РЕГУЛАТОРНА КОМИСИЈА ЗА ЕНЕРГЕТИКА
НА РЕПУБЛИКА МАКЕДОНИЈА

Tariff and Price Setting for Separate Energy Types

Partnership Program
(RCE, Republic of Macedonia - PSB, Vermont)
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Price Regulation

Regulation Objectives

- Efficiency promotion
  - *Productive efficiency – lowest cost generation*
  - *Allocation efficiency – price by marginal costs*
  - *Dynamic efficiency – prompt investment and lowest costs*
- Covering justified costs – financial liability of licence-holding utilities
- Promoting non-discriminatory competition
- Protecting consumers' interests from monopoly or abuse of a dominant position in the market
- Compatible social and economic development objectives

Regulation Objectives in Macedonia

- The Law on Energy provides for tariffs:
  - based on justified costs including coverage of capital investments
  - enabling objectivity, non-discrimination and transparency
  - encouraging energy efficiency and use of renewable energy sources
  - complying with the requirements of EU Directives 2003/54/EC and 2003/55/EC
  - complying with Regulation 1228/2003 on cross-border trading of electricity
  - complying with the obligations stemming from the South-East Europe Energy Community Agreement

Price Regulation Options

- **Cost-plus/rate-of-return**
  - prices are determined on the basis of current costs and adjusted upon need
- **Incentive-based: Price-cap/Revenue-cap**
  - prices are determined on the basis of estimated costs
  - prices are reviewed every 3-7 years
  - utilities are allowed to retain the profit from reducing the costs below the estimated level until the next review
- **Yardstick competition/regulation**
  - prices are adjusted to the average costs of all utilities in the energy industry
  - utilities are allowed to retain the profit from the reduction of their own costs below average industrial costs
- **Profit-share/Sliding-scale**
  - sharing extra profit/loss between consumers and utilities

Pricing Methodology of Certain Energy Types

(Official Gazette of RM 43/98)

- Securing a unique and general approach on pricing of certain energy types generated and delivered by energy systems, as well as for oil derivates:
- Energy – from energy systems - as well as oil derivates
- Energy systems:
  - Electricity systems (electricity generation, transmission and distribution);
  - Gas system (natural gas transmission and distribution);
  - District heating system (heating energy generation, transmission and distribution);
  - Geothermal system (drilling, transmission and distribution);
  - Refinery – oil derivate production plant, from crude oil to oil derivates at the threshold.
- Prices designed in compliance with this methodology:
  - Prices on consumer threshold with energy systems;
  - Prices on refinery threshold with oil derivates loaded on the transportation vehicle;
  - Margin on oil derivates.

Methodological Concept

- Rate of return
- Pricing considers standard operational costs.
- Company cost base is the average cost of goods and services on the market in the Republic of Macedonia in the period when the price was set.
- Cost of capital is not considered.
- Profit from operations as a percentage of fixed assets and permanent working capital.

Methodological Elements

1. **Depreciation –** Legal depreciation of company's fixed assets.
2. **Insurance –** Three-year average of company's fixed assets insurance costs.
3. **Current maintenance and repairs –** up to 20% of legal depreciation of fixed assets for all other systems; up to 25% for ESM.
4. **Raw material –** Three-year average of material cost on the market in the Republic of Macedonia is recognized for the last six months for 95% of total costs in this class. Other 5% (small costs) are recognized according to the real incurred costs.
5. **Gross salary –** Number of employees in immediate production according to the investment project or according to the normative act of the utility.

   30% overhead is added to that number. Salary cost is 30% higher than the average for the previous six months.

Methodological Elements (cont'd)

6. **Services from others, except production services for current maintenance –** A three-year average of this cost and cost #4 is recognized.
7. **Concessions for using natural resources –** This cost is recognized in compliance with the concession agreement.
8. **Contingency and extraordinary costs –** Acknowledged on the level of 10% from the sum of cost 1 - 7.
9. **Costs on loans –** Not recognized in the price.
10. **Taxes and all expenses –** That the state will impose at any period on the companies will become part of acknowledged costs.
11. **Profit –** Up to 80% of permanent value of assets and permanent working capital.

Review of a Timetable and Criteria for Changing Prices

- Regular review of the elements establishing the prices, according to the methodology, is carried out every six months.

- Non-scheduled review is carried out when total costs of the energy supplying company in the current period (not longer than three months) have grown by more than 5%. This is a basic criterion for price changing.

- In case of extreme cost changes, 5% in short time period, a review is carried out within 15 working days.

Possible Directions for Price Regulation of Certain Energy Types

- Price regulation of certain energy types was the subject and content of many projects and studies, among which:
  - "Price control and tariff, and price methodologies for certain energy types" was prepared as part of the project "Developing the Energy Regulatory Commission in the Republic of Macedonia," prepared by IKRP Rokas & Partners consultancy house and financed by EAR;
  - "The Tariff Model of the Macedonian Electricity Sector" was prepared by NERA – consultancy house and financed by USAID.
- The following approach is proposed as the most frequently applied one in Southeast Europe, and the most appropriate one for the energy sector in Republic of Macedonia:
  - Incentive-based approach

Incentive-based Approach

- In comparison with a cost-plus regulation, incentive-based approach:
  - Enables strong stimulation to improve efficiency;
  - Can reduce investment risk by setting a price path for several years;
  - Can stimulate detection of utility's real costs.
- In comparison with a yardstick competition, incentive-based approach:
  - Is better known among investors and thus seen as a low risk
  - Does not allow the utility to go bankrupt

Sector: Electricity

- **Production**
  - Revenue cap for fixed operative costs and capital costs (depreciation and return)
  - 90% real fuel costs, 10% price cap
- **Transmission**
  - Revenue cap
  - Sliding scale for the initial period of price control due to risk reduction from high profit/loss as a result of inadequate data
- **Distribution**
  - 50% revenue cap/50 % price cap
  - Additional incentive for reducing technical losses
  - Sliding scale for the initial period of price control due to risk reduction from high profit/loss as a result of inadequate data
- **Retail margin**
  - Price cap
  - Additional incentive for reducing non-technical loss

Sector: Natural Gas

- **Transmission**
  - Revenue cap
  - Sliding scale for the initial period of price control due to risk reduction from high profit/loss as a result of inadequate data
- **Distribution**
  - Price cap
  - Additional incentive for reducing technical losses
- **Retail margin**
  - Price cap
  - Additional incentive for reducing non-technical losses

Sector: Heating Energy

- **Production**
  - Revenue cap for fixed operational costs and capital costs (depreciation and return)
- **Distribution**
  - Revenue cap
  - Additional incentive for reducing technical losses

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Methodologies for Electricity Pricing and Price Control

- The consultants presented the following methods on electricity pricing and price control:

  - Revenue Cap
  - Price Cap
  - Combined method (revenue cap and price cap)
  - Rate of Revenue Requirement

Revenue Control for the Transmission License Holde

- Price control by revenue cap approach

$$MART = MART\text{-}1 *(1 + CPIt) * (1 – X) - Kt - St$$

where

MARt	= Maximum allowed revenue that can be achieved by the holder of the distribution license in the relevant year
MARt-1	= Maximum allowed revenue for the relevant year t-1
CPIt	= *Consumer Price Index*
X	= Efficiency Factor
Kt	= Correction factor i.e. the difference of expected real transmitted amounts
St	= Revenue Allocation Factor

Revenue Control for the Holder of Distribution License

- Price control by combined approach for revenue cap and price cap

$$MAR_t = [\, MAR_{t-1} * (1 + CPI_t) * (1 - X) - K_t \,] * a + (1 - a) * P_t - S_t - Z_t$$

where

MARt	= Maximum allowed revenue that can be achieved by the holder of distribution license for the relevant year
MARt-1	= Maximum allowed revenue for the relevant year
CPIt	= Consumer Price Index
X	= Efficiency Factor
Kt	= Correction factor i.e. the difference from expected real transmitted amounts
St	= Revenue Allocation Factor
Pt	= Price Cap Factor
Zt	= Loss Factor
a	= Ratio between revenue cap and price cap

Revenue Control for the Holder of Production License

- Price control by revenue cap approach

$$MARt = PUBt * [FIXt-1* (1 + CPIt) * (1 – XF) + CAPt] + VARt + FUELt$$

MARt = Maximum allowed revenue that is to be covered by the holder of electricity production license for the relevant year *t*

PUBt = Ratio of the total available electricity production capacity that is believed to be necessary for the fulfillment of the electricity production requirement

FIXt-1 = Maximum allowed revenue presented as sum of costs related with capital including fixed costs for operation and maintenance costs for the relevant year t-1

CPIt = Retail price index

XF = Adjustment or H-factor applicable for the costs related to capital and fixed operational costs and maintenance costs

CAPt = Maximum allowed revenue presented as sum of costs related with capital including the allowed costs for depreciation and the allowed revenue from net fixed assets of the holder of electricity production license for the relevant year t-1

VARt = Allowed revenue presented as expected amount of variable costs for operation and maintenance

FUELt = Allowed revenue presented as expected amount of fuel costs

Expected Revenue Rate

RR = OC + r* (V-D) + T + d + OSS

where

OC = Operational Costs
T = Taxes
d = Annual Depreciation Cost
r = Rate of Return
V = Assets and Equipment Value
D = Accumulated Depreciation
OSS = Off System Sales

Thank you for your attention