base of Self-financed Assets (RAB$_f$).

Table 4: RAB and its components – DH Gjakova, heating season 2023/2024

	Allowed by ERO [€]
Net Value of Existing Assets	9,320,078
New investments	727,000
Depreciation of assets realized in the previous season	- 372,074
Working Capital	78,779
Regulatory Asset Base (RAB)	9,753,783

In relation to the Regulatory Base of Self-financed Assets (RAB$_f$) it shall be emphasized that the same formulations as for the overall RAB apply, however here are taken the values of self-financed assets/investments; details in the following table.

Table 5: RABf and its components- DH Gjakova, heating season 2023/2024

	Allowed by ERO [€]
Net value of existing Assets	0
New Investments	0
Depreciation of assets realized in the previous season	0
Working capital	78,779
Regulatory Base of self-financed assets (RABf)	78,779

The Regulatory Base of self-financed assets (RAB$_f$) is 78,779 €.

3.3   Evaluation and Determination of Annual Depreciation for 2023/2024 season

The determination of the annual depreciation for the 2022/23 season ('n') is based on the value of the total RAB defined in table '5' (chapter '3.2') and the weighted average depreciation rate. The weighted average depreciation of existing assets was calculated in the last tariff review and has a value of 3.99%. Therefore, the annual depreciation of old assets is **€372,074**.

In order to determine the weighted average depreciation rate of assets, it is necessary to categorize assets according to the characteristics of the assets that correspond to the respective rates of depreciation; this categorization is detailed in Table 6 below:

Table 6: Depreciation of new assets of DH Gjakova, heating season 2023/2024

Assets	Value [€]	Lifespan (years)	Depreciation rate [€]	Depreciation[€]
Rehabilitation of heat distribution network	€ 440,000	35	2.86%	12,572
Rehabilitation of heat substations	€ 284,000	35	2.86%	8,114
Renovation of SCADA system	€ 3,000	5	20%	600
Total new assets	**€ 727,000**		**2.928%**	**21,286**

Total allowed annual depreciation is 372,074 + 21,286 = **393,360 €.**

3.4 Determination of Allowed Return on RAB (Allowed profit)

The calculation/determination of allowed return is calculated based on the Regulatory Base of self-financed Assets RAB$_f$) and the Rate of Return (RoR), therefore it includes the following two components:

- (RAB$_f$); Determination of the self-financed Regulatory Asset Base; and
- Calculation of the Allowed Rate of Return (RoR), determined in the value of WACC.

First component - RAB$_f$ is calculated in chapter 3.2 – table '5', whereas the calculation of the second component – RoR is determined in the next chapter:

6. 3.4.1 Calculation of Allowed Rate of Return (RoR)

The objective of the reasonable Rate of Return (RoR) on the Regulatory Asset Base (RAB) is to guarantee the district heating companies a profit that allows continuing with the investments in the assets, in order to rehabilitate and expand them.

A reasonable RoR is considered to be the rate of "Weighted Average Cost of Capital" (WACC), which is calculated on the components of the capital base, taking into account the weightings of the sums of these capital components. In other words, WACC is the sum of the weighted average cost of equity and cost of debt.

For the cost of equity, ERO follows the internationally recognized methodology called "Capital Asset Pricing Model" (CAPM). The CAPM expresses the expected cost of equity as a risk-free rate (rf) plus the equity risk premium (ERP). We can define ERP as the difference between the equity market risk – i.e. the expected return from a well-developed market – and the risk-free rate of return, which is expressed by the formula presented below:

$ERP = (r_m - r_f)$

The ERP rate depends from the risk of investment in a market of a separate country. The value of pre-tax WACC can be calculated according to the following formula:

$$WACC_{pre\text{-}tax} = [(D/V)*k_d] + [(E/V)*k_e]$$

where:

D/V	Ratio of debt towards the total capital base (as a share)
E/V	Ratio of equity towards the total base of capital (as a share)
V	Total base of the capital, which is the sum of equity and debt
k$_d$	Cost of debt
k$_e$	Cost of equity

Cost of debt (k$_d$) is a contractual commitment and is the interest rate that the enterprise pays in current loans.
Cost of equity (k$_e$) is calculated as follows:

$$k_e = r_f + \beta_e *(r_m - r_f)$$

where:

r_f	The risk-free rate is derived from evaluations for return on government bonds
β_e	"Beta": risk measure for the respective company
$(r_m - r_f)$	The equity market risk premium minus the risk-free rate of return

The "risk premium" is defined by "beta" and the expected risk premium of a market, which investors demand from the market as a whole. The "beta" factor measures the unpredictability of a company's return in relation to the commodity (stock) market as a whole.

Below we evaluate/calculate the cost of debt and the cost of equity for district heating companies in Kosovo, to reach the pre-tax WACC.

Cost of debt

For this heating season and the following seasons, ERO has decided that the D/V ratio is 60/100 (60% debt and 40% equity). This 60% ratio should be used in evaluations/ calculations of the commercial pre-tax WACC for the 2023/2024 heating season, as well as for subsequent seasons; if no significant changes are observed.

The cost of debt (k_d) is presented as a function of the risk-free rate that usually reflects current and projected government bond rates and the debt risk premium that takes into account average rates of investments credits.

$$\boxed{k_d = 8.79 \ \%}$$

Cost of Equity

The cost of equity is presented with the formula below:

$$k_e = r_f + \beta_e *(r_m - r_f)$$

ku:
$(r_m - r_f) = ERP$ – Equity Risk Premium

Currently, the Risk Free Rate (r_f), based on local and international financial trends of government bonds (treasury bonds), is estimated in the range of 1.1 to 3.0%. The lower range represents the level of interest on Kosovo's long-term treasury bonds while the upper range represents the 10-year average interest on Hungary's treasury bonds – representing the riskiest emitter of long-term traded debt among regional comparators. Based on this ERO sets the **Risk-free Rate** at **2.3%.**

Recent decisions of regulatory authorities evaluate the risk premium in equity in the range of 3.5 to 5%. Because DH Gjakova is a public enterprise, it is considered that the risk in equity is minimal and therefore it is assumed that the **ERP value is equal to 4.5%.**

The average asset beta for EU electricity grids and integrated utilities is 0.42 compared to 0.54 - 0.63 for generation and supply-only companies in the EU and the US. Because the district heating industry

in Kosovo is small, it seems reasonable to assume that the increase in demand - which is the main factor for the increase of revenues- will be more unpredictable than GDP growth - which is the main factor for the growth of the commodity and stock market - than in large and developed countries. The addition of a single large customer in district heating means an increase in demand for district heating compared to the previous demand, while the impact on GDP may be much smaller. In order to take into account, the more unpredictable nature of district heating companies' revenues compared to GDP growth, we evaluate the cost of equity to be higher than the average set by EU regulators, and we consider that the reasonable "β_e" for district heating companies in Kosovo should be $\beta_e = 1.$

The post-tax cost of equity is as follows:

$$k_{e\ post\ tax} = 2.3\% + (1 * 4.5\ \%) = 6.80\%$$

The pre-tax cost of equity is found by multiplying the highest result of the post-tax cost of equity by the ratio that considers the tax ("tax wedge") as follows:

'Tax wedge' = 1/(1-t)

where:
t   The rate of tax in the profit of companies

The profit tax (t) in Kosovo is 10% and the ratio that considers the tax ("tax wedge") is:
1/(1-0.10)= 1.11

The pre-tax cost of equity is:

$$k_{e\ pre\text{-}tax} = 6.80\% * 1.11 = 7.55\ \%$$

As a result of the calculations above, the pre-tax WACC is calculated - rounded to two decimal places - as presented below:

$$WACC_{pre\text{-}tax} = [8.79\% * 0.6] + [7.55\% * 0.4\ ] = 8.30\%$$

Calculation of Allowed Return in RAB$_f$ for DH Gjakova

Based on the calculated WACC$_{pre\text{-}tax}$ of 8.30% in 3.4.1, the Allowed Return or Allowed Profit for DH Gjakova is calculated, according to the formula below:

$$RET = RoR\ x\ RAB_f$$

Therefore, the allowed return in RAB$_f$ is equal to 78,779 € * 8.30% = 6,539 €.

3.5 Determination of the cost of network losses

The allowed cost of network losses serves to cover the costs caused to the company due to thermal energy losses in the distribution network. In accordance with Appendix 1 of the Thermal Energy Pricing Rule, this cost is calculated as the quotient between the quantitative losses of the network and the production of thermal energy entering the network (percentage level of total losses in the network), this multiplied with overall variable cost of production.

From what was said above, based on the data presented by DH Gjakova and on its own evaluations, ERO has developed the Thermal Energy Balance of DH Gjakova for the 2023/2024 season, through which it has determined the quantitative network losses of **2,888 MWh**. Expressed as a percentage, the overall level of network losses is 15%. Also, from the Thermal Energy Balance, the amount of net production (generation) of thermal energy of 19,310 MWh was derived.

Based on the higher values and the variable operating cost (902,590 €), **the cost of losses** in the network is calculated in the amount of **135,389 €.**

3.6 Adjustment

The adjustment serves to correct the eventual changes between the tariff review plans for the period (season) 'n-1' and the realizations that have actually taken place in that period (season) and those changes are included (corrected) in the next review.

Given that in the last season there was no accurate data on the realizations of the supply, production of thermal energy and costs, in the monitoring report of realizations, it was estimated that the regulatory reporting of realizations is deficient and quite inaccurate; therefore, no adjustment will be applied for this tariff review.

3.7 Calculation of Maximum Allowed Revenues - Summary

Total allowed revenues are calculated according to the formula:

MAR = OC + DEP + RTN + LOS +/- ADJ

First of all, it should be emphasized that in the calculation of the maximum allowed revenues are considered the operating costs deducted for the allowed cost of losses, and also if there are subsidies for operating costs, then the value of the subsidy is also deducted (the so-called allowed net operating costs in the amount of **€ 416,602**).

Consequently, using the formula above, the MAR value is equal **to 1,001,989 €** as detailed in Table 6.

Table 7: Allowed Revenues for DH Gjakova, heating season 2023/2024

	Allowed by ZRRE [€]
Allowed operational costs (net)	*416,602*
Annual depreciation	*393,360*
Allowed return on RAB$_f$ (Working capital)	*6,539*
Allowed cost of losses	*135,389*
Adjustment– difference between 'allowed' and 'realized'	*N/A*

Bad debt	*50,099*
Maximum Allowed Revenues	***1,001,989***

In order to be compatible with the tariff structure, which foresees the division into the component for thermal capacity (fixed component) and the component of the amount of thermal energy, the division of the MAR into the fixed and variable part for the heating season 2023/2024 is as follows:

**Fixed part of Maximum Allowed Revenues (MARF)   83,976 €; and
Variable part of Maximum Allowed Revenues (MARv)   755,779 €.**

4   Thermal Energy Balance

The thermal energy balance is a very important component in the tariff review because it determines the projections for the production/purchases of thermal energy, network losses and finally the supply of customers. For this reason, the projections in the Balance Sheet are influential in the planning of the respective costs, and therefore influential in determining the allowed revenues and tariffs.

Following, in tabular form, is presented a summary of the components of the thermal energy balance for the Gjakova NQ for the tariff review of the 2023/2024 season.

The current demand for heating in Gjakova is mainly based on specific data of residential, public and commercial facilities. Although the substations are equipped with meters for both household and non-household customers, accurate historical data for all metered customers are not available. The expected sales are estimated based on the number of customers, the surfaces of the facilities and the specific heat consumption. The specific consumption is calculated at an average of 110 kWh/m^2 for the duration of the heating season: 6 months from October to the end of March. The residential sector is assumed to use 100 kWh/m^2 and institutional buildings 120 kWh/m^2.

The heating area for domestic customers and institutional and commercial customers derives from the billing data of the heating season 2022/2023, submitted by DH Gjakova, as well as the planned new connections of DH Gjakova in the season 2023/2024, which were presented in the 2023/2024 tariff application.

Due to the absence of data, an accurate evaluation of the allowed losses for the 2023/2024 season is difficult. In the 2022/2023 season, they are estimated to be around 20% from DH Gjakova. For the 2023/2024 season, similar to the request of DH Gjakova, thermal losses are evaluated to be 15%. The calculations related to the forecast thermal energy demand for the 2023/2024 season are presented in Table 8.

Table 8: Evaluated heat demand from DH Gjakova JSC, in the 2023/2024 season

	Unit	Evaluated by DH Gjakova	Evaluated by ZRRE
Average heating area per house (2022/2023)	m^2	49,502.00	49,502.00
Average heating area for institutions and businesses (2022/2023)	m^2	73,215.47	73,215.47
New heating areas (institutions and businesses)	m^2	21,887.53	21,887.53
Average specific consumption per season for household customers	MWh/m^2/season	0.100	0.100
Average specific consumption per season for institutions and businesses	MWh/m^2/season	0.120	0.120
Heat demand from customers	MWh	21,029.62*	16,362.56
Network losses	%	15%	15%
Network losses	MWh	3,711.11	2,887.51
Self-consumption of thermal energy (administration building)	MWh	60	60
Overall heat demand	MWh	24,801.72	19,310.07

Even though the calculation of the heat demand is 16,362.56 MWh, in its balance proposal DH Gjakova has added the value to 21,029.62 MWh taking into account the "adjustment factor" based on the relevant evaluations of the previous season where this factor was not argued with any data from the measurements or relevant explanation.

In the 2023/2024 season, DH Gjakova intends to start the production of thermal energy from the co-generation system. The remaining part of the heat demand will be supplied by the biomass boilers of DH Gjakova (HoB).
Based on the tariff application and regulatory statements (Schedule E - G1, G2 - Technical Statement), DH Gjakova estimates that the co-generation system will produce thermal energy for heating in the amount of 15,540 MWh, electricity in the amount of 4,752 MWh, and 1,828 Additional MWh will be distributed to the heat cooler. Also, DH Gjakova assumes that the cogeneration system has an efficiency of 85%.

Due to the lack of historical data, these values cannot be verified by ERO, and are considered as correct for this tariff period.

The remaining thermal energy production of 3,770 MWh is expected to be covered by biomass boilers (HoB), with an expected efficiency of 80%.

The calculation of the biomass demand from DH Gjakova is based on a specific biomass energy of 3.1 MWh/ton.

Table 9: Evaluated biomass demand for DH Gjakova JSC, in season 2023/2024

	Unit	Evaluated by DH Gjakova	Evaluated by ERO
Use of biomass from co-generation (CHP)			
Heat exported to the network	MWh	15,540	15,534
Heat distributed to the heat cooler	MWh	1,828	1,828
Energy taken from the turbine	MWh	4,752	4,752
Total energy production	MWh	22,120	22,120
CHP efficiency	%	85%	85%
Biomass energy to be procured for CHP	MWh	26,024	26,024
Use of biomass from biomass boilers (HoB)			
Energy produced from HoB	MWh	9,261	3,770
HoB Efficiency	%	80%	80%
Biomass energy to be procured for HoB	MWh	11,576	4,713
Total biomass energy to be procured	MWh	37,600	30,736
Caloric content of biomass	MWh/ton	3.1	3.1
Total biomass demand	ton	12,129	9,915