CAPEX review – Case Study session

Case study by Energy and Water Services Regulatory Commission North Macedonia

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General outline of the elements of allowed revenues

- *Maximum allowed revenues (MAR) of the natural gas transmission system operator is calculated with the following formula:*

$$\boldsymbol{MAR_t = BR_t + L_t + SPT_t - K_t}$$

- *The basic revenue for each year (t) (BRt) of the regulated period is calculated with the following formula:*

$$BR_t = [\mathrm{O}_{t-1} \cdot (1 + CPI_t) + D_t + RA_t] \cdot (1\text{-SX})$$

- *The alignment factor for the regulated period is determined by the Energy Regulatory Commission, in the decision for the maximum allowed revenues and tariff for the regulated period, and it is determined as follows*:

$$\sum_{t=1}^{3} \frac{ABB_t}{(1 + WACC)^t} = \sum_{t=1}^{3} \frac{BR_t(1 - SX)}{(1 + WACC)^t}$$

- *The annual revenue by components that is planned by the regulated company, for each t year of the regulated period, is calculated with the following formula:*

$$ABB_t = \mathrm{O}_t + D_t + RA_t$$

Categories of network investments

• *The criteria, based on which the justification of the planned investments is evaluated, are the following:*

- *For each investment, a resume with indicators on the economic justification, return period, current net value, internal rentability rate and profitability index should be submitted, except for the separate investment with a value lower than 100.000 euro, calculated in MKD in middle exchange rate of the National Bank of the Republic of Macedonia on the day of request submission, for which a resume with indicators on economic growth doesn't have to be submitted. Thereby, the regulated company cannot show another identical separate investment (with same purpose, same or simular technical characteristics, for same capacity), in the regulated period.*
- *The investment must provide greater safety, security in supply, as well as to provide quality of the delivered natural gas to the end consumers, in accordance with valid standards.*

• *On request of the Energy Regulatory Commission, the regulated company is obliged to submit additional information, data, and clarifications regarding the benefits of the planned investment.*

Regulatory model used for CAPEX review

- *The return on equity is determined as return of regulated assets, and is calculated with the following formula:*

$$RA_t = RAB_t \cdot WACC$$

- *The regulated assets are assets by which the regulated activity is performed, during which the following is not taken into consideration in the calculations:*
  - *Assets acquired from capital contributions such as grants and*
  - *Unjustified investments.*

- *To determine the average value of the regulated assets, the following formula is used:*

$$RAB_t^{av} = \frac{RAB_t^{start} + RAB_t^{end}}{2} + AVS_t$$

- *The value of the regulated assets in the end of the regulated year ( ), is calculated with the following formula:*

$$RAB_t^{end} = RAB_t^{start} + NI_t + Grant_t - D_t - RAB_t^{out}$$

- *Depreciation (D)- the calculation of the depreciation of the regulated fixed assets of the regulated company , with which the regulated activity is performed, is performed in accordance with the prescribed minimum annual depreciation rates, and includes:*
  - *depreciation of regulated fixed assets without land and*
  - *amortization of acquired funds financed by grants.*
- *The weighted average cost of capital (WACC) for regulated company on a real basic is calculated with application of the following formula:*

$$\text{WACC} = \frac{(1 - Debt) \cdot K_e}{(1 - T_p)} + Debt \cdot K_d$$

CAPEX assessment models

	DESCRIPTION		REGULATED PERIOD 2022-2026	
			2022 year	
			GA-MA	ERC
I	**Operating costs (O)**		**196,313,447**	**140,768,831**
	cost for material, energy, spareparts and inventory		27,608,039	23,333,759
	maintenance costs		55,950,600	30,324,701
	costs for insurance of assets		9,953,777	9,953,777
	salaries costs		65,244,216	46,103,836
	cost for management salaries and management bonuses		10,147,094	8,547,094
	costs for other services		10,485,507	10,485,507
	other costs		16,924,214	12,020,158
II	**Depreciation (D)**		**132,302,211**	**121,298,803**
III	**RA**	$RA_t = RAB_t \cdot WACC$	**37,539,675**	**38,145,437**
	WACC	$\text{WACC} = \frac{(1 - Debt) \cdot K_e}{(1 - T_p)} + Debt \cdot K_d$	0.0505	0.0602
	RAB average value of the regulated assets	$RAB_t^{av} = \frac{RAB_t^{start} + RAB_t^{end}}{2} + AVS_t$	2,430,627,253	2,073,779,322
	value of natural gas reeserve in the network AVSt-1		47,190,034	39,205,201
IV	**Annual revenue ABB (O+D+RA)**	$ABB_t = O_t + D_t + RA_t$	**366,155,333**	**300,213,072**
	regulated revenue settlement factor SX	$\sum_{t=1}^{3} \frac{ABB_t}{(1+WACC)^t} = \sum_{t=1}^{3} \frac{BR_t(1-SX)}{(1+WACC)^t}$		
	Inflation (CPI)-consumer price index			
V	**Base revenue for the t year (BRt)**	$BR_t = [O_{t-1} \cdot (1 + CPI_t) + D_t + RA_t] \cdot (1 - SX)$		
	specified pass- through cost (SPT)		355,000	355,000
	costs for covering the approved technical losses - Lt	$L_t = alr \cdot Q_t \cdot P_{Lt}$	40,000,000	46,518,711
	correction factor Kt	$K_t = (R_{t-2} - MARK_{t-2}) \cdot (1 + Ir_{t-2}) \cdot (1 + Ir_{t-1})$		
VI	**Maximum allowed revenue (MARt)**	$MAR_t = BR_t + L_t + SPT_t - K_t$		**347,086,783**
	realized revenue in the t-1 year - R_{t-2}			
	less/more realized revenue			86,649,881
VII	**maximum allowed revenue in the t-1 year, recalculated with recognized values- $MARK_{t-2}$**			**260,436,902**
VIII	**Q_t - Quantity of natural gas nm^3**		**225,187,424**	**225,187,424**
IX	**tariff with settlement factor SX**		**1.8052**	**1.1565**

THANK YOU FOR YOUR ATTENTION!

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