



Pricing in District Heating

Prishtina , November 2009

Legal Base

- In accordance with Article 18 of the Law Nr.2004/8 on Energy, and Articles 45,46,47 ,48 of the Law nr 2004/9 on the Energy Regulator, Energy Regulatory Office of Kosovo is empowered to regulate energy prices including heat prices in District Heating sector.
- DH sector in transportation and distribution of heat is classified as natural monopoly, while for time being no competition exist in heat generation, the district heating tariffs are subject to approval by ERO
- Price Regulation is governed by Tariff Methodology established by ERO and includes setting and approving allowed revenues and tariff rates.
- In this respect, for conducting price regulation/price reviews in district heating sector ERO has developed and issued procedures for tariff application and tariff methodology, contained in the instructions: Instruction on regulatory reporting for District Heating enterprises and Instruction on Principals of calculation of tariffs in district heating sector in Kosovo.

District Heating Price Review

❖ Two main phases:

- Regulatory Reporting
Comparison of actual data versus forecasted – reconciliation of current tariffs with new projected ones
- Tariff Application
Forecasted information - “ex-ante” determining allowed revenues and setting the tariffs;

Regulatory Reporting

➤ **Instruction on Regulatory Reporting of District Heating Enterprises**

Instruction on regulatory reporting contains detail description of the information to be submitted within the regulatory reporting, it also contains detailed guidelines for completion of the regulatory statement.

➤ Forms of regulatory statements can be found in the Annex 1 of the instruction

➤ Regulatory statements contain five main statements witch will contain realized data's from previous season and will be analyzed and further compared with statements from the enterprise independent audit report and further with allowed costs from ERO.

Regulatory Reporting (cont.)

- Reconciliation that is based on difference between projected and actual revenues for the previous heating season; this difference results from comparison of actual data provided within Regulatory reporting versus forecasted data in tariff setting.
- Final result of the reconciliation is included in determination of next allowed revenues of forthcoming season.

Reconciliation(example)

RECONCILIATION CALCULATION of ALLOWED REVENUES		District Heating Season 2007 - 2008 DH TERMOKOS JSC						
Simboli	Position	Amounts			Deviations			
		Plan DH season 2007-2008 allowed by ERO	Actual reporting by Termokos	ERO decision Actual DH Season 2007-2008	Actual reporting by Termokos versus Plan allowed by ERO		ERO decision Actual DH Season 06-07 vs Plan allowed by ERO	
					Amounts	%	Amounts	%
					(1)	(2)	(3)	(4)= (2)-(1)
	Fixed costs	778,550	533,037	533,037	(245,513)	(31.5)	(245,513)	(31.5)
	Variable costs	4,844,089	4,133,944	4,133,944	(710,145)	(14.7)	(710,145)	(14.7)
	Total Operational costs	5,622,639	4,666,981	4,666,981	(955,658)	(17.0)	(955,658)	(17.0)
	Subsidies	(1,532,000)	(2,581,315)	(2,581,315)	(1,049,315)	68.5	(1,049,315)	68.5
OC	Allowed operational costs after deduction of subsidies	4,090,639	2,085,666	2,085,666	(2,004,973)	(49.0)	(2,004,973)	(49.0)
OCf	Fixed part of Operational Costs	566,419	238,213	238,213	(328,205)	(57.9)	(328,205)	(57.9)
OCv	Variable part of Operational Costs after deduction of subsidies	3,524,220	1,847,453	1,847,453	(1,676,768)	(47.6)	(1,676,768)	(47.6)
	Depreciation	819,777	512,021	512,021	(307,756)	(37.5)	(307,756)	(37.5)
	Book value Fixed Assets (after accumulated depreciation)	334,024	0	334,024	(334,024)	(100.0)	0	0.0
	New Investments	8,235,957	8,103,043	8,103,043	(132,914)	(1.6)	(132,914)	(1.6)
	Working Capital	455,500	176,339	176,339	(279,161)	(61.3)	(279,161)	(61.3)
RAB	Regulatory Asset Base	682,648	203,908	682,648	(478,740)	(70.1)	0	0.0
RoR	Rate of Return (%) allowed by ERO	9,374,105	8,483,290	8,962,030	(890,815)	(9.5)	(412,075)	(4.4)
	Allowed Profit	10.60	10.60	10.60				
R _{BR}	Allowed Revenues before reconciliation	993,655	899,229	949,975	(94,426)	(9.5)	(43,680)	(4.4)
	Reconciliation 2006-2007	(1,014,334)	0	0				
R	Allowed Revenues	5,223,761	3,496,916	3,881,686	(1,726,845)	(33.1)	(1,342,075)	(25.7)

Final conclusions of Reconciliation for DH Termokos for heating season 2007/2008:

1,342,075 € will be deducted from the allowed revenues that will be determined for the next heating season 2008/2009.

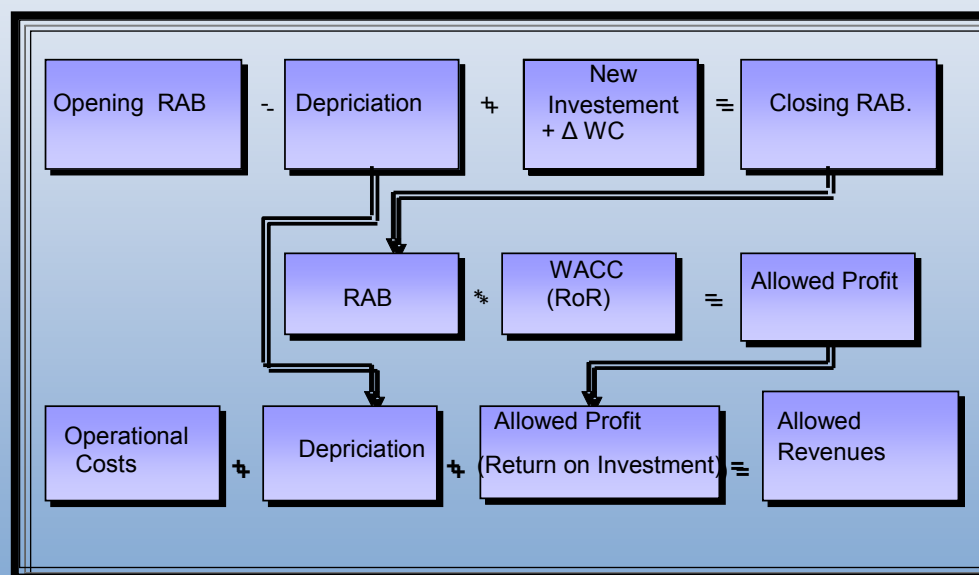
Determination of Allowed Revenues

- **Tariff Methodology** – for the purpose of determining Allowed Revenues and formulation/calculation of tariffs, it is applied the rate of return (RoR Methodology or so-called cost plus Methodology).
- This is most basic tariff methodology which defines the allowed cost which has to be recovered, and reasonable profit to be earned by the district heating enterprises that is calculated by an allowed Rate of Return on Regulatory Asset Base.
- Determination of allowed revenues is based on forecasted information ex-ante determination of allowed revenue
- Allowed revenues are determined according to RoR methodology basic formulation of which is provided below.

Determination of Allowed Revenues(cont.)

❖ Methodology

- **Applied Rate of Return (RoR) Methodology (“cost plus”)**
 - Basic principle: The company should recover all reasonable and justified costs plus a reasonable return on its assets.
- **Formulation**
 - Schematic presentation (“building block”)



- Formula: $R = OC + \text{Annual Depreciation} + (\text{RoR} \times \text{RAB})$

Determination of Allowed Revenues(cont.)

❖ Methodology (contin...)

- **Operational costs (OC)**
 - Fixed Costs (OC_F) and Variable Costs (OC_v)
- **Annual Depreciation**
 - Depreciation for the respective year
- **Allowed Return (RoR x RAB)**
 - Represents the reasonable return on assets (company profit) that company is allowed to return
 - Rate of Return (RoR) / Weighted Average Cost of Capital (WACC)

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

$$WACC_{pre-tax} = [8\% * 0.6] + [14.4\% * 0.4] = 10.6\%$$

For all district heating sector in Kosovo

- Regulatory Asset Base (RAB)
 - Company assets considered to be used and useful for public service
 - RAB = Fix Assets (after cumul. depr.) + New Inv. + Work. Cap.**



Determination of Allowed Revenues (example)

Allowed Operational Costs

In €

Costs / Kostot				DH Company JSC		Proposed by Propozuar	Allowed by ERO
						nga	Lejuar nga
						DH Company	ZRrE
41	Total Operational costs Totali i shpenz. operative					5,559,000	5,542,441
42	Fixed costs	Kostot fikse				643,300	643,300
43	Variable costs	Kostot variabël				4,915,700	4,899,141
44	Subsidy for fuel	Subvencion për mazut				1,717,904	1,717,904
45	Allowed operational costs (OC)		Kostot e lej.oper.			3,841,096	3,824,537
46	Fixed part of OC	(OCf)	Pjesa Fikse			643,300	643,300
47	Variable part of OC	(OCv)	Pjesa Variab.			3,197,796	3,181,237

Determination of Allowed Revenues(example)

❖ Establishment of Closing Regulatory Asset Base (RAB)

In €

Closing Regulatory Asset Base DH Company for DH season 2006 - 2007		Proposed by Propozuar nga DH Company	Allowed by ERO Lejuar nga ZRrE
3.3.1.1	Book value existing Fixed Assets (after cumulative depreciation)	10,043,444	8,448,694
3.3.1.2	New investments	299,691	299,691
3.3.1.3	Working Capital	NA	3,190,500
	Regulatory Asset Base (RAB)	10,343,135	11,938,885



Determination of Allowed Revenues(example continues)

Allowed Return on Closing RAB

In €

Allowed Return (Allowed Profit) on Closing RAB for DH Company for DH season 2006 - 2007		Proposed by Propozuar nga Company	Allowed by ERO Lejuar nga ZRrE
RAB	Closing Regulatory Asset Base	10,343,135	11,938,885
RoR	Rate of Return at WACC level	10.6 %	10.6 %
	Allowed Return or Allowed Profit	1,096,372	1,265,522



Determination of Allowed Revenues(example cont.)

❖ Allowed Revenues Before Reconciliation

Allowed Revenues before Reconciliation DH Company for DH season 2006 – 2007		Proposed by Propozuar nga DH Company	Allowed by ERO ^{In €} Lejuar nga ZRrE
OC	Allowed operational costs	3,841,096	3,824,537
	Depreciation	839,000	741,573
	Allowed Return on Closing RAB	1,096,372	1,265,522
R _{bRec}	Allowed Revenues before Reconciliation	5,776,468	5,831,632



❖ Allowed Revenues Including Reconciliation

In €

Allowed Revenues – DH Company for DH season 2006 – 2007		Allowed by ERO Lejuar nga ZRrE
R_{bRec}	Allowed Revenues before Reconciliation DH season 2006-2007	5,831,632
	Reconciliation DH season 2005-2006	1,097
	Reconciliation DH season 2004-2005	(292,554)
R	Allowed Revenues	5,540,175
R_F	Fixed Part of Allowed Revenues	643,037
R_V	Variable Part of Allowed Revenues	4,897,138

Calculation of Tariffs

- **Instruction “on the principles of Calculation of Prices and Tariffs in District Heating Sector in Kosovo”.**
- The instruction sets the procedures for submission and approval of tariffs and the methodology for determination of allowed revenues and tariff calculation.
- Annex 2 of the Instruction – Contains details and formulation for calculation of tariff rates.
- Tariff rates are set based on determined allowed revenues and tariff structure – the example of calculation according to the formulas is presented in the next 2 slides (tables).



Calculation of Prices and Tariffs(example)

Formulas according to Temporary Instruction I_05_2007 - Annex 2	Description	Unit	Residential customers	Commercial & Institutional customers	Total customers
Rf	Fixed Part of Allowed Revenues	€	414,652	308,667	723,319
Rv	Variable Part of Allowed Revenues	€	2,579,936	1,920,506	4,500,442
R	Total Allowed Revenues	€	2,994,587	2,229,174	5,223,761

A. TARIFF FOR NON-METERED CUSTOMERS

A2	$HDI = (CDspi \times Si \times LH) : 10^6$				
	CDspi	Specific capacity demand of particular customer group	W/m ²	100	120
	Si	Total heating space of particular customer group	m ²	632,348	392,267
	LH	Nominal full load hours of particular customer group	h	1,169	1,169
	HDI _i	Season heat demand of particular customer group	MWh	73,921	55,027
	HDI _T	Total heat demand of all customers	MWh		
A3	$HDI_T = \sum_{i=1}^n HDI_i$				128,949
A4	$HDI_{Ri} = HDI_i : HDI_T$	Ratio heat demand for each customer group	€	57.33%	42.67%
A5	$Ri = R \times HDI_{Ri}$	Allowed revenues for particular customer group	€	2,994,587	2,229,174
A6	$R_{if} = R_i \times HDI_{Ri}$	Allowed fixed revenues for particular customer group	€	414,652	308,667
	$R_{iv} = R_i \times HDI_{Ri}$	Allowed variable revenues for particular customer group	€	2,579,936	1,920,506
A8	$Ty_{inc} = R_{if} : Si$	Season tariff of heat capacity contracted (fixed component) for particular customer group	€/m ²	0.66	0.79
A9	$Ty_{ind} = R_{iv} : Si$	Season tariff of heat delivered (variable component) for particular customer group	€/m ²	4.08	4.90
A10					
a)	$Tm_{inc} = Ty_{inc} : 6$	Monthly tariff of heat capacity contracted (fixed component) for particular customer group	€/m ²	0.11	0.13
b)	$Tm_{ind} = Ty_{ind} : 6$	Monthly tariff of heat delivered (variable component) for particular customer group	€/m ²	0.68	0.82



➤ Tariff for metered costumers

B. TARIFF FOR METERED CUSTOMERS

B.2	N	Total contracted heat capacity	kW	110,307
B.3	Q	Season heat delivered to customers' substations	MWh	109,762
B.2	$T_{y_{10}} = R_{y_{10}} : N$	Season tariff of heat capacity contracted	€/kW	6.56
B.4	$Tm_{10} = T_{y_{10}} : 6$	Monthly tariff of heat capacity (fix component)	€/kW	1.09
B.3	$T_{y_{10}} = R_{y_{10}} : Q$	Tariff of heat delivered (variable component)	€/MWh	41.00

Tariff Structure

Rates of DH Tariff (example)

TARIFF RATES FOR DISTRICT HEATING TERMOKOS JSC FOR HEATING SEASON 2007/2008

Table A. TARIFF FOR NON-METERED CUSTOMERS

DISTRICT HEATING TERMOKOS JSC		
Components of Tariffs	Residential m ² per month	Commercial- Institutional m ² per month
Heat capacity contracted (fixed component)	€0.11	€0.13
Heat delivered (variable component)	€0.68	€0.82

Table B. TARIFF FOR METERED CUSTOMERS

DISTRICT HEATING COMPANY "TERMOKOS" JSC	
Monthly tariff of heat capacity (fixed component)	€1.09 / kW
Tariff of heat delivered (variable component)	€41.00 / MWh



Thanks for your attention!