

# *Pricing in the power sector of Ukraine*

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України



**Regulatory legal base for exercise of  
authorities of NERC in the power  
sector**

**Law of Ukraine  
On Electricity**

**Law of Ukraine  
On Natural  
Monopolies**

**Decree of the President of  
Ukraine of 14.03.1995 # 213  
On Measures for Ensuring  
Activities of NERC**

**Decree of the CMU of 25.12.1996  
# 1548 On setting authorities of executive  
power bodies and city hall executive bodies  
with respect to regulation of prices (tariffs)**

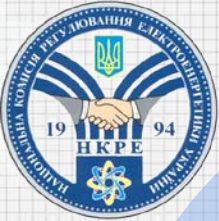
**Authorities of NERC**

**Approval of tariffs for  
transmission of electricity through  
local power networks and tariffs for  
supply of electricity at the  
regulated tariff**

**Approval of uniform retail  
tariffs for electricity for consumers**

**Approval of tariffs for electricity  
for residential consumers**

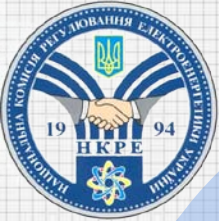




## Principles of pricing and tariff policy

- State regulation of tariffs for monopolies
- Free pricing in competitive sectors
- Recovery of economically justified costs of economic entities on carrying out licensed types of activities
- Control over justification of costs of natural monopolies
- Protection of consumer rights and openness of the procedure of review and approval of tariffs



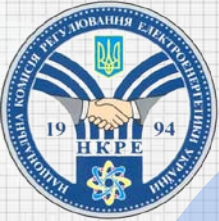


In accordance with Article 17 of the Law on Electricity the following is envisioned:

- **Formation of wholesale prices for electricity has to be done in accordance with conditions of the agreement of members of the Wholesale Electricity Market**
- **Retail tariffs for electricity are formed by energy supply companies in accordance with conditions and rules for carrying out entrepreneurial activities on supply of electricity**
- **Tariffs for transmission and supply of electricity through local power networks are regulated by the National Electricity Regulatory Commission.**







## Procedure for setting or revision of tariffs for licensees on transmission of electricity through local power networks and on supply of electricity at the regulated tariff:

- **Sets conditions for accepting company's application for examination**
- **Contains requirements to preparation of an application with detailed list of all documents**
- **Sets the procedure and terms of examination of the application**
- **Envisions a possibility for revision of tariffs upon initiative of NERC**





## Revision of tariffs at the initiative of NERC

- Completion of the period of validity of the tariffs, their structure or separate elements of costs in the structure
- Detection of the fact of not targeted or unjustified use of cash
- Use of cash for purposes or in amounts not envisioned in the approved investment program without coordination with NERC;
- Filing inaccurate information
- Carrying out other types of activities without permission of NERC;
- Failure to execute the program of events aimed at improvement of the quality of electricity
- Non-execution of obligations on payment of electricity purchased at WEM
- Violation of conditions of purchase of goods, works and services determined in current normative acts
- Changes in volumes of transmission or supply of electricity in comparison with those accounted for in current tariffs for more than 5%
- Changes in costs of the company for reasons that do not depend on activities of a licensee, if it leads to changes in the level of approved tariffs for more than 5%.

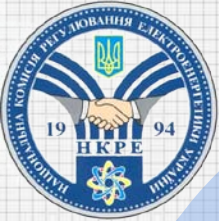




## Control over carrying out licensed activity

- Is carried out in accordance with the Procedure for control over licensees' compliance with Conditions and Rules of carrying out entrepreneurial activities on transmission of electricity through local networks and on supply of electricity at the regulated tariff
- Is carried out by NERC and its territorial branches
- Inspections can be scheduled and unscheduled





# Formation of tariffs for transmission and supply of electricity

**Tariffs for transmission are divided into 2 voltage classes depending on the level of voltage:**

1 class – 27.5 -154 kV

2 class - 0.4 -10 kV.

**Tariffs for supply of electricity are divided into 2 groups:**

1 group

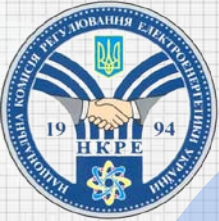
- Industrial and similar consumers connected to networks with voltage 750 kV and more
- Industrial and similar consumers connected to networks with voltage less than 750 kV
- Electric railroad transport
- Electric municipal transport
- Non-industrial consumers
- Agricultural consumers-producers

2 group

- Residential consumers (population and localities)







# Formation of tariffs for transmission and supply of electricity

It has to be noted that in order to avoid cross subsidies each energy supply company has to ensure unbundling of costs by types of licensed activities – transmission and supply

For this purpose each company develops and approves an internal order for such unbundling of costs with the list of all accounts (sub-accounts), and financial economic activity is carried out in strict compliance with this order

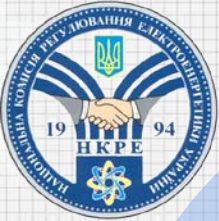




# Investment Plan

- Approved by NERC
- Coordinated with the Ministry of Fuel and Energy
- Takes into consideration volume, direction and purpose of investments
- Suggests a procedure for changing an investment plan – additional investments for inclusion in the tariff have to be coordinated with NERC
- Envisions liability for non-execution of the investment plan – sanctions in the form of reduction of tariffs

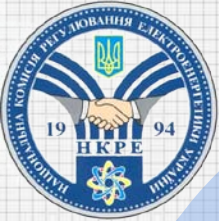




## Normative-legal basis for tariff setting in the retail market

- **Procedure of formation of a retail tariff for electricity for consumers, except for the population and localities**
- **Procedure for calculation of unified retail tariffs for electricity sold to each voltage class, except for the population, localities and street lighting in the territory of Ukraine**





# Formation of the retail tariff

$$T_{ij} = \frac{\underset{j}{\underset{I=1}{\prod}} \underset{p}{\underset{c3}{\mathcal{U}}}}{\prod (1 - k_l)} + T_j^M + T_i^\Pi$$

i – consumer group

j – consumer class

l – voltage class of power network through which electricity was transmitted to the final consumer

$\mathcal{U}_{pc3}$  - forecasted average purchase price of electricity for the settlement month

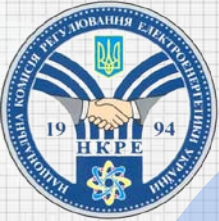
kl – economic coefficient of technological costs of electricity at the 1st voltage class

$T_j^M$  - tariff for transmission of electricity

$T_i^\Pi$  - tariff for supply of electricity







# Unified retail tariffs

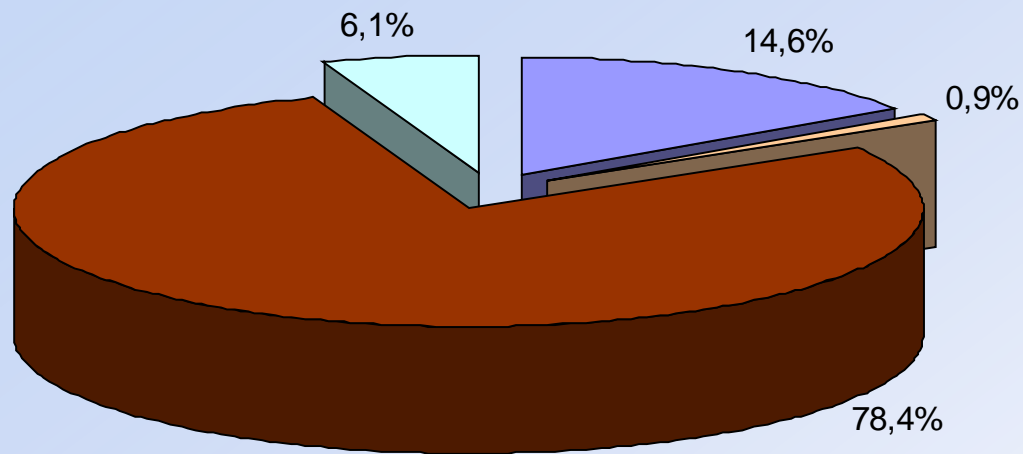
Were introduced starting with September 1, 2005, in accordance with Decree of the Cabinet of Ministers of Ukraine of 15.08.2005, No. 745

They are calculated by NERC as a weighted average value of estimated retail tariffs by voltage levels among all energy supply companies





# Structure of the average retail tariff in 2009



The level of the average retail tariff is 520.33 hrn/MWh

- тариф на передачу - 75,92 грн/МВт.час
- тариф на поставку - 4,77 грн/МВт.час
- оптовая рыночная цена - 407,68 грн/МВт.час
- нормативные потери электроэнергии в сетях - 31,96 грн./МВт.час





# Current tariffs in the retail electricity market of Ukraine

(100 %)

## Retail tariff for electricity

Wholesale  
market  
price

+

Transmission tariff  
+  
Supply tariff

Generators of  
electricity

Energy supply  
companies

## Consumers

(37%)

**Non-residential  
consumers**

Tariff – 55.4  
kop/kWh (without VAT)

(30%)

**Population**

Tariff – 19.4  
kop/kWh (without VAT)

(33%)

**Preferential categories of non-  
residential consumers**

Tariff – 45.1  
kop/kWh (without VAT)

Including:

- Mining and steel enterprises, and chemical enterprises (45.8 kop/kWh);
- Coal extracting enterprises (48.5 kop/kWh);
- Municipal electric transport (20.3 kop/kWh);
- Outdoor lighting of localities (16.1 kop/kWh);
- Children's centers "Artek" and "Molodaya Gvardia" (20.3 kop/kWh);
- Zaporozhie titan magnesium enterprise (47.9 kop/kWh).





# ***Long-term NERC policy on converting to incentive regulation***







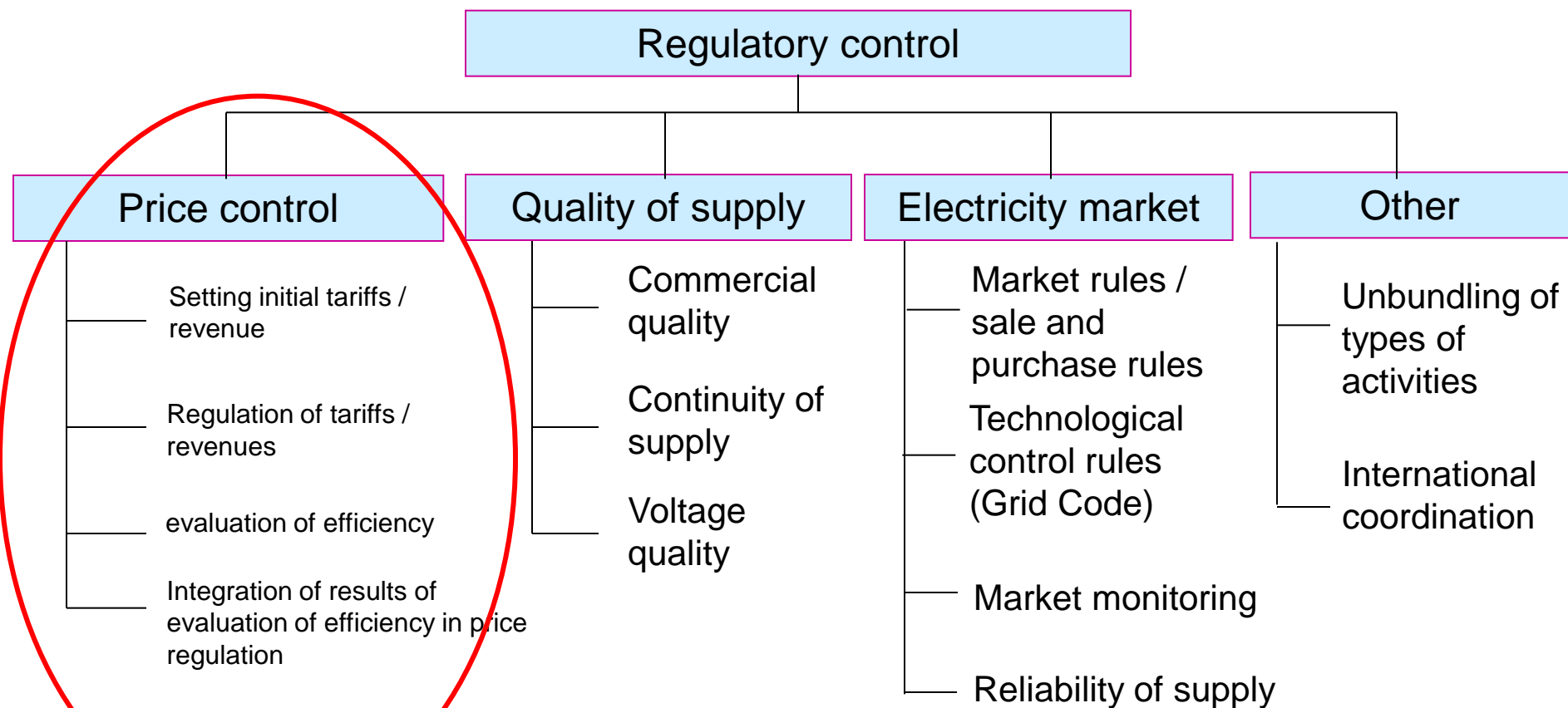
## Goals

- Use of principles of regulation with minimal interference
- Conversion to long-term regulation and long-term schemes of setting tariffs
- Ensuring stability and financial independence of the sector
- Promotion of investments in distribution networks
- Control of quality of provided services
- Promotion of enhancement of efficiency
- Guaranteed distribution of additional benefits from improvement of efficiency between regulated companies and consumers
- Keeping connection between revenues and costs



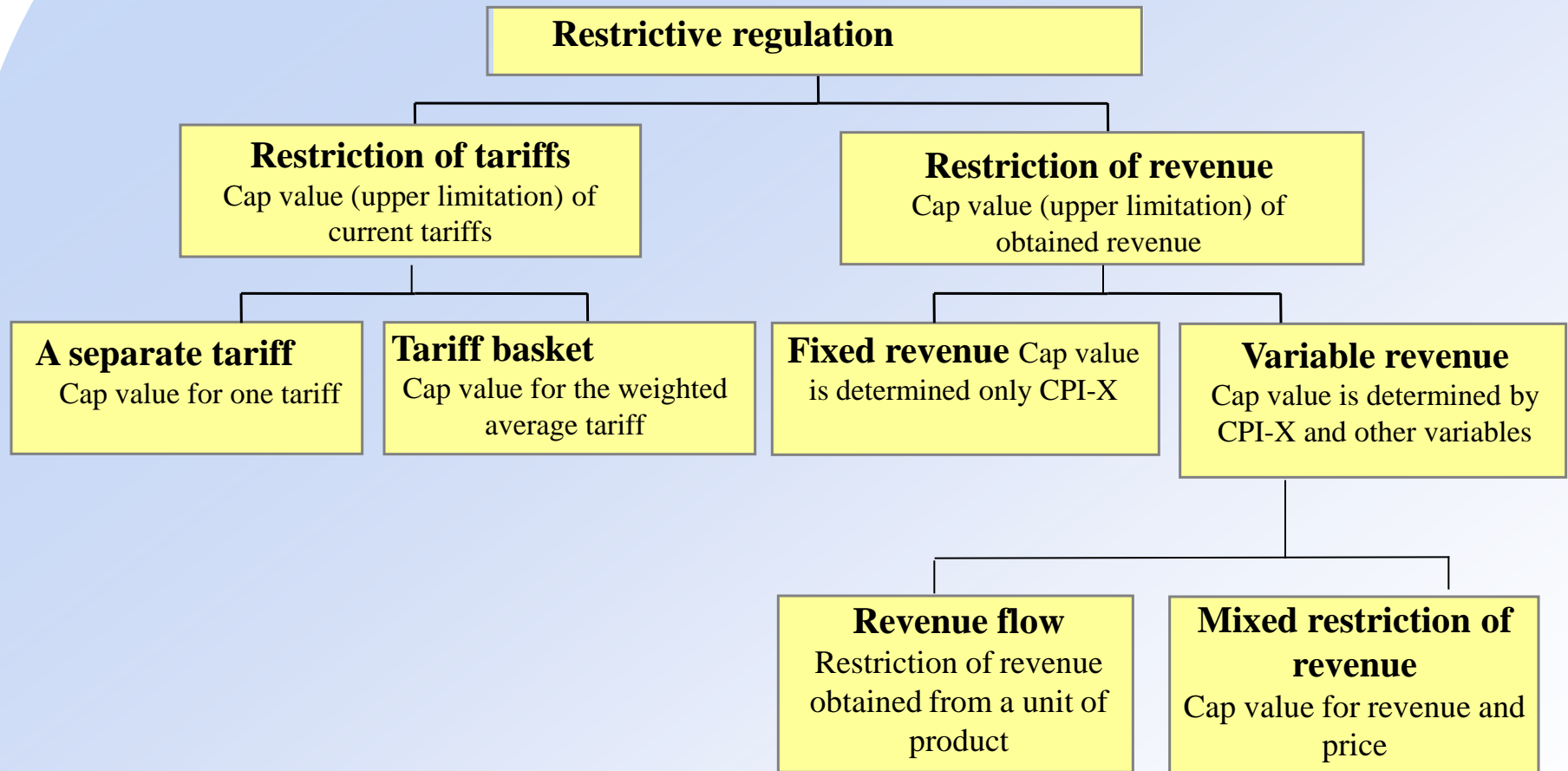


# Regulation has to ensure: functional market model, fair prices and necessary quality of regulated services





# Restrictive regulation





## Regulatory Regime Structure

- Is applied to the service on distribution of electricity (connection service and other non-regulated services are excluded)
- Restrictive regulation (CPI – X)
- Duration of the regulatory period: the first period is 3 years, subsequent periods – 5 years/ a transitional period – 2 years
- Planned revenues are planned at the beginning of regulatory periods (block construction)



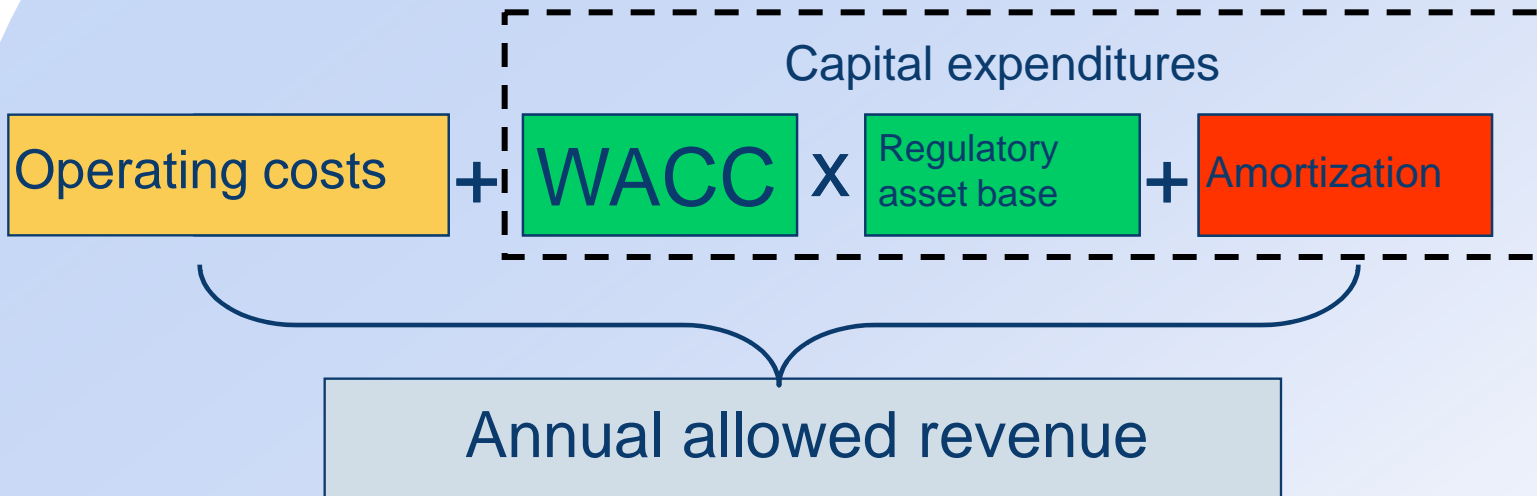




# Regulatory Regime Structure

- Restriction of revenue
- Accurate evaluation of efficiency of controlled operating costs
- Separate verifications of capital costs
- Average requirements to efficiency growth
- Weighted average cost of capital (WACC)
- Linear amortization charges
- Retail price index (RPI)





- Operating costs: are subject to benchmarking (performance benchmarking)
- Capital costs: are analyzed separately for each company at the time of opening and closing of the regulatory asset base using regulatory amortization during and after the period of price regulation





## Planned revenue

- Formation of planned revenue is aimed at assessing current and future costs
- Main price elements, which are examined in regulatory policy:
  - Profit on the total amount of assets (cost of capital and regulatory asset base);
  - Amortization of assets
  - Operating costs and repairs
- In addition, revenue includes profit of the enterprise





## Operating costs

- Division into controlled and non-controlled operating costs
- Requirement of growth of efficiency for controlled operating costs by means of setting the efficiency indicator on the basis of using benchmarking models
- Component by component indexation for main components of operating costs





## Calculation of controlled costs

- Basic levels of controlled costs are determined by actual figures of the reporting period by a certain list and are adjusted on annual basis by the price index of producers (services)
- Controlled costs are determined taking into account the efficiency factor, which is set by the regulator (NERC) and also by the index of changes of the number of conventional units (of equipment) in the regulatory year







## Uncontrollable costs

- Are determined by actual figures for the reporting year according to the list and are adjusted taking into consideration changes in provision of the current legislation
- (rent of land, taxes – utility, land tax, transport tax, payments to banks under service agreements, mandatory insurance, etc.)





# Amortization

- Amortization is non-cash item of expenses that represents annual deduction of the cost of assets during the period of its economic operation
- Amortization is accrued by means of pro rata write off
- Existing assets are amortized during the remaining period of their useful life, meanwhile amortization is calculated at the residual value of the asset (existing RBA)
- Amortization of new assets is done in accordance with standard rate of regulatory amortization set by the regulator





## Regulatory asset base

- Value of fixed assets of the company can be regulatory asset base
- In such a case it is necessary to determine their fair value
  - Option 1: To carry out revaluation of assets
  - Option 2 : To use the tax value of assets
  - Option 3: To use the value of assets at the replacement value (calculated by the industry specific institute “Selenergoproekt”)





## Methods for revaluation of assets

- **Methodology of initial value of company's assets** evaluates assets at their initial purchase price
- **Method of replacement value** evaluates cost of replacement of one asset with the other (not necessarily the same one), which would ensure provision of the same services in the same volume as the existing asset.
- **Residual replacement value (RRV)** = evaluates cost of the used asset at equivalent net present replacement value of this asset in its present state with another asset, which has the same useful potential (for example, capacity or productivity)
- **Optimized residual replacement value (ORRV)** = is cost of replacement of the “optimized” system (includes technical optimization) decreased by accrued amortization





## New investments/Capital expenditures

- Preliminary verification of assumed capital expenditures
- If real capital investments are less than the planned ones, it is necessary to determine the nature of obtained benefits
- If revenues represent consequences of intentional delay of investments, there should be compensation by means of applying negative adjustment of revenues in the next regulatory period.
- If real capital investments exceed planned ones, then excessive spending of funds is subject to be included in RBA only after direct permission from the regulator.
- RBA is transferred to the next regulatory period by means of accounting for inflation for real capital costs and relevant amortization.







## Enhancement of efficiency and X-factor

- Allowed revenue is calculated for each year of the regulatory period (initial forecasted revenues)
- Initial forecasted revenues include values of operating and capital costs calculated taking into consideration enhancement of efficiency
- Efficient operating costs are calculated by means of applying preliminary set requirement to enhancement of efficiency (including individual X-factors and the general trend) for controlled operating costs. Efficient capital costs are included, which passed preliminary regulatory check (before the beginning of the regulatory period) of proposed capital investment programs
- Initial forecasted revenues have to be converted into “smoothed” revenue function with the closing X-factor (financial equivalent expressed in net present value)
- A double role of the closing X-factor:
  - Regulatory lever for improvement of efficiency (set through initial value of X)
  - Revenue “smoother”
- Revenue flows in real terms (taking into account inflation through the regulatory formula)





## Price index

- Is determined by the national consumer price index
- Are applied to the initial value
- Recalculation only in case of significant difference between initial and actual values





## Correcting factor

- A correcting factor is introduced to correct differences between actual and allowed income for previous years

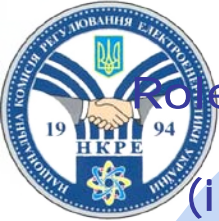




## Energy supply quality regulation

- A reliable scheme for quality regulation, including standards and incentives, has to be developed during the first regulatory period
- During the first regulatory period “shadow” standards can be set
- During the second regulatory period it is possible to “built in” quality in the process of price control (integrated price/quality regulation scheme), Q factor in the formula
- Revenue, to which quality promotion measures apply, should not exceed certain percentage (for example, 2 %)





## Role of NERC in monitoring quality of services on transmission and supply of electricity

(Incentives for enhancement of the level of quality of provided services)

- Publication of comparative information on quality of services of energy companies in order to promote comparative competition in terms of quality indicators
- Imposition of economic sanctions (fines, compensations) in case of non-execution of requirements of standards. Funds from economic sanctions are sent to consumers or are used to finance programs of service quality enhancement
- Written warning, making changes in license terms or cancellation of licenses.
- Revision of the level of tariffs for transmission of electricity through local power networks and supply of electricity at the regulated tariff and other economic sanctions, which affect revenues and profits of energy companies.







THANK YOU FOR ATTENTION!



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