



Национальная комиссия, осуществляющая
государственное регулирование в сфере энергетики



Energy Regulatory Partnership Program
National Association of Regulatory Utility Commissioners
With the National Commission for State Energy Regulation

Seventh Partnership Activity

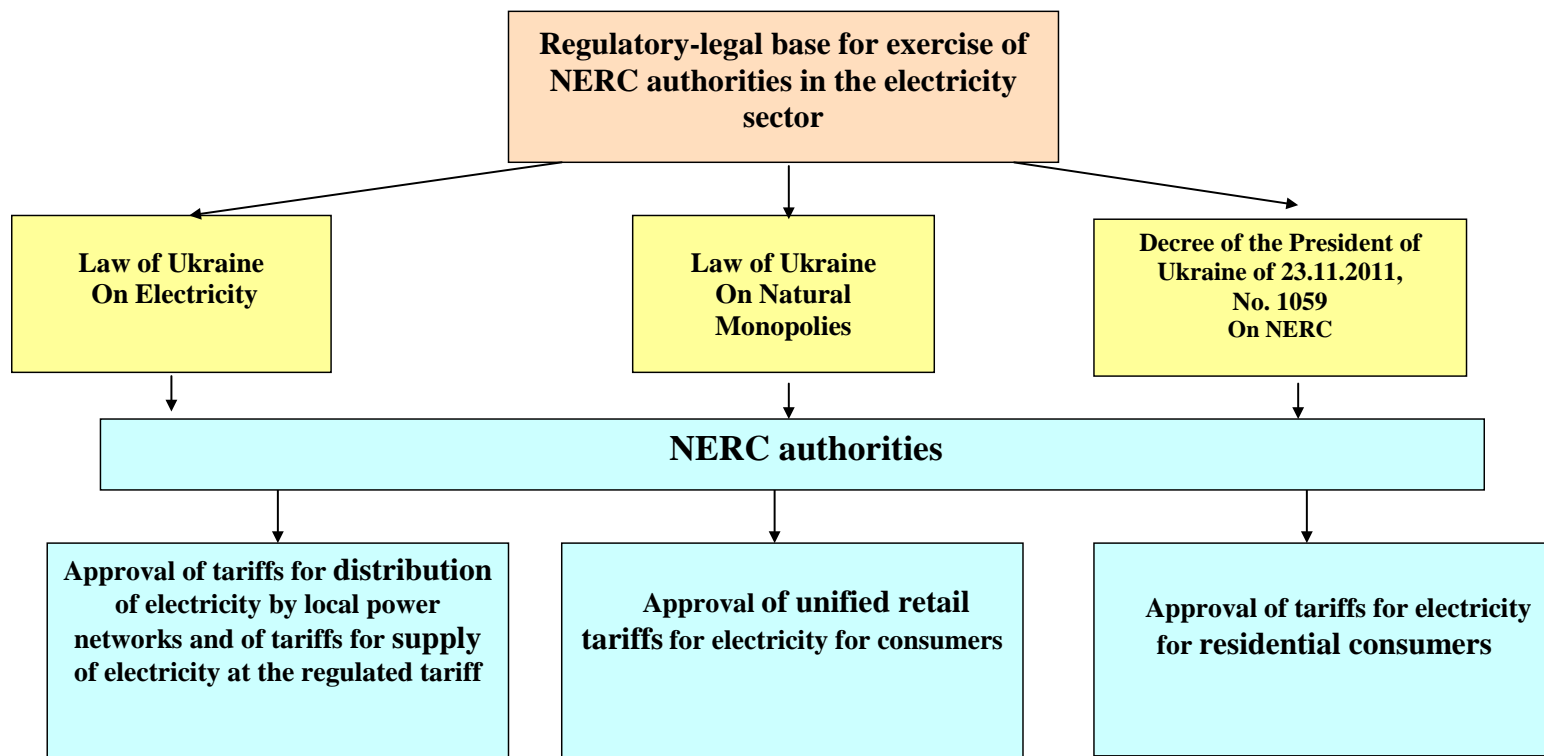
Pricing in the electricity sector of Ukraine

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18/06/2013



Regulatory-Legal Framework for Exercising NERC's Authorities in the Electricity Sector





Principles of the pricing and tariff policy

- State regulation of tariffs for monopoly formations
- Free pricing in competitive sectors
- Reimbursement of economically justified costs of economic entities related to carrying out licensed types of activities
- Control over justified nature of costs of natural monopolies
- Protection of consumer rights and openness of the procedure for review and approval of tariffs



Article 17 of the Law on Electricity envisions the following:

- Formation of wholesale prices for electricity has to be performed in accordance with terms and conditions of the Agreement among the members of the Wholesale Electricity Market
- Retail tariffs for electricity are set by energy supply companies in accordance with Conditions and Rules for carrying out entrepreneurial activities on supply of electricity
- Tariffs for distribution and supply of electricity through local power networks are regulated by NERC.



Procedure for setting and revising tariffs for holders of licenses on distribution of electricity through local power networks and on supply of electricity at the regulated tariff:

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



Revision of tariffs at the initiative of NERC

- Expiration of the period of validity of tariffs, their structure or certain elements of costs in the structure;
- Establishing the fact of inappropriate or unjustified use of cash;
- Use of cash for purposes or in amounts not envisioned in the investment program, without coordination with NERC;
- Submission of doubtful information;
- Carrying out other types of activities without permission of NERC;
- Failure to carry out a program of events aimed at improvement of the quality of electricity;
- Failure to comply with obligations on payment for electricity purchased in WEM (wholesale electricity market);
- Violation of conditions of carrying out purchase of goods, works and services set in the valid regulatory acts;
- Changes in the volumes of transmission or supply of electricity in comparison with those taken into consideration in current tariffs by more than 5%;
- Changes in the costs of a company for reasons that do not depend on activities of the license holder if it leads to changes in the level of approved tariffs by more than 5%.



Control over Carrying out Licensed Activities

- It is carried out in accordance with the Procedure for control over licensees' compliance with Conditions and for carrying out entrepreneurial activities related to transmission of electricity through local power networks and to supply of electricity at the regulated tariff
- It is carried out by NERC and by its territorial branches
- Inspections can be scheduled (once a year) and ad hoc (on initiative of physical person or legal person on agreement of central body of executive power, and also on company initiative or NERC initiative in case of finding doubtful data in the documents of reporting requirements)

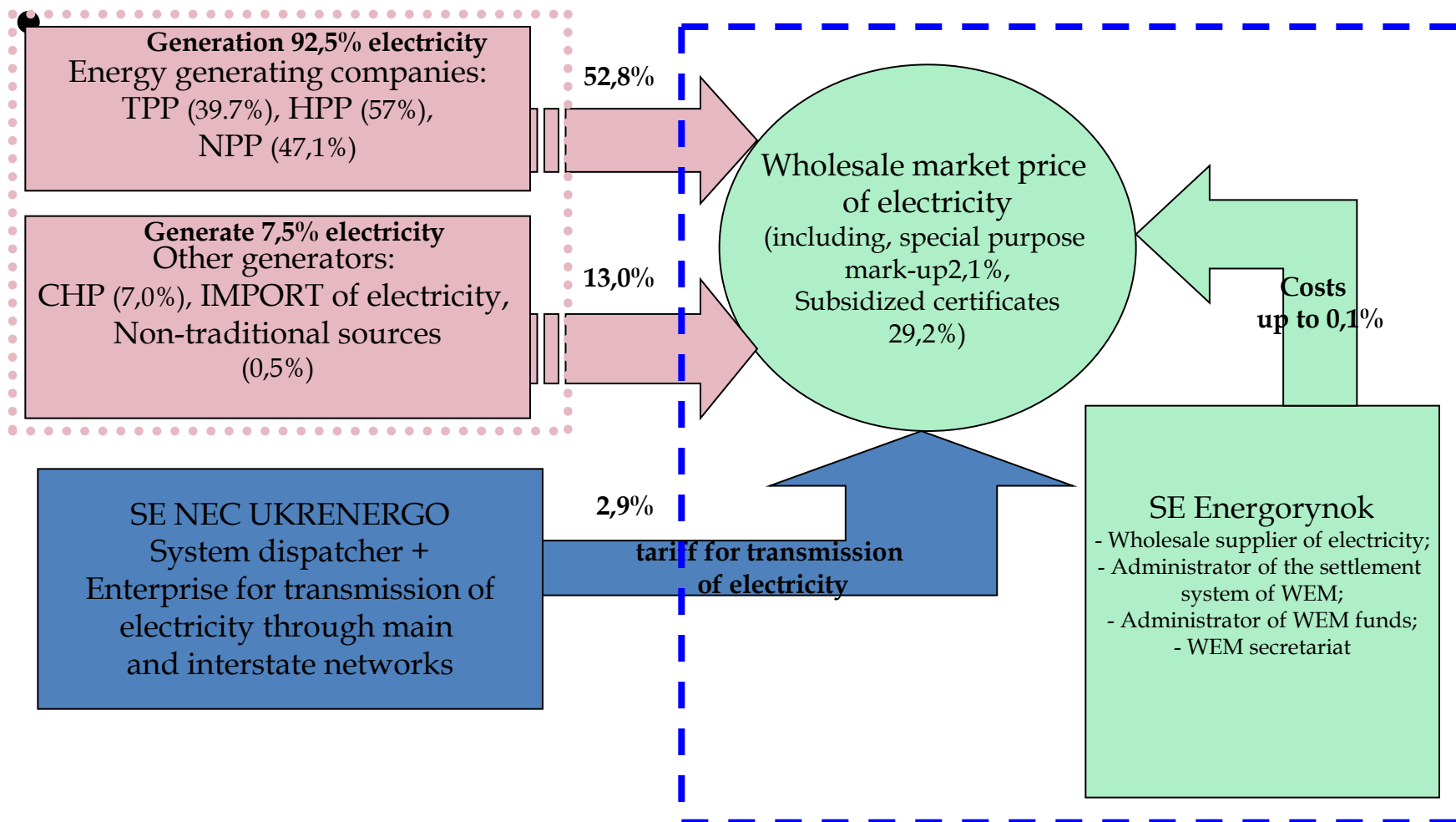


Investment Program

- It is approved by company
- It is coordinated with the Ministry of Fuel and Energy
- It is approved by NERC
- It takes into consideration the volume, direction and purpose of investments
- It assumes the procedure for changing the investment plan – additional investments to be included in the tariffs have to be coordinated with NERC
- It envisions liability for failure to execute the investment plan – sanctions in the form of reduction of the tariff

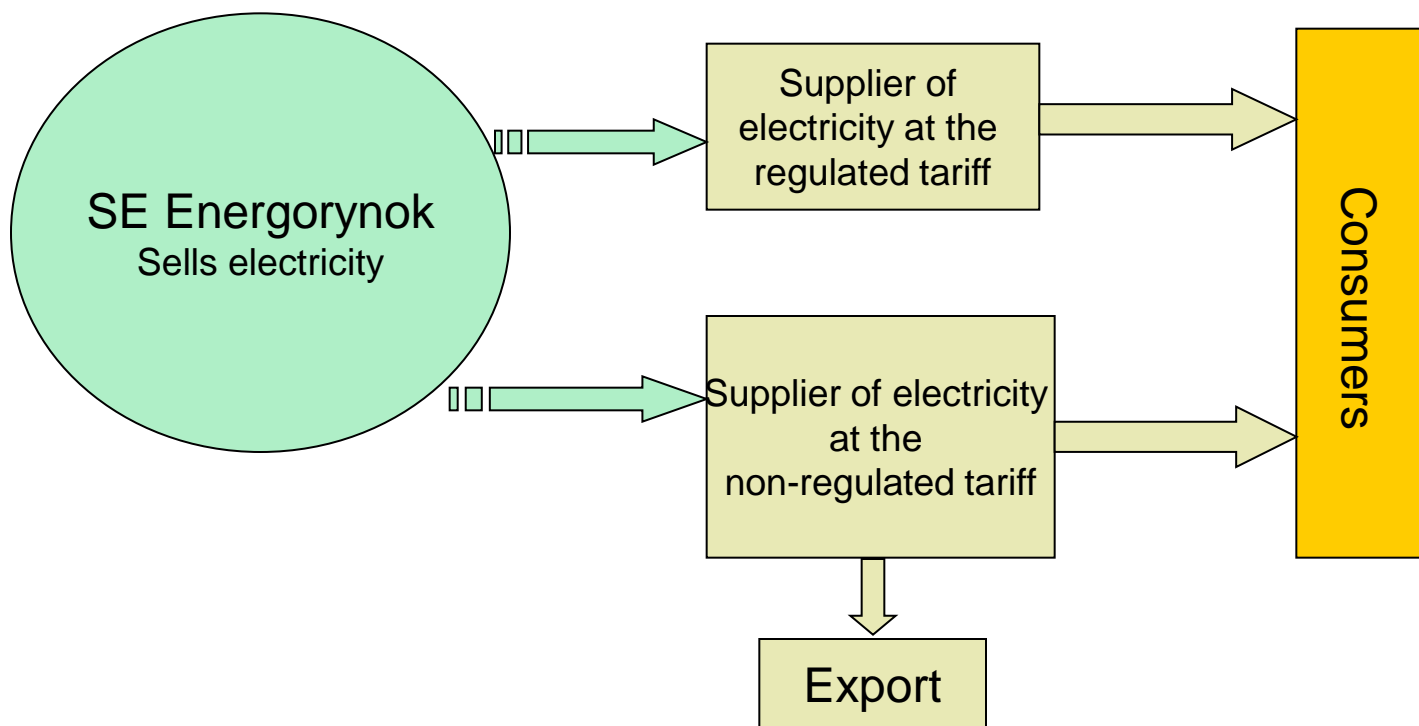


Formation of the Wholesale Price of Electricity by Suppliers in the Wholesale Electricity Market of Ukraine





Sale of Electricity from the Wholesale Electricity Market of Ukraine





Formation of Tariffs for Distribution and Supply of Electricity

Tariffs for distribution are divided into 2 voltage classes depending on the voltage level:

1 class – from 27.5 kV and more;

2 class - below 27.5 kV.

Tariffs for supply of electricity are divided into 2 groups:

1 group

- Economic entities and physical persons - entrepreneurs

2 group

- urban and rural population



Setting tariffs for distribution and supply of electricity

It has to be noted that in order to exclude cross-subsidies, each energy supply company has to ensure division of costs by types of licensed activities – for distribution and supply

For this purpose, each company elaborates and approves the internal order for such division of costs with a list of all accounting settlement accounts (sub-accounts) and financial-economic activities is carried out in strict compliance with this order.



Calculation of tariffs for distribution of electricity through local networks

Tariffs for distribution of electricity are calculated by classes of voltage according to the methodology approved by the Decree of the Commission, based on costs on distribution of electricity through networks of class 1 or class 2 voltage, and on volumes of electricity that is transmitted through networks of class 1 or class 2 voltage.

When calculating distribution tariffs for electricity consumers of class 2, ratios of standard technological losses in networks of the 2nd class of voltage are taken into account



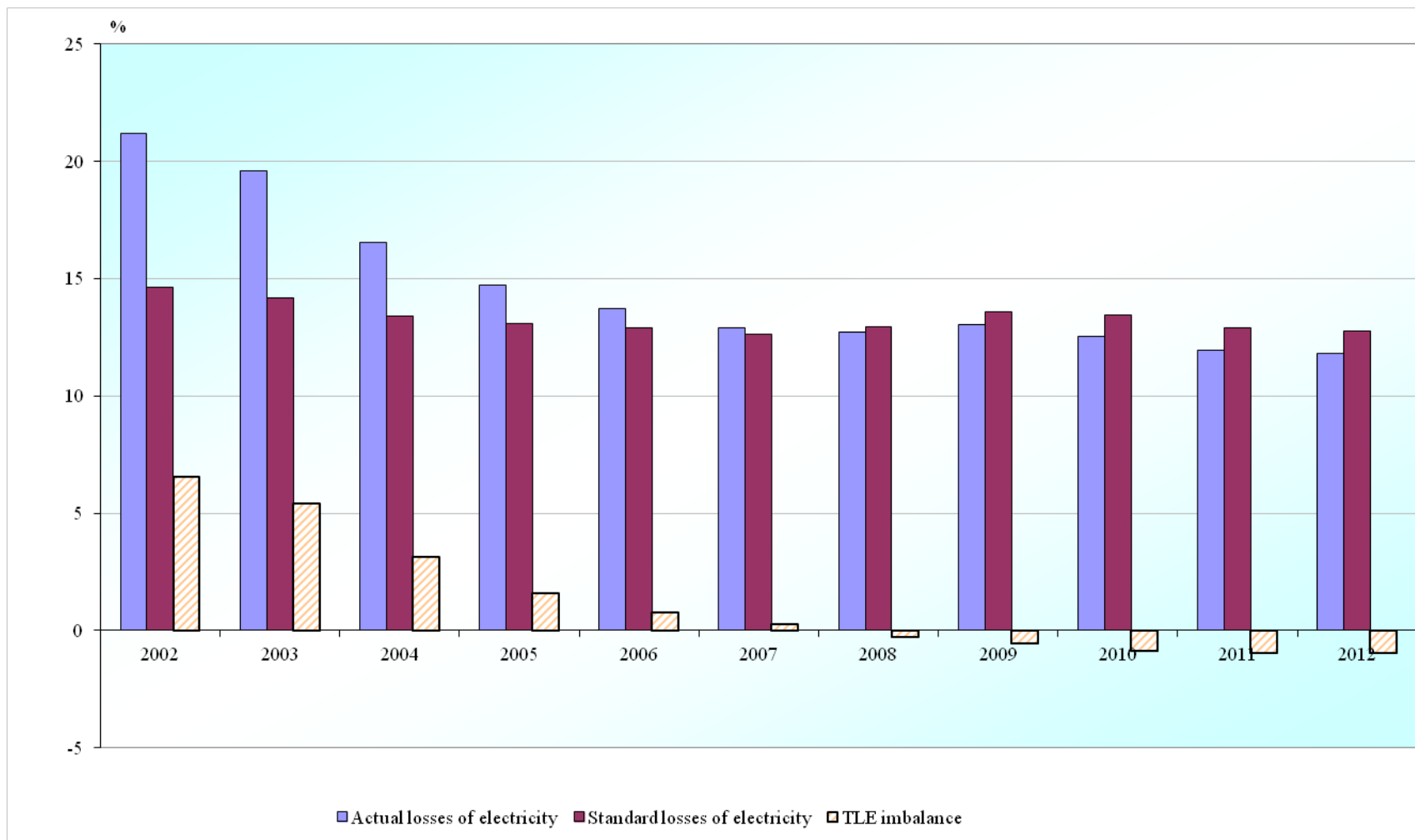
Calculation of tariffs for supply of electricity

The tariff for supply for consumers of group I (non-residential consumers) and group II (residential consumer) according to the methodology adopted by the Commission based on the following:

- costs associated with supply of electricity
- volumes of electricity sold to own consumers of groups I and II
- factor of complexity when supplying electricity for consumers of group II (adopted at level 5)



Technological Losses of Electricity (TLE) in Distribution Networks 0.38-800 kV of Ukraine for 2002-2012





Regulatory-Legal Framework for Tariff-Setting in the Retail Market

- The procedure for setting a retail tariff for electricity for consumers, except for population and localities
- The procedure for calculation of unified retail tariffs for electricity that is sold for each class of voltage, except for the population, localities and street lighting in the territory of Ukraine



Setting a Retail Tariff

$$T_{ij} = \frac{\Pi_p^{c3}}{\prod_{l=1}^j (1 - k_l)} + T_j^M + T_i^\Pi$$

i – consumer group

j – consumer class (according to voltage level)

l – class of voltage of power networks through which electricity went to final consumers

Π_p^{c3} - forecasted average purchase of electricity for the billing month

k_l – economic coefficient of technological losses of electricity on the class l of voltage

T_j^M - tariff for distribution of electricity

T_i^Π - tariff for supply of electricity



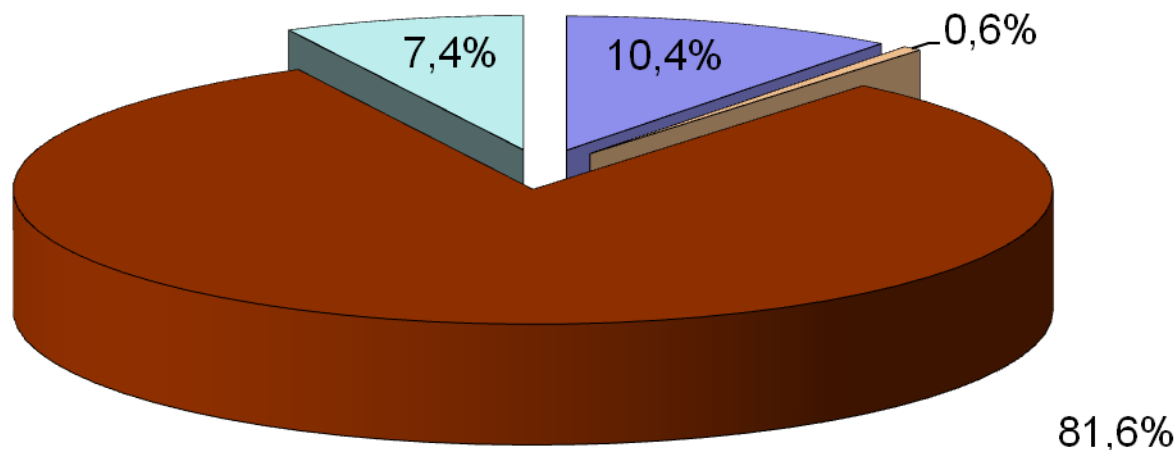
Unified Retail Tariffs

Were introduced from September 1, 2005, pursuant to Decree of the Cabinet of Ministers of Ukraine of 15.08.2005, No. 745

They are calculated by NERC as the weighted average value of estimated market retail tariffs by classes of voltage among all energy supply companies



The Structure of the Average Retail Tariff in 2012 (without taxes)

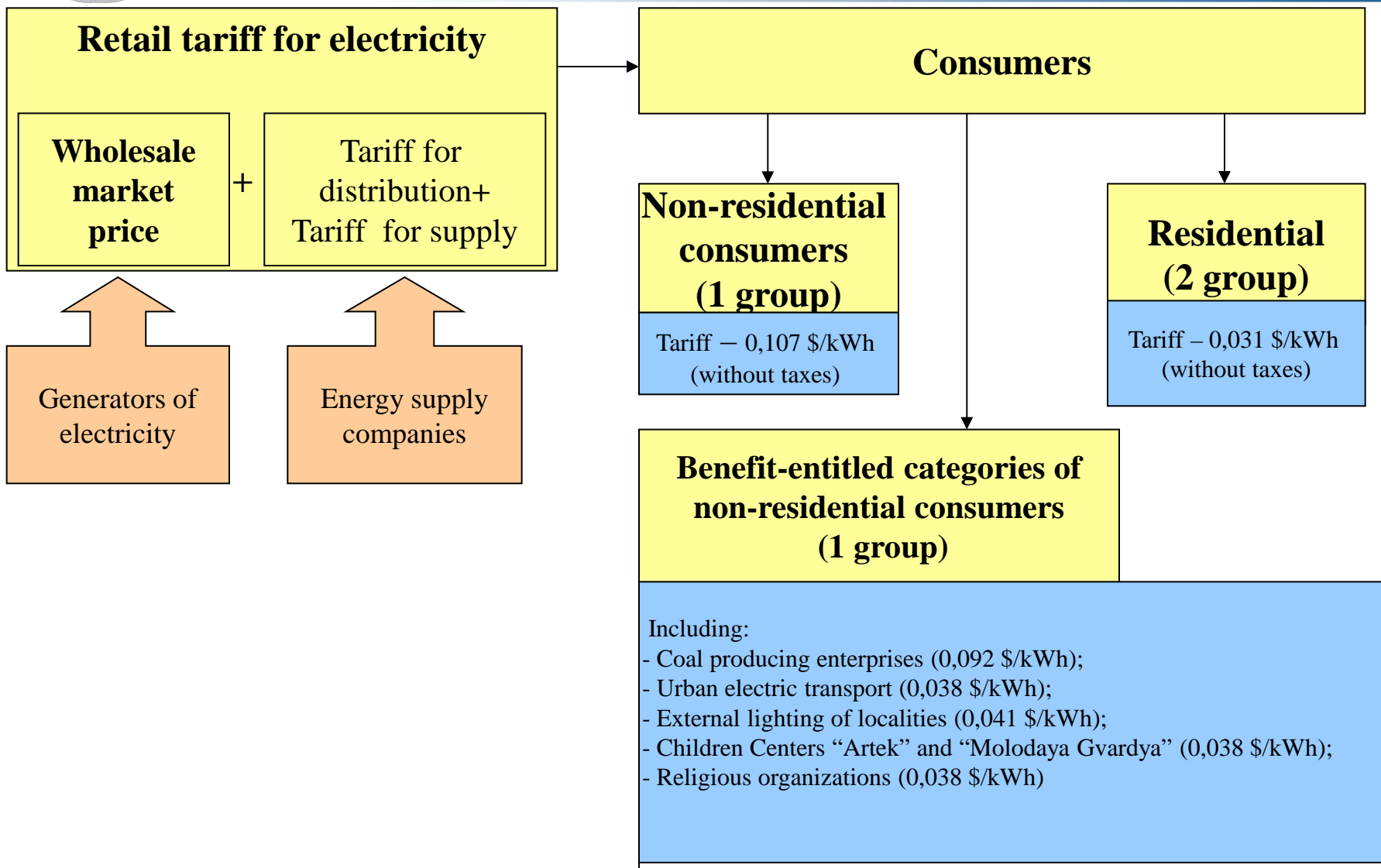


The level of an average retail tariff is 103,58 \$/MWh

- tariff for distribution - 10,74 \$/MWh
- tariff for supply - 0,61 \$/MWh
- wholesale market price - 84,50 \$/MWh
- Standard losses of electricity in networks - 7,73 \$/MWh



Current Tariffs (Prices) in the Retail Electricity Market of Ukraine





Block Tariffs (Fixed) for Electricity for Households

Households:

- for consumed amount up to 150 (250) kWh of electricity per month (inclusive) 28 kop. or 3.5 cents/kWh
- for consumed amount of more than 150 (250) kWh up to 800 kWh of electricity per month (inclusive) 36.48 kop. or 4.56 cents/kWh
- for consumed amount of more than 800 kWh of electricity per month 95.76 kop. or 11.97 cents/kWh



Tariffs Differentiated by the Time of the Day

- Provided there is a zonal meter, the population can choose: two-part tariffs with the ratio of 0.7 to the base rate for households during the night time (23:00-7:00) and with the ratio of 1 to base rate during the remaining time of the day
- Three-part tariffs with the ratio of 0.4 to the base rate for the population during the night time; ratio of 1.5 to the tariff during peak hours (8.00-11.00, 20.00-22.00), during the remaining part of the day settlements are made according to the base rate.



Tariffs Differentiated by Day Zones

Non-residential consumers can choose settlements according to two-zone meter and three-zone meter, in such a case coefficients are set for the unified tariff of the corresponding class:

in case of settlements pursuant to a two-zone meter:
during night hours (from 23.00 to 7.00) - 0,4,
during the remaining time of the day - 1,5

in case of settlements pursuant to a three-zone meter:
during night hours (23.00 - 6.00) - 0,35 ,
in the peak zone (c 6.00-8.00, 10.00 -18.00, 22.00-23.00) - 1,68
during the remaining time - 1,02



Reliability of Supply of Electricity

Interruptions in electricity supply are characterized by the following:

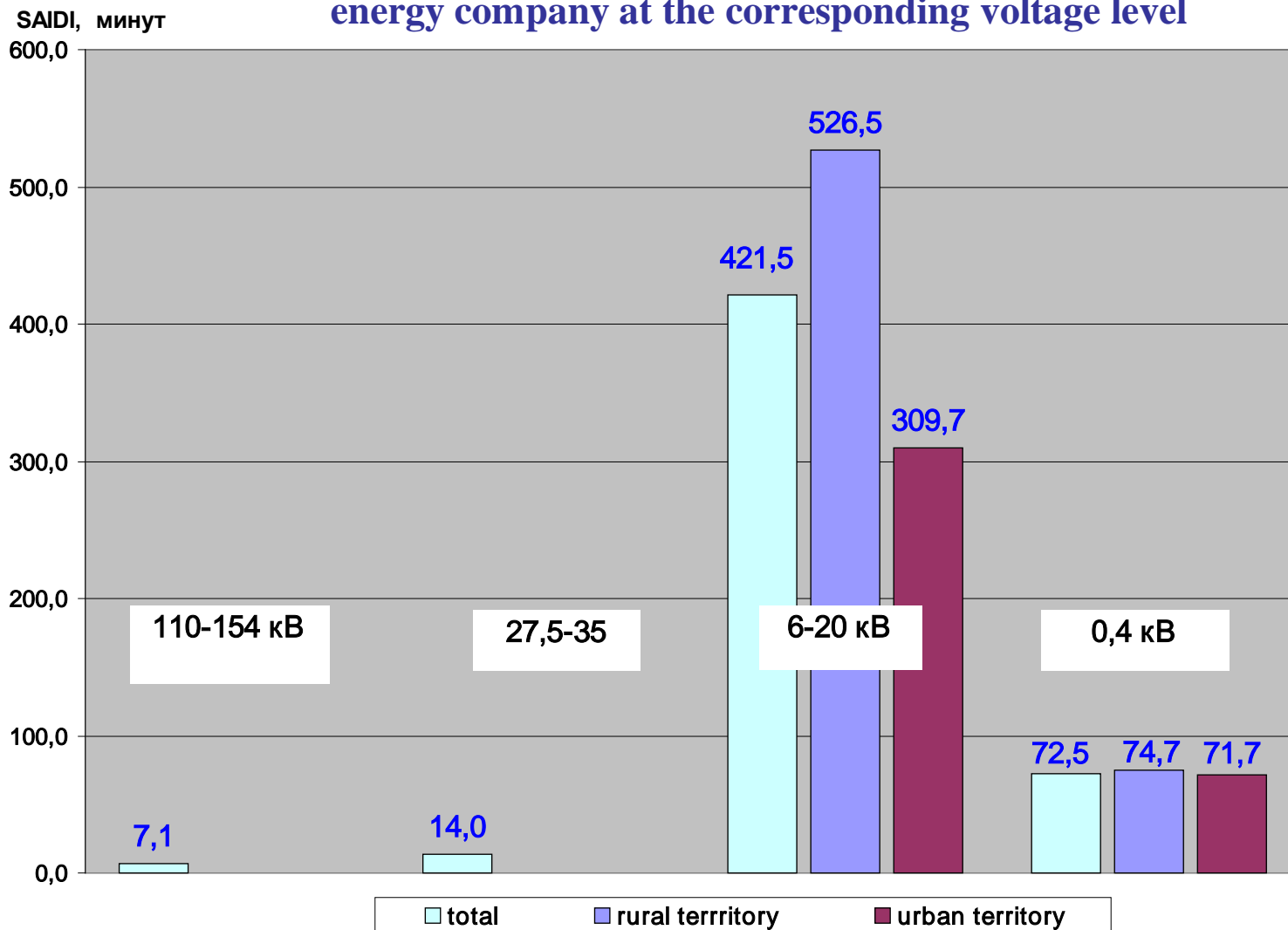
- Duration or the number of interruptions (of each type) for a certain period (usually 1 year) for N consumers (subscribers)
 - **SAIFI**: an average number of long interruptions in supply of electricity per consumer per year (**MAIFI** for short-term interruptions)
 - **SAIDI**: average duration of an interruption per consumer per year
- For each interruption of one type main characteristics, which are registered:
 - The number of affected consumers (subscribers) $N_i \rightarrow$ SAIFI, SAIDI
 - Duration (hour of beginning and end) $D_i \rightarrow$ SAIDI

$$SAIFI = \frac{\sum_{i=1}^K N_i}{N_{tot}}$$

$$SAIDI = \frac{\sum_{i=1}^K N_i D_i}{N_{tot}}$$



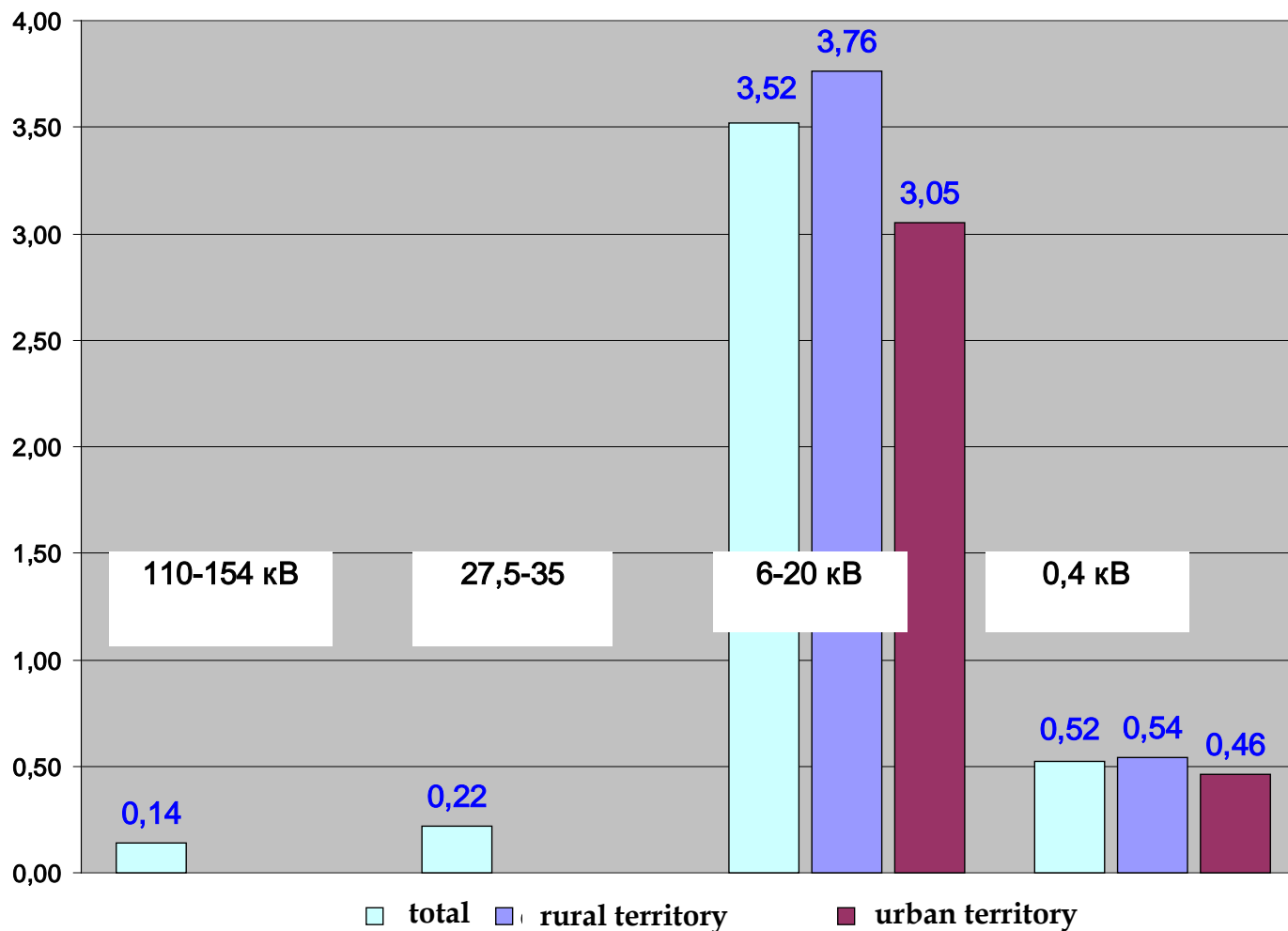
SAIDI for unscheduled interruptions because of the fault of the energy company at the corresponding voltage level





SAIFI for unscheduled interruptions because of the fault of the energy company at the corresponding voltage level

SAIFI, rel. units





Improvement of Tariff Regulation of Natural Monopolies



Main Principles of Incentive Regulation (Pursuant to the Draft Law of Ukraine on Natural Monopolies):

- Minimal interference – conversion to long-term regulation
- Promotion of investments – setting a fair rate of return on invested capital
- Promotion of improving the provided services quality
- Promotion of energy efficiency (reducing controllable operating costs, reducing expenditure of electricity during transportation in the networks)
- Improvement of service quality for consumers



Planned Stages of Implementation

Preparatory period:

- Relevant changes are made in the legislation in the part of granting authorities to NERC with respect to determining the regulatory asset base and regulatory amortization (Law on Natural Monopolies)
- Regulatory base was developed (tariff calculation methodology on the basis of long-term incentive regulation) – drafts of regulatory acts are coordinated with other executive power bodies
- Carrying out evaluation of the fair value of assets of companies used in regulated activities – regulatory asset base (evaluation of 4 companies was carried out in the framework of the pilot project on the basis of the methodology approved by the State Property Fund)



Planned Stages of Implementation

The first regulatory period (3 -4 years)

- Introduction of the rate of return on invested capital
- Profit base amount – fair value of assets
- Carrying out benchmarking of distribution companies
- Promotion of improving the quality of transmission services

Subsequent regulatory periods (5 years)

- Taking into consideration service quality indicators for supply
- Setting individual tasks related to reduction of inefficient costs based on the results of benchmarking



THANK YOU FOR ATTENTION !