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UKRAINE NATIONAL ELECTRICITY REGULATORY COMMISSION TARIFF FORMULATION METHODOLOGIES

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EXECUTIVE SUMMARY

This Report is prepared in satisfaction of two portions of Delivery Order 18

- NERC Deliverable number 4 "Methodology on retail electricity and transmission tariff formulation and modification in licenses," with its underlying Statement of Work item I B(3), and

- Statement of Work item I B (2) "Determine a methodology for the appropriate adjustments to tariffs to reflect investment costs"

This Report consists of five chapters To provide context for the remainder of the Report, Chapter 1 outlines the retail pricing system required by the Regulated Tariff Supplier licenses issued to Local Electric Companies in Ukraine The Chapter does not discuss the system being used in Ukraine as of the time the Report is being written, as it is presumed that Ukraine will begin to implement the license-based system in October 1998 and completely phase out the current system by the end of the year

Chapter 2 presents basic principles which should guide any consideration of pricing Regulated prices should adhere to four fundamental principles Prices should provide

- Utilities the ability to attract sufficient capital to invest in the business to make it a going concern

- Utilities an incentive to operate efficiently

- Consumers an incentive to consume efficiently

- The appropriate transfer of funds from consumers to utilities

Underlying these four principles is an even more basic principle prices should reflect all the costs of providing and consuming the service These costs should be future-oriented costs, and should include costs, such as pollution, that are placed on third parties Chapter 2 briefly discuss incentive ratemaking, and then provides a detailed exposition of the functionalization, classification, allocation and pricing design method used to set regulated prices in the United States The primary conclusion drawn by this section is that residential and small commercial prices are too low, and industrial prices too high Chapter 2 concludes with a discussion of a

benchmarking method to compare the cost filings made by regulated Local Electric Companies

Chapter 3 presents a recommendation to change the way that the allowable profit is established for Local Electric Companies and the high voltage company in Ukraine Currently, there is no systematic method of establishing a reasonable level of profit The allowed profit level is set in a completely arbitrary, utterly non-transparent manner In a market economy, profit is generally the most important consideration followed by the owner of a company It is therefore imperative that Ukraine adopt a rational orderly method of establishing a reasonable profit This Chapter recommends that the allowed profit be set by using a rate of return on rate base method

Chapter 4 discusses the long run marginal cost method of setting low voltage fees This method, while generally an economically rational system, is too advanced for Ukraine today However, the owner of a LEC may sometime in the future propose such a system, and NERC should be prepared with a basic understanding of the concept

Chapter 5 proposes changes in the methods used to set low voltage fees, Regulated Tariff Supplier fees, and high voltage charges Ukraine should move from the current two voltage classes to four, and should establish more customer classes RTS fees, now set so that the non-residential fee is five times the residential fee, should be changed to incorporate customer charges and per kWh charges Both these sets of changes would increase residential and small commercial prices over their current levels

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CHAPTER 1
THE LICENSE-BASED RETAIL PRICING SYSTEM

1 1 RETAIL TARIFF SYSTEM IN UKRAINE TODAY

The electric utility industry of Ukraine has been disaggregated into its constituent parts of generation, transmission, and distribution For purposes of setting retail prices, every distribution company or Local Electric Company (LEC) has been separated into two parts [1] the operation of the physical part of the system, or the "wires" service, and the supply business, which involves the buying and selling of energy, billing and related services The two parts of the distribution business are separately licensed and prices charged for their unbundled services are separately established The wires service operates according to the Low Voltage Network Operator (LVNO) license, under which it charges a regulated price, called the "LVNO fee" or the "low voltage fee," for providing distribution services The supply business operates under the Regulated Tariff Supplier (RTS) license, charging a regulated "RTS fee" or "supply fee" for its services

This paper is primarily concerned with investments that affect the low voltage fee, because the low voltage fee is designed to recover the cost of running the physical system, and therefore this is where the bulk of the investments by a LEC will be made

Under the RTS license, a LEC's retail price charged to any customer should be established according to the following formula

$$\text{Price}_{ij} = \text{Low voltage fee}_i + \text{Supply fee}_j + \frac{\text{Cost of energy} + \text{Reconciliation}}{(1-L_i)^* \quad *(1-L_i)}$$

L_i stands for the technical loss factors for the i'th voltage classes Today, there are two voltage classes 35-154 kV and less than 35 kV Each voltage class has its own loss factor, which covers only technical losses and not commercial losses such as non-payment and theft [2]

[1] Eventually the two separate parts of the distribution company will have to undergo separation to ensure fair competition between the distribution company's supply arm and Independent Electricity Suppliers, but this separation has not yet occurred

[2] There should be a factor which compensates the LEC for some reasonable level of non-payment, because no LEC anywhere in the world collects 100% of its bills, but today no such factor is included

There also are two low voltage fees, one for customers connected at 35-154 kV and another for customers connected at less than 35 kV The low voltage fee is charged to both the LEC's RTS affiliate and to Independent Electricity Suppliers who sell electricity to large retail customers located in the LEC's low voltage franchise area

There are two supply fees, one for the population and another for all other customers

The Reconciliation component in the pricing formula is designed to prevent an RTS from either profiting or losing from buying and selling energy Under the formula, for any customer class the energy component of the tariff is determined by projecting a price of energy in the upcoming month The projected price of energy will never be perfectly accurate Moreover, other differences between forecast and actual parameters will be prices at which electricity is purchased from generators that do not sell electricity to the Wholesale Market, the proportion of electricity purchased from small generators versus from Energomarket, and the amount of electricity purchased under load profiles Therefore the LEC will be owed[3] more (or less) than it should, and the difference must be reconciled For example, the LEC may project that it will pay $30/MWh for energy and charge customers a price determined using that cost of energy, but then actually pay $32/MWh As a consequence, it would lose $2/MWh on each MWh it sells It would be compensated for that loss by including the shortfall in the cost of energy during the following month

An over-collection (when the projected price exceeds the actual price) will give the LEC free use of funds until the over-collection is returned to customers, while an under-collection (when the projected price is less than the actual price) has the opposite effect B customers receive a free use of the LEC's funds until the under-collection is made up by the customers These free uses of funds should be compensated through the application of a rate of interest to amounts being reconciled It is our understanding that the application of such a rate of interest may be illegal If so, the law should be amended, because such interest charges are an integral part of normal commercial relations

1 2 REVENUE REQUIREMENT

The first step in establishing a regulated price is to establish the "revenue requirement" of the regulated activity The revenue requirement is the amount of money necessary to allow the utility the opportunity to recover all of its reasonably incurred costs, including a reasonable profit

[3] We use the word "owed" because it is up to the oblenergo to collect from its customers amounts they owe it However, we do recommend some sort of mechanism to compensate the oblenergo for a reasonable level of non-payments

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Today, when NERC sets the low voltage fee and the supply fee, it first establishes a revenue requirement Each LEC submits a filing that divides its costs other than purchased power costs[4] into two parts primary costs and payments from profit Primary costs are costs which can be deducted from revenues for purposes of computing income taxes, payments from profit are those costs which cannot be deducted In detail, these costs are [5]

Primary Costs of the Licensed Activity

1 Material Costs
2 Labor Costs
3 Payments or Social Measures
4 Depreciation
5 Cost of Repairs
6 Cost of Electricity for Internal Needs
7 Cost of Using Others' Transmission Networks
8 Other Costs
9 Total Direct Costs (sum of 1 through 8)
10 Indirect Costs
11 Total Direct and Indirect Costs (9+10)

Payments from Profit

12 For Development & Production Base
13 For Capital Investment
14 For Increasing Turnover Funds
15 For Social Measures
16 For Incentives
17 For Other Purposes (land + transport)
18 To Investment Fund
19 To reserve Fund
20 Dividends
21 Taxes from Profit
22 To Centralized Funds
23 Total Payments from Profit (sum of 12 through 22)

Grand Total (11+23)

[4] Purchased power costs are to be recovered through the energy component of the RTS formula described above

[5] The oblenergo first divides its costs between generation, distribution and supply Then distribution costs are divided into the two voltage classes (35-154 kV and less than 35 kV), and RTS costs are divided between residential and non-residential customers A revenue requirement is established for each voltage class and for the RTS business as a whole

CHAPTER 2
PRICING PRINCIPLES

2.1 PRICE SETTING PRINCIPLES

The leading text on public utility regulation[1] lists four criteria to evaluate a pricing structure

- *The production-motivation or capital-attraction function* — utilities should charge a price sufficient to "induce and enable" them to provide the necessary services and attract funds to make necessary capital investments

- *The efficiency-incentive function* — the pricing structure should give utilities an incentive to operate efficiently, to provide any given level of services at the least cost

- *The demand control or consumer-rationing function* — consumers of utility services should be provided an incentive not to consume an excessive amount of the services

- *The compensatory income transfer function* — the pricing structure should take into account society's desires concerning how much income should be transferred from consumers to producers and among consumers

Different weights are placed on these functions, depending on the regulatory agency and the service being regulated Each function, however, should be weighed when considering the desirability of a pricing structure

More generally, prices should reflect the costs of providing the service By paying a price that reflects the true economic costs of the service, a customer is provided an incentive to optimize his consumption of that service If a factory is charged a price that is higher (lower) than the true economic cost of the electricity it consumes, then it will consume too little (too much) electricity and Ukraine will be hurt economically

A corollary to the proposition that prices should reflect costs is that a customer should be charged for those costs that he causes Customer classes that consume a higher than average proportion of their demand at the time of system peak demand use a greater proportion of the facilities that have been (or will be) constructed to meet peak demand, and therefore they should pay for those costs

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[1] *Principles of Public Utility Rates*, James C Bonbright et al , 1988 Hereinafter, "Bonbright"

"Costs" in this sense means all the costs associated with the service Pollution, for example, is a cost, and should be reflected in the price charged to customers

Ideally, the costs reflected in prices should be future costs, not past costs Adhering blindly to prices formed from past costs can lead to disaster in an industry, as prices can be set far too high or far too low However, in regulated industries forward-looking regulation is often difficult, as the utility is still supposed to earn a "reasonable" profit, neither too high nor too low, which may preclude charging the optimal level of prices

2 2 INCENTIVE RATE MAKING

One of the fundamental goals of the pricing system should be to encourage the LEC to operate efficiently This encouragement is best provided by allowing the LEC to keep part of the fruits of its labors There are numerous ways to do this, but they all start with one simple premise change the LEC's prices infrequently If the LEC's LVNO fee is reset every year, then it has little incentive to operate more efficiently, because after a year all of its efficiency gains will go to its customers Change the LVNO fee every 5 years, however, and for 5 years all efficiency gains will go to the LEC An incentive pricing regime sets the utility's price infrequently, and for a period of years either keeps the price constant or changes the price according to a set formula [2] If the utility can lower its costs during that period, its profits rise, if its costs rise, its profits fall hence the incentive to efficiency

Incentive-based pricing provides benefits both to the customers and to the regulated utility The utility's profits rise, while the customers' prices fall Unfortunately, it must be added that the rise in the utility's profits has a tendency to excite opposition (as has happened in the UK), because the fall in the customers' prices are not attributed to the incentive scheme which raised the utility's profits

The incentive pricing regime described in this section is only one of many practiced in the west It is by far the simplest method, however, and the only one that seems appropriate for Ukraine today The way the plan works is this At the beginning of any incentive pricing regime, the LEC's prices are set using the standard cost-based methodology establishing its revenue requirement including a reasonable profit, and then setting the LEC's price equal to its revenue requirement divided by its deliveries The price (or, as in the UK, revenue) is then adjusted for inflation less an "X" efficiency factor For example, if X is 2%, then in a year when inflation is 5% prices (or revenue) are allowed to increase 3% (= 5% - 3%) In the absence of any incentive to reduce its costs, the utility will not do so, and 5 years later its costs would still be at the same level (adjusted for inflation) However, with an incentive to reduce costs, the LEC will do so and earn extra profits during the 5 years between rate cases

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Five years later, the utility's prices are reset, again using the revenue requirements method Its costs are lower than they would otherwise have been, so its prices are lower in years 6-10 because of the incentive scheme the LEC's customers pay lower prices Once again, from years 6 through 10, all new efficiency gains go to the LEC With this incentive, it reduces its costs and gains extra profits Its customers enjoy the lower prices gained from the incentive in years 1-5 In year 11, there is another rate case, and the cycle starts anew The customers are even better off than at the end of the first 5-year cycle, as they now gain the benefits of 10 years of enhanced efficiency

2.3 THE FOUR-STEP UNITED STATES METHOD

In the United States, utilities and regulators follow a four-step process for setting prices

1 Functionalization of costs into their relevant categories For a Ukrainian local distribution company, these categories would be

- Generation
- Heat
- Low voltage services
  - 35-154 kV
  - 0 4-10 kV
- Supply services
  - Residential
  - Non-residential
- General

2 Classification of the costs In the U S , costs are generally classified as either demand, energy or customer-related costs

3 Allocation of the costs to different customer classes, generally by use of accounting and other methods

4 Design of the prices

Step 1 Functionalization

This step entails taking every line item of the LEC's costs, deciding upon its function and then assigning its costs accordingly The function of some items is obvious For example, for purposes of setting low voltage and supply fees, the entirety of generation plant is excluded because it falls into either the generation function or the heat function A 0 4 kV distribution line falls into the 0 4-10 kV function

Other cost items can not be so clearly assigned to any one function Common costs, for example, are costs incurred to provide services to more than one activity The costs of an office building shared by members of the staff of the supply function and the low voltage function do not neatly divide into one function or another Moreover, in Ukraine today some employees perform both LVNO and supply functions in their work There is some confusion in the electric industry in Ukraine today about which function certain activities fall into The demarcation of activities is actually fairly simple Low voltage services include all activities necessary to operate maintain or upgrade the physical network, and also includes the reading of meters The supply function includes all activities related to buying and selling of electrical energy, including billing and collection, customer education, and purchasing and selling energy It is our understanding that today meters are read by the same staff who handle billings and collections Eventually, NERC should require this combination of duties to cease, because the RTS branch competes against IESs, and the reading of meters provides important commercial information to the RTS

Step 2 Classification

The three primary cost classifications are generally considered to be

- Demand costs, which vary with the level of demand of the customer
- Energy costs, which vary with the quantity of energy consumed by the customer
- Customer costs, which vary with the number of customers served

Low voltage services are comprised of all three categories of cost classification, while supply services will generally be related to the third category

Typical classifications of distribution plant and expenses in the U S are [3]

	Demand Related	Customer Related
Distribution Plant		
Land	X	X
Structures	X	X
Station equipment	X	
Poles, Towers and Fixtures	X	X
Overhead Conductors	X	X
Underground Conductors	X	X
Line transformers	X	X
Services		X
Meters		X
Operation Expenses		
Station expenses	X	
Overhead line expenses	X	X
Meter expenses		X
Customer installation expenses		X
Maintenance Expenses		
Maintenance supervision and engineering	X	X
Maintenance of structures	X	X
Maintenance of station equipment	X	X
Maintenance of overhead lines	X	X
Maintenance of line transformers	X	X
Maintenance of meters		X

Decisions whether to classify the costs of any activity or asset to the demand classification or instead to the customer classification requires analysis of the reason the activity is undertaken or the asset is built For example, the size of a substation does not depend on the number of customers behind the substation but rather the size of the demand of those customers Substation costs therefore are demand related costs Metering costs, on the other hand, are unrelated to demand, and vary solely with the number of customers Metering costs therefore are customer related costs

For those costs which are related both to the size of demand and to the number of customers, some method of splitting the costs between the two categories is necessary The simplest

[3] This table is taken from *Electric Utility Cost Allocation Manual*, by National Association of Regulatory Commissioners, January 1992, at 87-88

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method is the minimum size method In this method, the utility calculates the minimum size of each unit that it would need just to serve the customers who use the facility, irrespective of their level of demand For example, what is the minimum size of line transformers that would be needed to serve the relevant customers? Anything in excess of that minimum size is obviously constructed for some other purpose, i e , to meet demand and therefore the difference between the cost of the actual transformer and the minimum-size transformer should be classified as a demand-related cost

In the U S , utilities have been performing minimum-size studies for many years They purposely keep their books in ways that allow them to perform these studies with relative ease Ukrainian LECs, however, have never performed such studies, and do not keep their records in a manner conducive to performing such studies We therefore do not recommend that the LECs be required to perform such studies Since this is the simplest kind of study used for splitting costs between demand and customer related costs, we likewise do not recommend that the LECs be required to split their costs between customer related and demand related costs However, if a LEC wants to perform such a study and split its costs between demand and customer related costs for pricing purposes, we strongly recommend that NERC allow the LEC to do so because such classifications help to create prices which more accurately assign costs to various customer groups

Step 3 Allocation

Once costs have been functionalized and classified, the next step is to allocate the costs to different customer classes Demand related costs should be allocated in a way that reflects the contribution of the customer class to peak demand The most common method is by use of the coincident peak method Each customer class's consumption on the peak day is divided by total consumption on the peak day, and the resulting ratio is multiplied by demand related costs to allocate demand costs to that customer class The following table provides an example

	Class 1	Class 2	Total
Peak day consumption (MWh)	100	300	400
Proportion of peak day consumption	25%	75%	100%
Demand costs (Hrn 000)			800
Allocation of demand costs (Hrn 000)	200	600	800

The utility may use the peak day of the entire year to allocate costs, or some combination of the peak days of anywhere from 2 to 12 months For example, the utility may use the coincident peaks of December and January, if those are the two months of the year with by far and away the highest peak-day consumption Many U S utilities peak in the summer on the hottest days of the year when the air conditioning load peaks, and therefore should use one or more of the summer peaks to allocate demand costs If the utility's peak days over the

year are relatively flat, then the utility should use an average of 12 coincident peaks, one for each month

Non-coincident peaks — the peak day of each customer class, irrespective of the peak days of other customer classes — are sometimes used to allocate costs However, this method is indefensible, as it is the system peak that the utility builds its facilities to meet, and the peak of a customer class on a day other than the system peak is irrelevant to the utility's decision

Note The failure of LECs in Ukraine to allocate their costs between customer and demand related costs, *and* the failure to allocate demand related costs by reference to peak day consumption, *both* result in too low a level of costs being allocated to residential and, to a lesser extent, to small commercial customers The consequence of these two failures is that the low voltage fees and supply fees charged to residential customers are too low The extent of this under-pricing is impossible to quantify accurately in this paper, but should be estimated in any future determination of LVNO fees

Step 4: Design of Prices

The final step in the process is to design prices This is a remarkably broad topic Precisely how this is done has been the subject of many books, and no attempt to summarize this step will be done here

2.4 BENCHMARKING

When evaluating the filing made by a LEC to change its LVNO and RTS fees, NERC should compare the costs incurred by the LEC with costs incurred by similar LECs This process is generally known as benchmarking Whenever a LEC's costs are substantially higher or lower than the costs of similar LECs, it should be required to explain the reasons for the disparity

We have performed a study of the filings made by all 27 oblenergos to change their LVNO and RTS fees It is attached as Appendix A We divided the oblenergos into four groups and calculated the average cost per MWH in each line item of costs for each of the four groups We then compared the average costs of the oblenergos in that group to the group average We also calculated for each group the average proportion of each line item of costs to total costs, and then compared each oblenergo's proportion for each line item to the group average proportion

It must be pointed out that the costs as filed by the LECs are not completely accurate, in that they have not been stringently audited by NERC, owing not to any failures on the part of NERC personnel, but rather to the extraordinary understaffing of NERC's Department of Licensing and Pricing NERC should make it a first priority to begin to increase the size of

the Department, not increasing it immediately to the optimum size, but rather increasing it in steps until the appropriate size is reached The appropriate size can only be estimated with time and experience with an expanded Department, but for a beginning we would strongly urge that the size of the Department be doubled

NERC should use the benchmarked costs to compare costs/MWh across LECs In general, NERC should concentrate on cost categories which are high in cost/MWh relative to other cost categories Second, for any particular oblenergo NERC should concentrate on cost categories which are higher than the oblenergo's group average

In Chile, benchmarking is used in a slightly different manner The Chilean regulator divides the LECs into three groups high, medium and low distribution density The regulator then calculates standard costs for each group and uses those standard costs to set the Chilean equivalent of a combined LVNO/RTS fee for the LECs in each of the three groups If a LEC's costs are lower than the price set by the regulator, it makes a profit, if higher, it loses money [4] This system provides the Chilean LECs a powerful incentive to cut costs This system cannot be fully transplanted to Ukraine, with its 27 oblenergos and countless micronets However, the principle can be partially applied, using the benchmarked costs of similar LECs For example, if a LEC's costs of materials are far higher than other LECs' materials costs, and the LEC has no reasonable explanation for the disparity, then in setting the LEC's revenue requirements the materials costs should be set at the group average cost

[4] "How should it be done? Electricity regulation in Argentina, Brazil, Uruguay, and Chile," by Pablo T Spiller and Luis Viana Martorell, at 114, in *International Comparisons of Electricity Regulation* edited by Richard J Gilbert and Edward P Kahn, Cambridge University Press, 1996

CHAPTER 3
PROFIT AND RETURN ON INVESTMENT

3.1 INTRODUCTION

This chapter proposes changes in the method used to set the profit component of the low voltage fee and the high voltage grid charges The current system used by NERC to set the profit level in the revenue requirements for LVNO and RTS services is utterly arbitrary It is impossible for the utility to predict what profit level NERC will allow, and indeed since NERC follows no precise principles in setting the profit level NERC may raise or lower the profit level based solely on a whim [1]

3 2 PROFIT

One of the four public utility pricing criteria proposed by Bonbright, the Production-Motivation or Capital-Attraction Function, is especially relevant to capital investments

> Public utility companies are permitted to impose charges for their services largely in order to induce and enable them to supply these services and to make provision for their continuation and for their required expansion Reasonable rates are rates adequate to yield revenues that will cover all legitimate operating expenses plus a return on investment sufficient to maintain sound corporate credit and to attract required amounts of new capital [2]

NERC's approach to establishing the revenue requirement is terribly flawed in its approach to profit NERC's approach arguably is suitable for an economy in which the state owns all productive assets and controls all economic activity from the center In such an economy,

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[1] The license pricing system, however, is far better than the system in place as of this writing Today there is far less variance across the country in prices than in the cost of providing service Therefore, NERC must set different wholesale prices to different LECs NERC can and does change these wholesale prices to substantially raise or lower the profits of LECs This system should not be allowed to continue as it has the effect of substantially lowering the price paid for LECs in the privatization process, and, once LECs are privatized, this system would destroy any incentive any LEC would have for investing, as NERC could easily, with the stroke of a pen, wipe out any profit from that investment

[2] Bonbright at 92-93

there are no real differences between, for example, income taxes, dividends and retained earnings — all of these belong to the state

In any market economy, however, "profit" is the proceeds provided to the owners of the enterprise as a return on their investment into the company Taxes, for example, are not part of profit Taxes go to the state, not to the enterprise Expenses that are payments to outside entities and that cannot be deducted for purposes of income taxes, such as payments "To Centralized Funds" (line 22 of NERC's revenue requirements formulation), are likewise not profit

Profit, properly measured, equals revenues minus all expenses, including all taxes and expenses that cannot be deducted for purposes of calculating income taxes The company may use its profit in either of two ways to pay dividends or to re-invest in the business Therefore, only lines 12-14, 17, 19 and 20 in NERC's revenue requirements formulation are, properly speaking, profit Even some of these lines are in part not profit Lines 15, 16, 18, 21 and 22 are not profit

There is no systematic relationship between profit and investments in NERC's system of calculating the revenue requirements Increased investments may or may not increase prime costs However, a LEC which invests, say, $1 million to construct a substation will want to earn a return — a profit — on that investment Under NERC's formulation, however, the LEC has no idea what its profit on that investment will be Therefore, potential investors will not be able to determine with any certainty the rate of return that they can expect on their investment in the energy sector

If potential investors do not clearly understand how their return on investment is to be calculated, then this will directly increase their perceived risks and their required return on investment An investor determines the price he will pay for the LEC by calculating the free cash flow[3] he expects to receive in each year and discounting that cash flow by his required rate of return The higher the investor's required rate of return, the lower the price he will pay In short, NERC's profit formulation, by increasing risk and therefore increasing the required rate of return will decrease the price investors are willing to pay for the LECs

The owner of a company uses the cash it receives from the operations of the company, after payment of expenses, in either of two ways to pay dividends or to reinvest in the company Therefore, an increase in the profit which the owner of a LEC earns should be split between dividends and reinvestment in the LEC, and the owner should be required to explain to NERC exactly how much profit it intends to reinvest in the LEC and how NERC should also

[3] "Free cash flow" is the cash provided by the business to the owner of the business, and in Ukraine consists of profit after taxes plus depreciation less new investments

obtain the investment plan made to the State Property Fund by any buyer of the LEC through the privatization process to compare the plan the investor submitted to the SPF with the plan the company submits to NERC

NERC's formulation of profit also provides a perverse incentive to the LEC to increase costs If the appropriate profit is deemed to be some standard proportion of primary costs, then the higher the LEC's primary costs, the higher is the profit the LEC is allowed to earn The only rational response to such an incentive is to increase prime costs

NERC does not apply the costs from profit component to LECs in such a way that each LEC is to earn precisely the same profit percentage Profit percentages vary from LEC to LEC Profit percentages also vary within a LEC, the voltage class 1 and voltage class 2 profit percentages are not necessarily the same within a LEC [4] However, these profit percentages are a measure which NERC considers when setting LVNO and RTS fees and therefore are important

3.3 SETTING THE APPROPRIATE PROFIT

3 3 1 Introduction

Rate of return regulation is the predominant regulatory method applied to investor-owned utilities in the U S Under the typical rate of return method, the total annual revenue requirement of the utility is the sum of its

- O&M expenses
- depreciation expense
- income taxes and other taxes and
- a return on rate base

The first three categories of costs are practically the same as in Ukraine The fourth category, return on rate base, is different

A utility's "rate base" consists of the costs of its investments in the regulated activity Thus, the rate base generally consists of utility plant in service (measured at original cost, sometimes adjusted for inflation) less accumulated depreciation, plus working capital, plus, generally, construction work in progress, and less contributions or grants in aid of construction

[4] Compare, in Appendix A, the first 3 rows of Tables 1-1a 1-2a, 2-1a and so on

The return on rate base is intended to provide the company with a return — or profit — on those investments in the regulated activity [5] Accordingly, the "rate" of return is often viewed as that rate which the company has actually incurred to make the investments Capital investments typically are financed through some combination of long-term debt and equity (common stock and, sometimes, preferred stock) The rate of return is set at a sufficient level to pay the annual interest cost of debt capital and to provide a fair return on the equity capital that is invested in the assets of the utility

3 3 2 Rate Base

There must be an initial base upon which the return is calculated, i e , a percentage rate of return on X Almost universally, the regulatory bodies in the west compute the return component on *rate base*

The use of rate base is intended to reflect the investment that has been made in the assets of the utility that are "used and useful" in the provision of utility service The plant should be "used" to provide the regulated service, and it should "useful" for that purpose Utility plant in service generally comprises the bulk of the rate base measure

The rate base consists primarily of the following components

(A) Net Plant in Service = Original Cost of Electric Plant in Service less Accumulated Depreciation (in Ukraine, adjusted for inflation)

Plus

(B) Working Capital = Materials and Supplies, and Cash Working Capital

Plus

(C) Construction Work in Progress

Less

(D) Customer Advances and Contributions In Aid Of Construction

[5] Depreciation expense provides a return of the invested capital

The following hypothetical example illustrates these rate base components

	Rate Base Item	Hryvna (000)
1	Electric Plant in Service (Original Cost)	500,000
Less		
2	Accumulated Depreciation	225,000
3	Net Plant in Service	275,000
Plus		
4	Materials and Supplies	5,000
5	Cash-Working Capital	1,000
6	Construction Work in Progress	12,000
Less		
7	Customer Advances	1,000
8	Contributions in Aid of Construction	2,000
9	Rate Base	290,000

Each of these rate base components is briefly discussed below

Net Electric Plant in Service

The conventional approach to valuing the electric plant is through the use of the original cost of the plant in service In an environment of low inflation and a stable electric power industry, the use of original cost is simple In such an environment, there are sometimes disputes, mostly related to the cost of financing the investment during the period of its construction, but, once this original cost is established, it does not change over the life of the asset Accumulated depreciation is likewise simply a matter of accounting records

The electric plant in service is not the same at the end of the year as it is at the beginning of the year New investments are made and existing assets are depreciated another year Generally, this is handled by taking the average balance over the year in a manner that assumes investments are made at a constant rate over the year

$$\text{Average Balance} = \frac{\text{Beginning Balance} + \text{Ending Balance}}{2}$$

In a country such as Ukraine which has undergone severe hyperinflation, the correct valuation of the plant is both problematic and important Currently, the utility plant in service in Ukraine may be undervalued or inconsistently valued from one utility to the next Ukraine has attempted to revalue the assets of Ukrainian companies, but it is our understanding that the revaluation has been incomplete and inaccurate This makes the use of plant in service as

the basis for computing return somewhat problematic (although as noted below in section 3 6, a check of four oblenergos reveals a fair degree of consistency across oblenergos)

Other countries, such as Germany when East and West Germany united, have addressed this same problem with aggressive asset revaluation campaigns It would be desirable for Ukraine to do so, but it is simply a fact that this will not occur prior to the privatization of the oblenergos After privatization, individual LECs wishing to revalue their assets should present to NERC detailed justification for the values they obtain

Other suggestions have been made that the Charter Capital Fund may be a proxy for the rate base plant valuation The merits of this suggestion would need to be examined on a case by case basis, but in general this suggestion seems inappropriate because, for oblenergos, the Charter Capital Fund is simply the book value (depreciated original cost of assets) of the company as of January 1995, not adjusted for subsequent inflation, which has been substantial The resulting number is probably too low for all of the LECs, as it generally would not provide sufficient funds to finance new capital investment

Part of any revaluation process should be an analysis of the potential revenue effects on the LEC under the different regulatory schemes

An investor that buys an oblenergo will want a return on that investment The value that is placed on the rate base and the rate of return allowed on that rate base will provide the investor information about how much return he can expect The investor will then calculate his bid price based upon his desired rate of return In essence, then, NERC is the ultimate arbiter of the value of the LEC's assets, because NERC determines the company's allowed profit, either through the current system or through the return on rate base system

Because of this fundamental financial relationship, *once a rate base has been developed for a LEC*, NERC should not adjust the rate base of an oblenergo sold to an investor to reflect the difference between original cost and acquisition cost The investor has already done so in the price it pays for the oblenergo However, if an investor buys a LEC under the current regime (without using return on rate base) and later makes a filing at NERC proposing a rate base for the LEC, it is arguable that NERC should use the price the buyer paid for the stock it purchased as the measure of rate base For example, if the buyer buys 50% of a LEC for Hrn 10 million (after adjusting for debt payments, other commitments outside the cash purchase price, and any other factors such as non-utility assets in the company), then the value of the rate base is Hrn 20 million

To be included in rate base, plant should be used and useful in providing utility service As a legacy of the Soviet Union, Ukrainian companies tend to own assets, such as kindergartens, hospitals and farms, that they would not own in a normal market economy These assets tend to be used to provide benefits to employees in lieu of wages Ascertaining whether such an

asset is actually used in such a way, however, would be very difficult on a case by case basis We therefore recommend that NERC follow the rule contained in Section 5 4 9 of the Law of Ukraine On Company Income Tax, i e , that such facilities may be included in rate base only if on the company's balance sheet as of the date the law was enacted, July 1, 1997

Not every investment, even if used and useful, should be included in rate base The investment should also have been prudently incurred The primary type of imprudent investment is an investment which cost too much money to build In the United States, numerous electric companies were found to have spent too much money constructing nuclear power facilities, and therefore were not allowed to place the entire investment in rate base In considering whether an investment was prudent, the appropriate time frame is the time the investment was made If, at the time, the investment would have been considered sound by any reasonable person, but then later unpredictable, major changes occurred which rendered the investment uneconomic,[6] generally the utility should not be required to shoulder the entire amount of the uneconomic cost Rather, the uneconomic portion of the cost should be shared between the utility and its customers

It has been suggested that NERC should obtain a construction cost database from a western source and use the database to check the prudence and accuracy of the LEC's cost calculations We have investigated construction cost databases used in the west Using them in Ukraine is not feasible because the costs of labor and materials are far different in Ukraine than in the west

Working Capital

The allowance for working capital in rate base allows the enterprise to earn a return on the following investments

- the prudent investment in inventory of parts and supplies
- the investment required to finance operating costs in advance of receipt of revenue
- minimum cash balances

The latter two categories of costs are generally called cash working capital A utility requires cash to pay its day to day operating expenses for the time period during which the utility has provided electric service to its customers and has not yet been fully paid for the service In the U S , there are two main methods of determining the appropriate level of cash working

[6] In the U S , a classic example of this is contracts for the purchase of power at a fixed price There are many instances of companies entering into contracts at a price that was reasonable at the time the contract was signed but then the market price fell substantially, leaving the contract price far above the market price Generally (but not always) in such a case the contract price would be deemed to have been prudently incurred

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capital to include in rate base lead-lag studies and the 45-day rule Lead-lag studies are data intensive studies of the time differences between the provision of service and the collection of revenue for that service versus the time difference between the rendition of a service and the payment of expenses incurred to render that service The average cash balance related to receivables is compared to the average cash balance related to payables, and the net sum added to (or, effectively, subtracted from) from rate base

In the alternative, utilities frequently simply assume that the average net balance equals 45 of estimated operations and maintenance expense (or annual operations and maintenance expense divided by 8) This obviously is an extremely easy number to compute, but just as obviously is also arbitrary and may not be at all applicable to Ukraine

Construction Work in Progress

LEC accounting records include an item entitled Assets Under Construction The inclusion of construction work in progress in the rate base recognizes the utility's need to meet debt requirements to provide a return on equity that may have been employed to finance construction work in progress The main argument against allowing construction work in progress in the rate base is that current customers are being forced to finance assets that are not used and useful in providing current services Countervailing arguments are that the utility provides continuing service and that allowing construction work in progress in the rate base helps smooth out prices over time

Customer Advances and Contributions

Customer advances and contributions are excluded from rate base under the rationale that the utility should not receive a return on funds that they did not invest If the original cost of an asset is, say, 1 million Hryvna, of which the customer paid 200,000 Hryvna, the original cost for purposes of rate base should be 800,000 Hryvna (= 1,000,000 - 800,000) The ratio of LEC-financed cost to total cost should likewise be applied to accumulated depreciation for that asset In our example, 80 percent (= 800,000 – 1,000,000) of depreciation would be applied to the LEC's portion of the original cost

3 3 3 Rate of Return

Introduction

The most important criterion in selecting a particular rate of return is its capital-attracting efficiency Selection of a suitable rate of return, while not easy, is extremely important A well-defined rate of return component, and a consistent regulatory treatment will contribute over time to an improved investment environment In contrast, an ill-defined return component will create in the minds of investors additional uncertainties that will translate to increased capital costs Over time, this will act to increase the cost of service while reducing the quality of service

The return component should consist of the costs of financing the company's assets, primarily the interest cost on debt and a return on the equity capital invested in the assets of the utility that are used in providing service The return on equity component that is referred to is approximately equivalent to the net operating income less interest costs that is reported in standard (western) financial statements

The inclusion of non-return elements in the return component, such as items normally associated with operating expenses, is inappropriate

Short term debt should generally not be included in the calculation of the rate of return because short term debt is not used to finance capital investments However, to the extent that short term debt is actually used to finance capital investments, especially construction work in progress, it should be included in the calculation

Several methods have been used in the U S in determining a fair rate of return Often, evidence from more than one method is used, together with the subjective judgement of the regulators, to decide on the allowed rate of return

The most widely used method applied to determine an appropriate rate of return uses the enterprise's weighted average cost of capital An enterprise's total invested capital is divided into long-term debt, preferred stock, and common stock Retained earnings are treated as a component of common stock

The cost of capital is then determined as the weighted average cost of these three components, as illustrated in the following example

	Per Cent of Total Capital	Annual Cost	Return on Total Capital
Long Term Debt	55	10	5 5%
Preferred Stock	10	12	1 2%
Common Stock Equity	35	18	6 4%
Weighted Average Cost of Capital	100		13 1%

Senior capital consists of long term debt and preferred stock The actual fixed charges for long term debt and the actual dividend requirements for preferred stock are traditionally known with fair precision Therefore the actual annual cost (in money) for this senior capital can be readily computed

Estimating the cost of common stock is far more complicated and subjective Numerous methods of determining the appropriate rate of return on equity have been developed Each method has its advantages and its disadvantages, its proponents and its opponents Unfortunately, none of the major methods can be directly applied to Ukraine However, because elucidation of these methods yields insights into the motivations of investors, each of the major methods is discussed below in turn

Discounted Cash Flow

The Discounted Cash Flow (DCF) method of valuing common stock is premised on the notion that an investor buys a stock to obtain cash Accordingly, the technique places a value on the flow of cash to the owner of the stock through time Since a dollar received next year is worth less than a dollar received today, future cash flows are discounted by an investor's required rate of return The DCF technique is a method of discovering what that required rate of return is

A stock is ultimately valuable because it provides cash to the owners of the stock This cash comes from dividends and from capital appreciation, and ultimately capital appreciation comes from expected dividends sometime in the future If there were no growth in the rate of dividends, an investor who invested P_0 dollars in an asset with a rate of return, or dividend rate, of k% would receive D_1 dollars per year

$$P_0 k = D_1$$

For example, if P_0 = \$100 and k = 10%, then D_1 = \$10/year

There is some risk that the investor will not really obtain D_1 dollars/year This risk is incorporated in the k term There are some entities which an investor would be willing to lend, say, $100 in return for the promise of $10 per year in perpetuity, while there are others whose ability to pay an annual dividend or return the principal amount is less certain, and therefore the investor requires an annual payment of $20 in return for the loan of $100

Rearranging this formula, we obtain a formula for the price of a stock with no dividend growth

$$P_0 = \frac{D_1}{k}$$

Under the mathematics of geometric series, adding a constant growth rate of g% per year modifies this formula to introduce a "minus g" term in the denominator

$$P_0 = \frac{D_1}{k - g}$$

Rearranging

$$k = \frac{D_1}{P_0} + g$$

where, as stated above

P_0	=	the market price of the stock
D_1	=	the expected dividends per share at the next issuance date
k	=	investors' required rate of return
g	=	the growth rate of dividends

This is the DCF formula given (a) the company's dividends (and the risk of not receiving those dividends), (b) the current price of the stock and © the (expected, constant) growth rate of the stock, the investors' required rate of return can be derived

There are insuperable problems with applying this DCF formula in Ukraine LECs' common stocks pay little or no dividends and the growth rate in dividends is unknowable Inspection of this formula yields insights, however

- An investor has options about where to invest his money The price he pays for the stock depends on the risk of the stock The greater the risk and hence the greater the required rate of return, k, the lower the price of the stock NERC should work to lower the required rate of return by reducing the risk of the investment

- The price of any stock will reflect the value of the current dividends but also the expected growth of dividends The higher the future growth in dividends, the higher the price of the stock NERC should act to increase the rate of growth of future cash flows to owners of the LECs

Earnings-Price Ratios

This method was once somewhat common in the U S , but has since wanted in popularity Use of the earnings-price ratio might under some circumstances yield a proxy for the ratio of dividends to price ratio used in the DCF methodology An earnings-price ratio expresses the relationship between reported annual earnings (or profit) per share and the quoted stock price of the company The ratio is computed by applying the earnings/share for a given year to an average price of the stock for that year

Assume, for example, the following (highly simplified) facts for a hypothetical company

Earnings 1,000,000 Hryvnas
Number of shares outstanding 500,000
Earnings per share therefore equals 1,000,000 – 500,000 = 2 Hryvnas per share

Assume the market price of the stock is 20 Hryvnas/share Under these circumstances, with internal investments yielding the same return as the investor's required rate of return and, crucially, no expected growth in earnings, application of the DCF formula would yield a required rate of return of 10% earnings – price = 2 – 20 = 10%

Obviously, the assumption of zero growth in earnings is now untrue in Ukraine Whichever investors buy the LECs, they will make investments, and earnings, now dismal, will improve Again, however, it is important to note that the reason this methodology ever had any favor was its emphasis on what matters to investors — profits

Comparable-Earnings Test

Another popular method of estimating the required rate of return on equity is the comparable earnings test In brief, this methodology works on the assumption that an investor demands a rate of return equal to the rate of return he can earn on investments of comparable risk The intellectual debate in this method generally centers on just what is a stock of "comparable risk " For the Ukrainian power sector, which is trying to attract foreign, strategic investors,

what is relevant is not comparable companies within Ukraine but rather comparable companies in countries comparable to Ukraine A foreign electric utility seeking to invest overseas will compare Ukrainian LECs to LECs available for purchase all over the world South American, African, Asian and so on

3.4 REGULATED TARIFF SUPPLY PROFIT

The Regulated Tariff Supply function uses very little physical capital, so that a return on capital may be the wrong method to use to set the profit component of the RTS revenue requirement It is arguable that instead the RTS profit should be set at a percentage of costs, just as NERC now does

In the UK, the regulator set a profit percentage of 1% of revenue, including the cost of energy, for the UK analog of Ukraine's RTSs A figure of 1% obviously is arbitrary — why 1%? why not 2% or 0 5% or 1 1%? — but the regulator forthright admitted that he could find little intellectual basis upon which to select a number [7] That void is equally true of the Ukrainian RTSs

LECs in Ukraine currently follow primitive billing and collection systems They should invest substantial amounts in computers, software and training to improve those systems The profit portion of the RTS fee should reflect this need by allowing sufficient funds to the RTS to make these investments

[7] The Supply Price Control Proposals, Office of Electricity Regulation, 1994 at 31

3 5 COUNTRY RISK

Prospective investors investigating possible investments in another country weigh the risks of investing in that country relative to the risks of investing in other countries The standard country risks include [8]

- Legal and regulatory instability
- Expropriation
- Asset damage
- Banking instability
- Recession/insolvency
- Government payment delays
- Government contract repudiation
- Sovereign debt default/rescheduling
- Currency devaluation
- Currency transfer

For a fuller explanation of these risks, see Appendix B, an excerpt from a Report entitled "Privatization Options for the Power Industry" which Hagler Bailly prepared in 1996

NERC has no control over most of these sources of country risk, such as currency risks, but there are several risks over which NERC exercises substantial influence Most notably, the country risks of "regulatory instability" and "expropriation" are at least somewhat under NERC's control Therefore, NERC can reduce the country risk faced by potential investors in Ukrainian LECs by providing them a reasonably assured level of profit provided they operate efficiently This assurance can be provided by operating a transparent, predictable regulatory regime in general and specifically with respect to profit

Ukraine fares poorly in ratings of country risk The Export Finance Insurance Corporation of Australia gave Ukraine a rating of 5 on a scale of 1 to 6 Of 224 countries rated, 134 received a rating in the range of 1 to 4, 57 received a 5, and 33 received a 6 Therefore, at best, Ukraine was 135th out of 224 countries and at worst was 191st Similarly, Moody's grades the bonds issued by governments around the world Of the 106 countries' bonds which Moody's rated, Ukraine ranked 99th , tied with 5 other countries See Appendix C

As a consequence, as shown in Section 4 5 of Appendix B, investors in Ukraine will require a rate of return of 25-50% on their investments

3.6 REVENUE EFFECTS

[8] The source of this particular listing was the Export Finance Insurance Corporation of Australia (EFIC)

To offer a preliminary order of magnitude estimate of such effects, we have recast the historical financial statistics of four LECs under a hypothetical rate base formula

	Khmelnytsky (Hrn 000)	Sevastopil (Hrn 000)	Zakarpatty (Hrn 000)	Lviv (Hrn 000)
Currency account	472	118	607	2,574
Merchandise in storage	7,093	6	18	3,141
Materials and supplies	4,417	1,323	2,538	6,924
Buildings and equipment	154 491	39,785	191,213	304,690
Other equipment	1 459	175	155	1,365
Intangible assets	2,014	7	7	71
Unfinished investments	6,308	35,547	18 122	30 476
Total	176,254	76,961	212,660	349,241
Return at				
5%	8,813	3,848	10,633	17,462
10%	17,625	7,696	21 266	34 924
15%	26,438	11,544	31,899	52,386
20%	35,251	15,392	42,532	69,848
25%	44,064	19,240	53,165	87 310
Current LVNO/RTS Figures				
Total LVNO and RTS revenue requirement	42,978	16,782	39,105	63,370
LVNO and RTS revenue requirement profit	10,065	3,386	5 335	6 202
Revenue requirement return on investment	5 7%	4 4%	2 5%	1 8%
Increase in LVNO/RTS revenue requirement necessary for 20% return on investment	58 6%	71 5%	95 1%	100 4%

The currently earned low return on investment provides strong evidence that the LVNO fees are too low This is no surprise because it is well-known in the Ukrainian power industry that the current level of revenues is not sufficient to provide adequate funds for renovation or new capital investment, and should be raised substantially Because LVNO fees generally constitute a relatively small portion of total costs (10-15%), raising LVNO fees by 50% would only raise the total price by 15-20%, and in the long run would lead to lower technical losses and therefore lower total retail prices

CHAPTER 4
LONG RUN MARGINAL COST

4.1 THE LONG RUN MARGINAL COST METHOD

Long Run Marginal Cost is the cost of constructing additional facilities, plus associated O&M, to meet additional demand [1] It is frequently argued that price should equal long run marginal cost in order to provide the appropriate signals to customers about the cost of providing them service Historical cost is a sunk cost, it is immutable, fixed No changes in current consumption can possibly change historical cost By contrast, changes in consumption can affect future costs and therefore prices should provide consumers signals about the level of costs their consumption will cause the LEC to incur For an electrical system which is perfectly sized for current consumption levels, increases in consumption will require the owner of the network to increase the capacity of the system The LRMC per MW equals the cost of this capacity expansion equals divided by the quantity of the expansion in MW

ESBI/Seeboard proposed a method for calculating the LRMC of expanding a low voltage network in Ukraine [2] The following paragraphs both summarize and expand on their proposal

In order to implement this LRMC methodology, a LEC would have to develop a model of the costs of expanding its network at each voltage level and institute a research program to establish the load characteristics of each voltage class Moreover, the capital investments made by the LECs in the near future will probably be to reduce commercial and technical losses (such as metering, replacement of transformers, etc), and not to expand the system That is, the LRMC of a capacity expansion probably measures something that will not exist, and therefore the LRMC is probably economically irrelevant Therefore, LECs should not be required, but should be allowed, to adopt LRMC pricing

When a customer places a demand of 1 kW on any voltage level of the network, it also places a demand of greater than 1 kW on all network and substation facilities at higher voltage

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[1] Frequently a distinction is made between *marginal* cost and *incremental* cost The method described below would normally be called *incremental* cost For our purposes, however, we will use the term *marginal* cost

[2] The report, "Methodology for Calculating Local Transmission Tariff," developed under a TACIS contract, was written by Peter Collins, who now works for Hagler Bailly in Ukraine

levels (greater than 1 kW at those higher voltage levels because some of the energy is lost as it travels down through the system) The facilities at each voltage level are planned in such a way to meet the maximum demand at that voltage level Thus, the contribution of each customer's or customer class's demand at each voltage level to the capacity of the network at that voltage level should be taken into account in setting its low voltage fee

The contribution of a customer or class to capacity requirements should take into account time of day, or diversity, effects Any individual customer or class frequently will have a peak demand at a time of day different from the time of day of the voltage level peak, and it is the voltage level peak that really matters because it is the voltage level peak for which the LEC must plan

The LRMC of additional capacity necessary to meet 1 kW of demand at a voltage level includes both the initial cost of constructing and commissioning the capacity and the O&M and repair costs which will be continually required over the entire life of the unit Estimating the cost of construction in Ukraine today would be difficult The LECs do not store the necessary cost information in the format required to make these cost estimates, and very little network expansion has occurred in the past several years so that there is also very little information that could be obtained However, a LEC may wish to incur the cost of estimating the relevant cost information

The total cost of expanding the network should be amortized over the life of the assets using an annuity factor An annuity factor amortizes a current capital costs into a series of future equal annual repayments, and equals

$$\frac{r(1+r)^N}{(1+r)^N - 1}$$

where r equal the discount rate and N equals the period over which the cost is amortized (the life of the asset)

In turn, the annual cost of meeting 1 kW of system maximum demand at that voltage level equals

$$\frac{\text{Cost of Expanding the Network x Annuity Factor}}{\text{MW of Expansion}} + \text{O\&M cost}$$

The O&M cost typically equals 2-4% of the capital cost

This calculation — the LRMC of expansion, peak demands of customer classes, and amortization over the hypothetical life of the assets — is repeated for all of the lower voltage levels The annual network costs are modified for any voltage class by accounting for technical losses In addition, these costs are modified to account for reactive power demand The true demand that a customer places on the system is its apparent power demand (kVA) The kVA can be derived by application of the customer's power factor

$$\text{kVA cost} = \frac{\text{kW cost}}{\text{power factor}}$$

The network capacity for a group of customers is sized to meet their aggregate demand at the voltage of supply and transformation level and their contribution to the maximum demand at higher voltage and transformation levels

Within a voltage class (assuming the LEC does not know the demands of individual customers at the time of the voltage level peak), the LEC should calculate an aggregation factor which equals

$$\text{Aggregation factor} = \frac{\text{Maximum demand in voltage class}}{\text{Sum of individual maximum demands in that voltage class}}$$

For allocation of costs at higher voltage classes to customers connected at a lower voltage, the LEC needs to calculate the peak demand of the lower voltage class at the time of the higher voltage class's peak This is frequently done for mathematical convenience in the form of a "coincidence factor" equaling the ratio of the lower voltage class's peak demand at the lower voltage class's peak to its peak demand at the time of the higher voltage class's peak demand

$$\text{Coincidence factor} = \frac{\text{Voltage class's own peak demand}}{\text{Voltage class's peak demand at time of higher voltage class's peak demand}}$$

As we stated above, prices should follow costs Fixed costs should be recovered through fixed prices Thus, ideally, customers should pay fixed prices for services which the LEC must incur fixed costs to provide Because network facilities costs are fixed costs which do not vary with month-to-month variations in throughput, customers should pay fixed monthly

prices for their use of the network facilities However, there are two problems in Ukraine with charging fixed monthly amounts for network facilities

- Residential customers read their own meters and calculate their own bills To the extent they ever become subject to the license pricing system, instituting a program of 2-part pricing would lead to an excessive number of mis-calculated bills owing to mathematical errors

- Most electricity customers in Ukraine today pay one-part prices Two-part prices will excite opposition from many customers simply by virtue of being different and because frequently persons believe that it is somehow not "fair" to require them to pay prices which are fixed regardless of their consumption

It is sometimes argued, for example in the UK, that assets at the voltage of connection and the first transformation level are generally largely dedicated to the customer, while assets at higher voltages can be reallocated to other customers, and that, as a consequence, the costs of assets at higher voltages should be recovered from lower voltage class customers only through volumetric charges rather than through fixed charges If prices were being set for long time periods, this argument would be true, but for month-to-month charges, which the customer will cease to pay if it ceases to receive electric service, this argument is based on a false premise and therefore incorrect

Prices calculated through the long run marginal cost methodology must be reconciled against the LEC's revenue requirement calculated by NERC The simplest method of making this reconciliation is to scale each charge up or down by the ratio of the NERC's agreed revenue requirement to the revenue that would be earned by application of the LRMC prices For example

		Voltage Class 1	Voltage Class 2	Total
1	Quantity	10	12	22
2	LRMC price	4 0	5 0	
3	LRMC revenue (1x2)	40	60	100
4	NERC-agreed revenue requirement			80

5	Scaling factor (4x3)			0 8
6	Scaled prices (2x5)	3 2	4 0	

Eventually, prices should be set for periods longer than a year (see above, in Section 2 2, Incentive Rate Making) When prices are set for such longer periods, the scaling factor will have to be calculated using a present value methodology, because the scaling factor in any one year will not equal the scaling factor in any other year

CHAPTER 5
LOW VOLTAGE, SUPPLY AND HIGH VOLTAGE CHARGES

5.1 LOW VOLTAGE CHARGES

5 1 1 Introduction

We are proposing to NERC that it use The "Methodology for Calculation of Retail Price for Electricity Consumed, Tariff for Electricity Transmission by Local Networks and Tariff for Electricity Supply at Regulated Tariff"(see Appendix D), referred to below as "The methodology for 4 voltage classes," as the basis for the regulation of retail tariff calculations for four voltage classes It is based on the same principles as the "Temporary Methodology for Calculation of Retail Tariff for Electricity Consumed, Tariff for Electricity Transmission by Local Networks and Tariff for Electricity Supply (effective until introduction of tariff calculation by 4 voltage classes)" prepared by NERC 1996 in cooperation with Hagler Bailly (referred below as "Temporary Methodology")

The "Temporary Methodology" has not yet been officially approved NERC is not willing to approve it because of the lack of an industry methodology for allocation of costs between transmission and supply and for allocation of transmission costs among voltage classes

Currently the principles of the "Temporary Methodology" are used for calculation of transmission and supply tariffs according to which payments to LECs are calculated in the algorithm of the Market Funds Procedure

The Main changes in this proposed methodology of tariff calculation principles compared to the "Temporary Methodology" are

- calculation of tariffs for 4 voltage classes
- cost-based principles for calculation of supply tariff (more than two customer groups, allocation of service costs by customer group)
- loss adjustment factors are not used
- the cost of electricity used for internal needs of a licensee is included into the total cost of the licensed activity

Customer groups

At the moment there are two groups of consumers

Group 1 - industrial consumers and equivalent, commercial, consumers who are agricultural producers, non-industrial consumers (other than residential),

Group 2 - urban and rural residential consumers

We suggest the development of more than two consumer groups

- industrial consumers
- small industrial consumers
- agricultural consumers
- residential settlements
- urban residential consumers
- rural residential consumers

Supply costs for these groups are different, but to set supply tariffs separately for each group it is necessary to conduct a detailed study

Voltage classes

The "Temporary Methodology" was developed for two voltage classes

1st voltage class - 154-35 kV,
2nd voltage class - 10-0 4 kV

Later the railways that receive electricity at 27 5 kV were attributed to the 1st voltage class (see "Procedures for Determining of Customer Classes According to Voltage Level," approved by NERC"s Order No 1052 of 8/13/98)

The proposed methodology is developed for 4 voltage classes

1st voltage class - 154-110 kV,
2nd voltage class - 35-27 5 kV,
3rd voltage class - 10-6 kV,
4th voltage class - 0 4 kV

Notations

Below the indices I and j designate the following

- I is a group of consumers,
- j is a voltage class

P is the electricity price,

T is transmission or supply tariff,

E is the amount of electricity,

$$P_{ij}^{r} = \frac{P^{A} \pm R}{(1-LF_{1})* \quad *(1-LF_{j}\ )} + T_{j}^{L} + T_{i}^{S},$$

LF is the loss factor,

C is cost,

and indices are used to designate types of tariffs and prices

5 1 2 Formulae for four voltage classes

The retail price for electricity is calculated according to the following formula

(2 1)

where transmission and supply tariffs are the license tariffs that are the same for all customers of the same group and the same voltage class,

P^{A} is the hourly wholesale market price for consumers with hourly metering and payment for electricity, in this case the reconciliation does not apply, or it is the average weighted price for the relevant accounting period For consumers with two- or three-zone metering separate average weighted prices are calculated for each time zone,

T^{L}_{j} is the license transmission tariff for the voltage class j,

T^{S}_{i} is the license supply tariff for the group of consumers I,

Lf_{j} is the normative factor of technological electricity losses at the voltage level j and at transformation from the voltage level j-1 to the level j

The reconciliation component **R** is used for taking into account the difference between actual and forecast data on the wholesale market price, prices at which electricity is purchased from generators that do not sell electricity to the Wholesale Market, amounts of electricity purchased and load profiles

Formula (2 1) is the formula for the calculation of the market-based retail tariff from Conditions and Rules for Entrepreneurial Activity of Electricity Supply at Regulated Tariff This formula can be applied to any number of voltage classes and for any type of accounting for electricity consumed

Principal types of accounting for electricity consumption

- Hourly accounting the consumer pays for electricity at the hourly Energomarket wholesale price, adjusted for local network losses, plus the relevant supply and transmission tariffs This type of accounting requires an hourly meter

- Load profile accounting the LEC and the consumer agree on the load profile according to which the electricity is consumed Hourly consumption in this case is determined by the metered consumption during the day or other agreed period, and the load profile

- Time of the day accounting electricity consumption is metered separately for two or three time zones of the day Zone meter is required

- Average price accounting consumption for some agreed period (usually a month) is metered and paid at the average weighted price

Electricity consumption for calculation of the average weighted price is calculated as the difference between (1) total electricity consumption for the accounting period and (2) the consumption of all customers using the first three types of accounting

5 1 3 Calculation of the average purchase price of electricity

The average purchase price of electricity presents an average weighted price that takes into account the following prices

1) prices at which an RTS purchased electricity from Energomarket during the relevant accounting period

2) prices at which an RTS purchased electricity from generators that do not sell electricity to Energomarket

Electricity prices entering into the formula for calculation of the average purchase price are adjusted in the case of electricity coming to the networks of the local transmission licensee at lower voltage levels

5 1 4 Calculation of factors of normative technical losses

Factors of technological electricity loss LF_j for the relevant j-th voltage class are calculated by a licensee on transmission by local electricity network as the sum of normative technological electricity losses divided by the sum of electricity transmitted at each voltage class for the relevant quarter

Transfer to calculation of retail tariffs for four voltage classes will require new calculation of the loss factors for four voltage classes, though the formula and the principles of calculation and substantiation of loss factors remain the same

5 1 5 Calculation, justification and approval of fees

The procedures for calculation, justification and approval of license tariffs for electricity transmission by local networks and for electricity supply at regulated tariff are applicable in the following cases

- justification of tariffs to be included into newly issued licenses
- scheduled review of the license tariffs

According to the Conditions and Rules for Entrepreneurial Activity of Electricity Supply at Regulated Tariff and of Electricity Transmission by Local Network the tariffs can be revised at the Licensee"s request, based on the review of financial reports information and plans of the licensee and other comparable licensees Such a revision may be performed in the following cases

- when the revenue from the licensed activity does not cover costs of this activity for more than six months,
- when costs of using networks of other licensees are changed,
- in the case of changes in the capital investment plans (in this case the need of the changes should be substantiated)

5 1 6 LVNO fees in the case of four voltage classes

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The formulae for calculation of the local transmission tariffs are similar to those contained in the "Temporary Methodology " The principal difficulties arising in the transition to four voltage classes are

- in some cases electricity is transformed from the voltage class (j-2) directly to the voltage class (j), without transmission at the voltage class (j-1),
- allocation of costs among voltage levels presents a problem

There has been a suggestion to introduce a special transmission class (at the same voltage level 0 4 kV) for urban residential consumers Such a class may be useful with the purpose of allocation of maintenance cost of electricity network inside apartment buildings Currently this cost is attributed to the retail tariff The maintenance itself is carried out by housing offices that are to receive payments from LECs

5 1 7 Special cases

The proposed methodology shows calculation of the local transmission and retail tariffs for the following special cases

- Calculation of transmission tariff for a micronet that receives electricity from two sources at two voltage levels An example of such a micronet is Donetskvugillya, which receives electricity from "Donetskoblenergo" and from Energovugillya, another micronet
- Calculation of a special transmission tariff for a customer connected at a lower voltage level through a transformer from the higher voltage level that belongs to an oblenergo An example of such customer is Zaporizhzhya Aluminum Plant, which is connected to a 10 kV bus through such a transformer Setting of special tariffs in this cases is recommended to ensure competitiveness of an oblenergo with respect to independent suppliers

In the case when the cost of some equipment or its maintenance is attributed to a particular customer or a group of customers, this cost should not be included into the total cost attributed to all of the customers

5 2 REGULATED TARIFF SUPPLY FEE

The current system for the Regulated Tariff Supply fee is to estimate the revenue requirement and then set the residential fee at 5 times the fee charged to other customers, on the grounds that residential customers are more costly to serve than other customers The main problem

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with this mechanism is that there is no real underlying justification A small commercial customer is charged the same supply fee as a large industrial customer, when the costs per kWh are far higher to serve a small customer than a large customer The RTS fee set for residential customers is probably far too low

In the UK, the regulator split the revenue requirement for each supply company into three parts [1]

- a fixed charge of £10 million or £11 million per year, depending on the company
- a customer-related charge
- a charge per kWh sold

The regulator split the RTS costs 75% to customer-related costs and 25% to kWh-related costs A 75/25 split obviously is arbitrary (but is less arbitrary than the 5 to 1 ratio that currently is used)

Adoption of this method by Ukraine would change the pricing structure substantially Small commercial customers would pay a far higher fee than large industrial customers The RTS fee of residential and small commercial customers might also be somewhat close together

The RTS should be allowed to charge a completely unregulated fee to large industrial customers which it must compete with Independent Energy Suppliers (IES) to serve If the regulated RTS fee is higher than the implicit fee that IESs charge, the RTS will not be able to retain the business An RTS fee to such large industrial customers must be calculated in setting other RTS fees, but the RTS should be allowed to charge a different price Where competition exists, it is a far better determinant of the appropriate price than any regulator can ever be

As stated above in section 1 2, the RTS should be required to apply an interest rate to under- and over-collections of energy costs, in order to prevent the RTS from profiting or losing from mismatches of energy costs and revenues

5 3 HIGH VOLTAGE CHARGES

The setting of high voltage charges should be changed in two ways profit should be calculated as a return on rate base as discussed above, and far more documentation should be

[1] *The Supply Price Control Proposals*, Office of Electricity Regulation, 1994

Y3

required of the high voltage company The price should be a postage stamp price (one price for all transmission, per kWh), and with fixed costs recovered through a fixed charge and variable costs recovered through a variable charge

Ukraine should move toward more sophisticated transmission pricing Transmission pricing should provide the right economic incentives for investment in adequate transmission resources, provide the correct information for siting of generation, and be compatible with operational procedures during contingency situations to allow for economically efficient procedures required for alleviation of congestion and interface thermal and stability flow limits

Locational Marginal Pricing (LMP) is an extension of the spot pricing of electricity and applies between two locations or buses (points of injection or delivery of power) on an electric power network LMP is defined as the change in the total operating cost of the transmission system with respect to a unit increase in transmission system loading A unit increase in transmission system loading is equivalent to addition of one unit of electric energy from a generation bus, accompanied with a delivery of one unit of electric energy at a load bus LMP generally reflects the time and location dependent *cost of power losses* and *cost of congestion*

- Power Loss Component of LMP The power loss component of LMP reflects the marginal cost of higher power losses, or alternatively, marginal benefit of lower power losses, due to a unit increase in demand and supply at the respective locations

- Congestion Component of LMP The congestion component of LMP reflects the marginal cost of preventing interface flows from exceeding their limits, or alternatively, marginal benefit of alleviating interface flows within the required limits, due to a unit increase in demand and supply at the respective locations

The line power loss costs vary nonlinearly (quadratically) with the loading on the power lines The costs associated with losses are associated with changes in load and generation and are more or less predictable from historical data For economic dispatch in USA, network operators, using simulation and analysis, calculate typical line loss matrices, also called *loss penalty factors*, for each pair of buses in the network, reflecting typical different load and generation configurations in the system The loss penalty factors are used as multipliers to adjust the marginal cost of generators at specified buses to reflect their contribution to line losses Same loss penalty factors can be used as multipliers to system lambda (system marginal cost) to evaluate the locational prices for each bus in the network Differences in the prices of adjacent nodes reflect the power loss component of the LMP for the respective locations

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These congestion costs are zero most of the time, but become non-zero when probability of congestion becomes more than zero These costs are unpredictable but infrequent Examples of congestion costs include out of merit dispatch of available generation, calling of operating reserves, institution of voluntary demand curtailments, and so on These costs can be framed in terms of their frequency in hours per year and a per unit cost per kWh obtained by dividing the total cost of the even per year by the total kWh flow between the respective locations

In practice, the congestion cost component of LMP is not based on the evaluation of the actual costs incurred for prevention or alleviation of network congestion In congestion free networks, there is only a single System lambda, or system-wide marginal cost, which reflects the short-term marginal cost of the marginal generation unit in operation System lambda adjusted by loss penalty factors provides the locational marginal price for each location Networks experiencing congestion, can be viewed as consisting of separate "islands" where island boundaries are determined by the congested inter-ties Then the system lambda for each isolated island will be based on the short-run marginal cost of the marginal operating generation unit within that island In other words, the congested network will have more than one system lambda The transmission price across congested lines, in addition to accounting for line power losses, would also reflect the marginal price differences on two sides of the congested line

Based on the preceding definitions, each of the two LMP components can be positive or negative since simultaneous action of demand and supply may increase or decrease line losses and possibility of congestion between two locations

Transmission suppliers are paid the difference between marginal costs at generation points and marginal costs at load points Conceptually this is equivalent to having the transmission provider buying all electricity at generation points and selling it at load points Hence, total transmission revenues are the difference between total payments to generation in priced at the LMP of each corresponding generation bus and the total collections from load if evaluated at the LMP of each corresponding load bus Marginal cost differences between various locations in the network would be higher than during peak times compared to off-peak times It is expected that these differences would be 10 to 20% of the system lambda

For monopoly transmission, LMP should be applied in conjunction with revenue regulation to meet revenue reconciliation objectives required by the regulator Revenue reconciliation means adjustment to rates to result in a pre-specified revenue target The pricing system itself will not be regulated in order to reflect the time and location dependent costs of transmission reflecting line power losses and congestion This is contrast to cost-based pricing where prices are designed and determined directly based on costs and a set level of profit to result in target revenue To cover revenue excess or shortfall, a fixed charge (or rebate) component can be applied to all nodes prorated by total electricity delivery to load at each bus

It has been argued that LMP, if designed and applied correctly, will provide the correct pricing signal to transmission users for economically efficient utilization of the transmission system, and to transmission suppliers for economically efficient investment in upgrade of the transmission system

APPENDIX A

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General Provisions

1 The information on costs, profit, expenditures from profit based on the activity, which was submitted by LEC to NERC under the Terms and Conditions for carrying out an entrepreneurial licensed activity when approving a new tariff in May 1998, has been used to carry out an analysis of justification of electricity tariffs for transmission and supply

2 To make a comparative analysis the LEC have been classified into four groups based on the absolute value of electricity supply to consumers with the installed capacity of 750kVA and higher The comparative analysis of transmission and supply tariff justification has been conducted separately for the companies located within the each group

3 To calculate a tariff for electricity transmission by local electric networks at voltage of Class I, a formula under p 5 1 of the Project " Interim procedure for calculation of the electricity retail tariff, tariff for electricity transmission by local electric networks and tariff for electricity supply" has been used, taking into account costs of electricity for economic needs attributed to general costs of electricity transmission at voltage of Class I

$$T_1^m = \frac{B_{u1}}{E_1}, \quad (1)$$

where

B_{u1} - costs of electricity transmission at voltage of Class I, Hr ,

E_1 – electricity transmitted through electric lines of voltage Class I, MWh

4 To calculate a tariff for electricity transmission by local electric networks at voltage of Class II, a formula under p 5 2 of the Project " Interim procedure for calculation of the electricity retail tariff, tariff for electricity transmission by local electric networks and tariff for electricity supply" has been used, taking into account costs of electricity for economic needs attributed to general costs of electricity transmission at voltage of Class II

$$T_2^M = \frac{T_1^M}{\left(1-K_{p2}^M\right)} * \left(1 - \frac{E_{T2}}{\left(E_{T1}+E_{T2}\right)}\right) + \frac{B_{u2}}{E_2}, \quad (2)$$

where

K^M_{p2} - factor of normative technological electricity losses for transmission at voltage Class II,

E_{T1} - electricity transformed from higher to lower voltage class, MWh,

E_{T2} – electricity inflow from generators directly to voltage Class II, MWh,

B_{u2} - costs of electricity transmission at voltage Class II, Hr

E_2 –electricity transmitted through electric lines of voltage Class II, MWh

5 To calculate a tariff for electricity supply to customers of Group I a formula under p 6 1 of the Project " Interim procedure for calculation of the electricity retail tariff, tariff for electricity transmission by local electric networks and tariff for electricity supply" has been used

$$T_1^n = \frac{B^n}{\left(E_{c1}^n + K * E_{c2}^n\right)}, \quad (3)$$

where
B^{Π} - costs of electricity supply, Hr ,
E^{Π}_{c1} – electricity consumption by customers of Group I,MWh,
E^{Π}_{c2} - electricity consumption by customers of Group II,MWh,
K = 5 – complexity factor when carrying out the licensed activity in electricity supply at regulated tariff to customers of Group II

6 To calculate a tariff for electricity supply to customers of Group II a formula under p 6 2 of the Project " Interim procedure for calculation of the electricity retail tariff, tariff for electricity transmission by local electric networks and tariff for electricity supply" has been used

$$T^{\Pi}_{2} = \frac{K * B^{\Pi}}{\left(E^{\Pi}_{c1} + K * E^{\Pi}_{c2}\right)} \quad (4)$$

7 The profitability of licensed activity shall be determined as ratio of profit less tax and a sum of direct and indirect costs

8 An average arithmetic value is determined as a result from the division of total relative indicators values of all companies within the group by a number of companies within this group

9 Deviation from average arithmetic values is determined as a difference between the value of a relative indicator and an average arithmetic value of a relative indicator for a certain group of companies

10 All calculations are presented with two decimal places

11 Analysis of LEC Costs and Profit on Tariffs Approved by NERC in May 1998' is supplemented with an electronic model for calculation of LEC activity indicators (in EXCEL-97 spreadsheets format in the four 1 44Mbyte diskettes) Calculation of a LEC activity indicators can be carried out provided that all data for each LEC within a relative group are entered using the model format

Calculated Indicators (Profitability and Tariff), Averages of Indicators, and Variances with Indicator Averages for DNIPROOBLENERGO

Table 1 1

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	45	47	3
Profitability of electricity transmission for 2nd voltage class (calculated) %	29	44	15
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	29	46	17
Transmission tariff for 1st voltage class (calculated) Hr/MWh	1 74	2 27	-0 53
Transmission tariff for 1st voltage class (approved) Hr/MWh	1 74	2 12	-0 38
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	11 25	11 46	-0 21
Transmission tariff for 2nd voltage class (approved) Hr/MWh	5 60	6 78	1 18
Supply tariff for 1st group of consumers (calculated) Hr/MWh	0 39	0 47	-0 07
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 17	0 69	-0 52
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	1 96	2 33	-0 37
Supply tariff for 2nd group of consumers (approved) Hr/MWh	0 85	0 86	-0 01

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for DNIPROOBLENERGO

Table 1 1b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 23	0 22	0 34
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 20	0 0	0 36
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 02	0 01	-0 02
Ratio of indirect costs to sum of direct and indirect costs	0 02	0 02	0 02
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 07	0 07	0 07
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 05	0 05	-0 05
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 35	0 33	0 11
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 29	0 29	0 18
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	0 06	0 05	-0 07
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 20	0 22	0 41
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 28	0 28	0 40
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 08	-0 06	0 01

Calculated Indicators (Profitability and Tariff), Averages of Indicators, and Variances with Indicator Averages for DONETSKOBLENERGO

Table 1 2

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	75	47	28
Profitability of electricity transmission for 2nd voltage class (calculated) %	75	44	31
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	68	46	22
Transmission tariff for 1st voltage class (calculated) Hr/MWh	2.02	2 27	-0 24
Transmission tariff for 1st voltage class (approved) Hr/MWh	1 60	2 12	-0 52
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	15 43	11 46	3 98
Transmission tariff for 2nd voltage class (approved) Hr/MWh	7 39	6 78	0 61
Supply tariff for 1st group of consumers (calculated) Hr/MWh	0 61	0 47	0 14
Supply tariff for 1st group of consumers (approved) Hr/MWh	1 00	0 69	0 31
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	3 03	2 33	0 70
Supply tariff for 2nd group of consumers (approved) Hr/MWh	1 00	0 86	0 14

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for DONETSKOBLENERGO

Table 1 2b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 15	0 15	0 28
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 20	0 20	0 36
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	-0 05	0 05	0 08
Ratio of indirect costs to sum of direct and indirect costs	0 22	0 22	0 22
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 07	0 07	0 07
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	0 15	0 15	0 15
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 43	0 43	0 39
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 29	0 28	0 40
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	0 14	0 15	0 01
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 17	0 17	0 18
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 28	0 28	0 40
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 12	-0 12	-0 22

Calculated Indicators (Profitability and Tariff), Averages of Indicators, and Variances with Indicator Averages for LUHANSKOBLENERGO

Table 1 3

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	45	47	2
Profitability of electricity transmission for 2nd voltage class (calculated) %	45	44	1
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	41	46	5
Transmission tariff for 1st voltage class (calculated) Hr/MWh	2.64	2.27	0 38
Transmission tariff for 1st voltage class (approved) Hr/MWh	2.64	2.12	0 52
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	11 16	11 46	-0 29
Transmission tariff for 2nd voltage class (approved) Hr/MWh	8 16	6 78	1 38
Supply tariff for 1st group of consumers (calculated) Hr/MWh	0 57	0 47	0 11
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 80	0 69	0 11
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	2 86	2 33	0 53
Supply tariff for 2nd group of consumers (approved) Hr/MWh	0 80	0 86	-0 06

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for LUHANSKOBLENERGO

Table 1 3b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 27	0 25	0 30
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 20	0 20	0 36
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 06	0 04	-0 06
Ratio of indirect costs to sum of direct and indirect costs	0 03	0 03	0 05
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 07	0 07	0 07
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	0 04	0 04	-0 02
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 22	0 22	0 16
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 29	0 29	0 18
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	0 06	0 06	0 02
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 38	0 38	0 43
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 28	0 28	0 40
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	0 10	0 10	0 03

Calculated Indicators (Profitability and Tariff) Averages of Indicators, and Variances with Indicator Averages for ZHAPORIZHIAOBLENERGO

Table 1-4

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	26	47	21
Profitability of electricity transmission for 2nd voltage class (calculated) %	26	44	18
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	44	46	1
Transmission tariff for 1st voltage class (calculated) Hr/MWh	2.66	2.27	0 39
Transmission tariff for 1st voltage class (approved) Hr/MWh	2.50	2 12	0 38
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	7 98	11 46	3 47
Transmission tariff for 2nd voltage class (approved) Hr/MWh	5 96	6 78	-0 82
Supply tariff for 1st group of consumers (calculated) Hr/MWh	0 29	0 47	-0 17
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 800	0 69	0 11
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	1 46	2 33	-0 86
Supply tariff for 2nd group of consumers (approved) Hr/MWh	0 80	0 86	-0 06

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for ZHAPORIZHIAOBLENERGO

Table 1-4b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 17	0 25	0 30
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 20	0 20	0 36
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	-0 03	0 04	-0 06
Ratio of indirect costs to sum of direct and indirect costs	0 00	0 03	0 05
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 07	0 07	0 07
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 07	-0 04	-0 02
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 16	0 22	0 16
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 29	0 29	0 18
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	-0 13	0 06	-0 02
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 37	0 38	0 43
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 28	0 28	0 40
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	0 08	0 10	0 03

Costs of Electricity Transmission by Local Electric Networks at the 1st Voltage Class (thous Hr)

Table 1-1

	Dnipro-oblenergo	Donetsk-oblenergo	Luhansk-oblenergo	Zaporizhia-oblenergo
Prime Costs				
material costs	741	1704	1725	825
labor costs	6653	3826	4673	3911
payment for social measures	3271	1817	2220	1869
depreciation	8401	6530	4395	3961
costs for repairs	8325	4007	2970	9751
costs of electricity used for internel needs	0	626	0	372
costs for using networks of other transmission licenses	0	0	0	0
other costs	1253	923	977	2105
Total	28644	19433	16960	22794
indirect costs	631	5637	468	0
Total direct and indirect costs	29275	25070	17428	22794
Expenses from profit				
deductions development of production	2025	9771	281	565
deductions to investment	4586	2051	2185	654
deductions to current costs	791	1563	446	0
deductions to social development	2560	2736	2301	2196
deductions to incentives	1168	1759	1874	601
other purposes	844	429	297	610
deductions to creation of investment fund	600	0	0	634
deductions to reserve (insurence) fund	517	0	0	0
dividens	0	779	0	0
profit tax	5610	7972	3165	2393
deductions to central funds	0	0	471	0
Total expences from profit	18701	27060	11019	7653
Total expenses	**47976**	**52130**	**28447**	**30447**
Profitability of licensed activity (the ratio of aftertax profitability to the sum of direct and indirect costs)	0 45	0 76	0 45	0 23
Average profitability	0 47			
Deviation from average profitability	0 03	0 29	-0 02	-0 24

Costs of Electricity Transmission by Local Electric Networks at the 2nd Voltage Class (thous Hr)

Table 1-2

	Dnipro-oblenergo	Donetsk-oblenergo	Luhansk-oblenergo	Zaporizhia-oblenergo
Prime Costs				
material costs	5779	5212	3549	1416
labor costs	10773	12755	9613	5473
payment for social measures	4823	6059	4566	2594
depreciation	14758	18547	9039	8156
costs for repairs	9301	16028	6109	9497
costs of electricity used for internel needs	0	2024	0	659
costs for using networks of other transmission licenses	0	360	0	0
other costs	2903	3416	2010	2379
Total	48337	64401	34886	30174
indirect costs	1039	18177	962	0
Total direct and indirect costs	49376	82578	35848	30174
Expenses from profit				
deductions development of production	1850	32243	578	935 7
deductions to investment	4947	5826	4495	1346
deductions to current costs	857	5159	917	0
deductions to social development	2720	9028	4734	2759
deductions to incentives	2061	5804	3856	908
other purposes	914	1414	610	1144
deductions to creation of investment fund	650	0	0	898
deductions to reserve (insurence) fund	561	0	0	0
dividens	0	2570	0	0
profit tax	6240	26304	6510	3390
deductions to central funds	0	0	968	0
Total expences from profit	20800	88349	22667	11380
Total expenses	**70176**	**170927**	**58515**	**41554**
Profitability of licensed activity (the ratio of aftertax profitability to the sum of direct and indirect costs)	0 29	0 75	0 45	0 26
Average profitability	0 44			
Deviation from average profitability	-0 15	0 31	0 01	-0 18

Costs of Electricity Supply (thous Hr)

Table 1-3

	Dnipro-oblenergo	Donetsk - oblenergo	Luhansk-oblenergo	Zaporizhia - oblenergo
Prime Costs				
material costs	1035	551	378	210
labor costs	3315	2899	1673	1620
payment for social measures	1481	1377	795	761
depreciation	507	50	154	0
costs for repairs	218	619	96	0
costs of electricity used for internel needs	0	153	0	0
costs for using networks of other transmission licenses	0	0	0	0
other costs	2869	2419	2192	535
Total	9425	8068	5288	3136
indirect costs	205	2341	273	0
Total direct and indirect costs	9630	10409	5561	3136
Expenses from profit				
deductions development of production	152	4063	92	102
deductions to investment	292	16	437	0
deductions to current costs	203	650	146	0
deductions to social development	875	1138	756	815
deductions to incentives	771	731	616	272
other purposes	217	178	95	74
deductions to creation of investment fund	154	0	0	131
deductions to reserve (insurence) fund	133	0	0	0
dividens	0	324	0	0
profit tax	1199	3314	918	494
deductions to central funds	0	0	150	0
Total expences from profit	3996	10413	3211	1888
Total expenses	**13626**	**20822**	**8771**	**5024**
Profitability of licensed activity (the ratio of aftertax profitability to the sum of direct and indirect costs)	0 29	0 68	0 41	0 44
Average profitability	0 46			
Deviation from average profitability	-0 17	0 22	0 05	-0 01

Individual Tariff Components for Electricity Transmission by Local Electric Networks at the 1st Voltage Class (thous Hr)

Table 1-1

Tariff components	Dnipro oblenergo	Donetsk-oblenergo	Luhansk-oblenergo	Zaporizhia-oblenergo	*average value*
Prime Costs					
material costs	0 03	0 07	0 16	0 07	0 08
labor costs	0 24	0 15	0 43	0 34	0 29
payment for social measures	0 12	0 07	0 21	0 16	0 14
depreciation	0 30	0 25	0 41	0 35	0 33
costs for repairs	0 30	0 16	0 28	0 85	0 40
costs of electricity used for internel needs		0 02	-	0 03	0 01
costs for using networks of other transmission licensees		-	-	0	0
other costs	0 05	0 04	0 09	0 18	0 09
indirect costs	0 02	0 22	0 04		0 07
total direct and indirect costs	1 06	0 97	1 62	1 99	1 41
Expenses from profit					
deductions development of production	0 07	0 38	0 03	0 05	0 13
deductions to investment	0 17	0 08	0 20	0 06	0 13
deductions to current costs	0 03	0 06	0 04		0 03
deductions to social development	0 09	0 11	0 21	0 19	0 15
deductions to incentives	0 04	0 07	0 17	0 05	0 08
other purposes	0 03	0 02	0 03	0 05	0 03
deductions to creation of investment fund	0 02			0 06	0 02
deductions to reserve (insurence) fund	0 02		-		0
dividens		0 03		-	0 01
profit tax	0 20	0 31	0 29	0 21	0 25
deductions to central funds	-		0 04		0 01
total expences from profitt transmission tariff	0 68	1 05	1 02	0 67	0 86
Transmission tariff (calculated)	**1 74**	**2 02**	**2 64**	**2 66**	**2 27**
Transmission tariff (approved)	1 74	1 60	2 64	2 50	**2 12**
Ratio of calculeted transmission tariff to average value of the tariff for 1st Group of Companies	0 77	0 89	1 17	1 17	
Ratio of labour expenses to sum of direct and indirect costs	0 23	0 15	0 27	0 17	0 21
Variance between ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	-0 02	0 05	-0 06	0 03	
Ratio of indirect costs to sum of direct and indirect costs	0 02	0 22	0 03	0	0 05
Ratio of profit spent on production development plus capital expenditures to profit for	0 35	0 44	0 22	0 16	0 30
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 20	0 17	0 38	0 37	0 28

Individual Tariff Components for Electricity Transmission by Local Electric Networks at the 2nd Voltage Class (thous Hr)

Table 1-2

Tariff components	Dnipro-oblenergo	Donetsk-oblenergo	Luhansk-oblenergo	Zaporizhia-oblenergo	*average value*
Prime Costs					
material costs	0 80	0 48	0 68	0.25	0 55
labor costs	1 70	1 15	1 83	1 04	1 43
payment for social measures	0 77	0 55	0 87	0 50	0 67
depreciation	2 30	1 71	1 72	1 38	1 78
costs for repairs	1 57	1 41	1 17	2 08	1 56
costs of electricity used for internel needs	-	0 18		0 12	0 07
costs for using networks of other transmission licensees	-	0 03	-	0	0 01
other costs	0 80	0 30	0 38	0 49	0 50
indirect costs	0 16	1 65	0 18		0 50
total direct and indirect costs	7 74	7 45	6 84	5 86	6 97
Expenses from profit					
deductions development of production	0 33	2 91	0 11	0 05	0 85
deductions to investment	0 84	0 54	0 86	0 06	0 57
deductions to current costs	0 15	0 47	0 17	0 00	0 20
deductions to social development	0 46	0 81	0 90	0 20	0 60
deductions to incentives	0 32	0 52	0 74	0 06	0 41
other purposes	0 15	0 13	0 12	0 06	0 11
deductions to creation of investment fund	0 11	-		0 06	0 04
deductions to reserve (insurence) fund	0 10	-		0	0 02
dividens		0 23		0	0 06
profit tax	1 05	2 37	1 24	0 22	1 22
deductions to central funds	-	-	0 18	0	0 05
total expences from profitt	3 51	7 98	4 32	0 71	4 13
Transmission tariff (calculated)	**11 25**	**15 43**	**11 16**	**7 98**	**11 46**
Transmission tariff (approved)	5 60	7 39	8 16	5 96	**6 78**
Ratio of calculeted transmission tariff to average value of the tariff for 1st Group of Companies	0 77	0 89	1 17	1 17	
Ratio of labour expenses to sum of direct and indirect costs	0 22	0 15	0 27	0 18	0 21
Variance between ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	-0 01	0 05	0 06	0 03	
Ratio of indirect costs to sum of direct and indirect costs	0 02	0 22	0 03	0	0 07
Ratio of profit spent on production development plus capital expenditures to profit for	0 33	0 43	0 22	0 16	0 34
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 22	0 17	0 38	0 37	0 24

Individual Tariff Components for Electricity Supply for the 1st Group of Consumers (thous Hr)

Table1-3

Tariff components	Dnipro-oblenergo	Donetsk-oblenergo	Luhansk-oblenergo	Zaporzhia-oblenergo	*average value*
Prime Costs					
material costs	0 03	0 02	0 02	0 01	0 02
labor costs	0 10	0 08	0 11	0 09	0 10
payment for social measures	0 04	0 04	0 05	0 04	0 04
depreciation	0 01	0	0 01	-	0 01
costs for repairs	0 01	0 02	0 01	-	0 01
costs of electricity used for internel needs		0 00		0	0
costs for using networks of other transmission licensees		-		0	0
other costs	0 08	0 07	0 14	0 03	0 08
indirect costs	0 01	0 07	0 02		0 02
total direct and indirect costs	0 28	0 30	0 36	0 18	0 28
Expenses from profit					
deductions development of production	0 004	0 12	0 01	0 01	0 03
deductions to investment	0 01	0	0 03		0 01
deductions to current costs	0 01	0 02	0 01		0 01
deductions to social development	0 03	0 03	0 05	0 05	0 04
deductions to incentives	0 02	0 02	0 04	0 02	0 02
other purposes	0 01	0 01	0 01	0	0 01
deductions to creation of investment fund	0			0 01	0
deductions to reserve (insurence) fund	0				0
dividens		0 01			0
profit tax	0 03	0 10	0 06	0 03	0 05
deductions to central funds			0 01		0 00
total expences from profitt	0 11	0 30	0 21	0 11	0 18
Supply tariff (calculated)	0 39	0 61	0 57	0 29	0 47
Supply tariff (approved)	0 17	1 00	0 80	0 800	0 69
Ratio of calculeted supply tariff to average value of the tariff for 1st Group of Companies	0 77	0 89	1 17	1 17	
Ratio of labour expenses to sum of direct and indirect costs	0 34	0 28	0 30	0 52	0 34
Variance between ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 00	0 06	0 04	0 18	
Ratio of indirect costs to sum of direct and indirect costs	0 02	0 22	0 05	0	0 08
Ratio of profit spent on production development plus capital expenditures to profit for	0 11	0 39	0 16	0 05	0 23
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 41	0 18	0 43	0 58	0 35

Individual Tariff Components for Electricity Supply for the 2nd Group of Consumers (thous Hr)

Table 1-4

Tariff components	Dnipro-oblenergo	Donetsk-oblenergo	Luhansk-oblenergo	Zaporizhia-oblenergo	*average value*
Prime Costs					
material costs	0 15	0 08	0 12	0 06	0 10
labor costs	0 48	0 42	0 55	0 47	0 48
payment for social measures	0 21	0 20	0 26	0 22	0 22
depreciation	0 07	0 01	0 05		0 03
costs for repairs	0 03	0 09	0 03		0 04
costs of electricity used for internel needs		0 02	-	-	0 01
costs for using networks of other transmission licensees					
other costs	0 41	0 35	0 72	0 16	0 41
indirect costs	0 03	0 34	0 09		0 11
total direct and indirect costs	1 38	1 52	1 82	0 91	1 41
Expenses from profit					
deductions development of production	0 02	0 59	0 03	0 03	0 17
deductions to investment	0 04	0 00	0 14		0 05
deductions to current costs	0 03	0 09	0 05		0 04
deductions to social development	0 13	0 17	0 25	0 24	0 19
deductions to incentives	0 11	0 11	0 20	0 08	0 12
other purposes	0 03	0 03	0 03	0 02	0 03
deductions to creation of investment fund	0 02			0 04	0 02
deductions to reserve (insurence) fund	0 02				0
dividens		0 05			0 01
profit tax	0 17	0 48	0 30	0 14	0 27
deductions to central funds			0 05		0 01
total expences from profitt	0 57	1 52	1 05	0 55	0 92
Supply tariff (calculated)	1 96	3 03	2 86	1 46	2 33
Supply tariff (approved)	0 85	1 00	0 80	0 80	0 86
Ratio of calculeted supply tariff to average value of the tariff for 1st Group of Companies	0 77	0 89	1 17	1 17	
Ratio of labour expenses to sum of direct and indirect costs	0 34	0 28	0 30	0 52	0 34
Variance between ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 00	0 06	0 04	0 18	
Ratio of indirect costs to sum of direct and indirect costs	0 02	0 22	0 05	0	0 08
Ratio of profit spent on production development plus capital expenditures to profit for	0 11	0 39	0 16	0 05	0 23
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 41	0 18	0 43	0 58	0 35

Ratio of Individual Tariff Components for Electricity Transmission by Local Electric Networks to Average Tariff at the 1st Voltage Class

Table 1-8

Tariff Components	Dnipro-oblenergo	Donetsk oblenergo	Luhansk oblenergo	Zaponzhia - oblenergo
Prime Costs				
material costs	0 33	0 81	1 97	0 89
labor costs	0 83	0 51	1 49	1 17
payment for social measures	0 85	0 50	1 48	1 17
depreciation	0 93	0 77	1 24	1 05
costs for repairs	0 76	0 39	0 70	2 15
costs of electricity used for internel needs	-	1 71	-	2 29
costs for using networks of other transmission licenses	-		-	4 00
other costs	0 51	0 40	1 02	2 07
indirect costs	0 32	3 07	0 61	
Total direct and indirect costs	0 75	0 69	1 15	1 41
Expenses from profit				
deductions development of production	0 56	2 87	0 20	0 37
deductions to investment	1 31	0 63	1 60	0 45
deductions to current costs	0 88	1 86	1 27	-
deductions to social development	0 61	0 70	1 41	1 27
deductions to incentives	0 50	0 81	2 07	0 62
other purposes	0 96	0 52	0 86	1 66
deductions to creation of investment fund	1 13			2 87
deductions to reserve (insurence) fund	4 00			
dividens		4 00		-
profit tax	0 80	1 22	1 16	0 82
deductions to central funds	-		4 00	
Total expences from profit	0 79	1 23	1 20	0 78

Ratio of Individual Tariff Components for Electricity Transmission by Local Electric Networks to Average Tariff at the 2nd Voltage Class

Table 1-9

Tariff Components	Dnipro-oblenergo	Donetsk - oblenergo	Luhansk-oblenergo	Zaporizhia - oblenergo
Prime Costs				
material costs	1 46	0 86	1 23	0 46
labor costs	1 19	0 80	1 28	0 73
payment for social measures	1 15	0 81	1 30	0 74
depreciation	1 29	0 96	0 97	0 78
costs for repairs	1 01	0 91	0 75	1 34
costs of electricity used for internel needs	-	2 45		1 55
costs for using networks of other transmission licenses	-	4 00		0
other costs	1 62	0 61	0 77	0 99
indirect costs	0 33	3 30	0 37	
Total direct and indirect costs	1 11	1 07	0 98	0 84
Expenses from profit				
deductions development of production	0 38	3 43	0 13	0 06
deductions to investment	1 46	0 94	1 49	0 11
deductions to current costs	0 74	2 37	0 89	0
deductions to social development	0 78	1 37	1 52	0 34
deductions to incentives	0 79	1 28	1 80	0 14
other purposes	1 36	1 12	1 02	0 50
deductions to creation of investment fund	2 61			1 39
deductions to reserve (insurence) fund	4 00			0
dividens		4 00		0
profit tax	0 86	1 94	1 02	0 18
deductions to central funds	-		4 00	0
Total expences from profit	0 85	1 93	1 05	0 17

Ratio of Individual Tariff Components for Electricity Supply by Local Electric Networks to Average Tariff for the 1st Group of Customers

Table 1-10

Tariff Components	Dnipro-oblenergo	Donetsk oblenergo	Luhansk oblenergo	Zaponzhia oblenergo
Prime Costs				
material costs	1 44	0 78	1 19	0 59
labor costs	0 99	0 88	1 14	0 99
payment for social measures	0 95	0 90	1 16	0 99
depreciation	2 23	0 22	1 54	-
costs for repairs	0 82	2 36	0 82	-
costs of electricity used for internel needs		4 00		0
costs for using networks of other transmission licenses	-	-		4 00
other costs	1 01	0 86	1 75	0 38
indirect costs	0 26	2 97	0 78	
Total direct and indirect costs	0 98	1 08	1 29	0 65
Expenses from profit				
deductions development of production	0 13	3 51	0 18	0 18
deductions to investment	0 90	0 05	3 05	-
deductions to current costs	0 68	2 21	1 11	
deductions to social development	0 65	0 85	1 27	1 23
deductions to incentives	0 89	0 86	1 62	0 64
other purposes	1 14	0 95	1 13	0 79
deductions to creation of investment fund	1 47			2 53
deductions to reserve (insurence) fund	4 00			
dividens	-	4 00		
profit tax	0 63	1 76	1 09	0 52
deductions to central funds			4 00	
Total expences from profit	0 62	1 64	1 14	0 60

Ratio of Individual Tariff Components for Electricity Supply by Local Electric Networks to Average Tariff for the 2nd Group of Customers

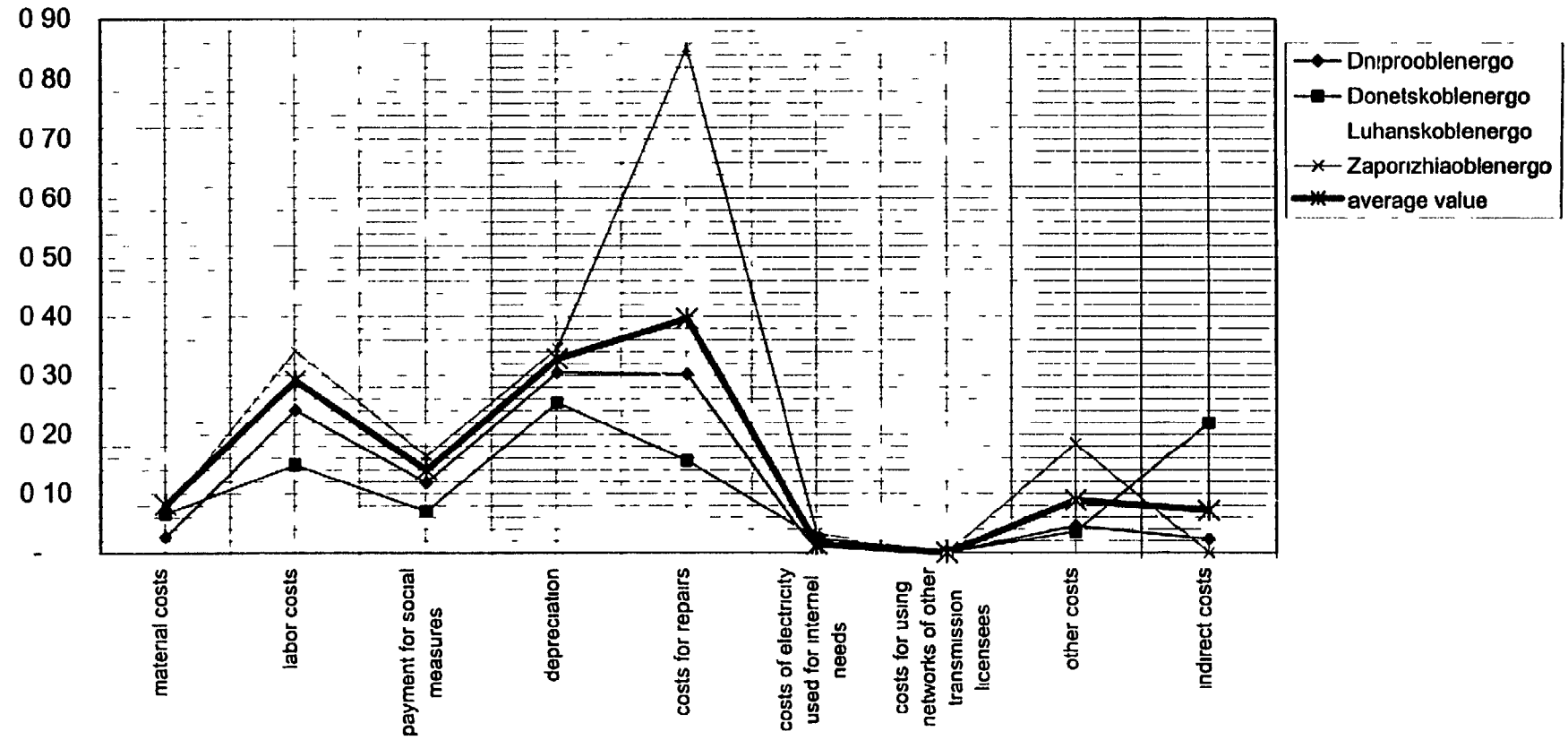
Table 1-11

Tariff Components	Dnipro-oblenergo	Donetsk - oblenergo	Luhansk oblenergo	Zaporzhia - oblenergo
Prime Costs				
material costs	1 44	0 78	1 19	0 59
labor costs	0 99	0 88	1 14	0 99
payment for social measures	0 95	0 90	1 16	0 99
depreciation	2 23	0 22	1 54	-
costs for repairs	0 82	2 36	0 82	
costs of electricity used for internel needs	-	4 00		
costs for using networks of other transmission licenses	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
other costs	1 01	0 86	1 75	0 38
indirect costs	0 26	2 97	0 78	
Total direct and indirect costs	0 98	1 08	1 29	0 65
Expenses from profit				
deductions development of production	0 13	3 51	0 18	0 18
deductions to investment	0 90	0 05	3 05	
deductions to current costs	0 68	2 21	1 11	-
deductions to social development	0 65	0 85	1 27	1 23
deductions to incentives	0 89	0 86	1 62	0 64
other purposes	1 14	0 95	1 13	0 79
deductions to creation of investment fund	1 47	-		2 53
deductions to reserve (insurence) fund	4 00	-		-
dividens	-	4 00		-
profit tax	0 63	1 76	1 09	0 52
deductions to central funds	-		4 00	-
Total expences from profit	0 62	1 64	1 14	0 60

Tariff Structure for Electricity Transmission by Local Electric Networks, 1st Voltage Class

Prime Costs

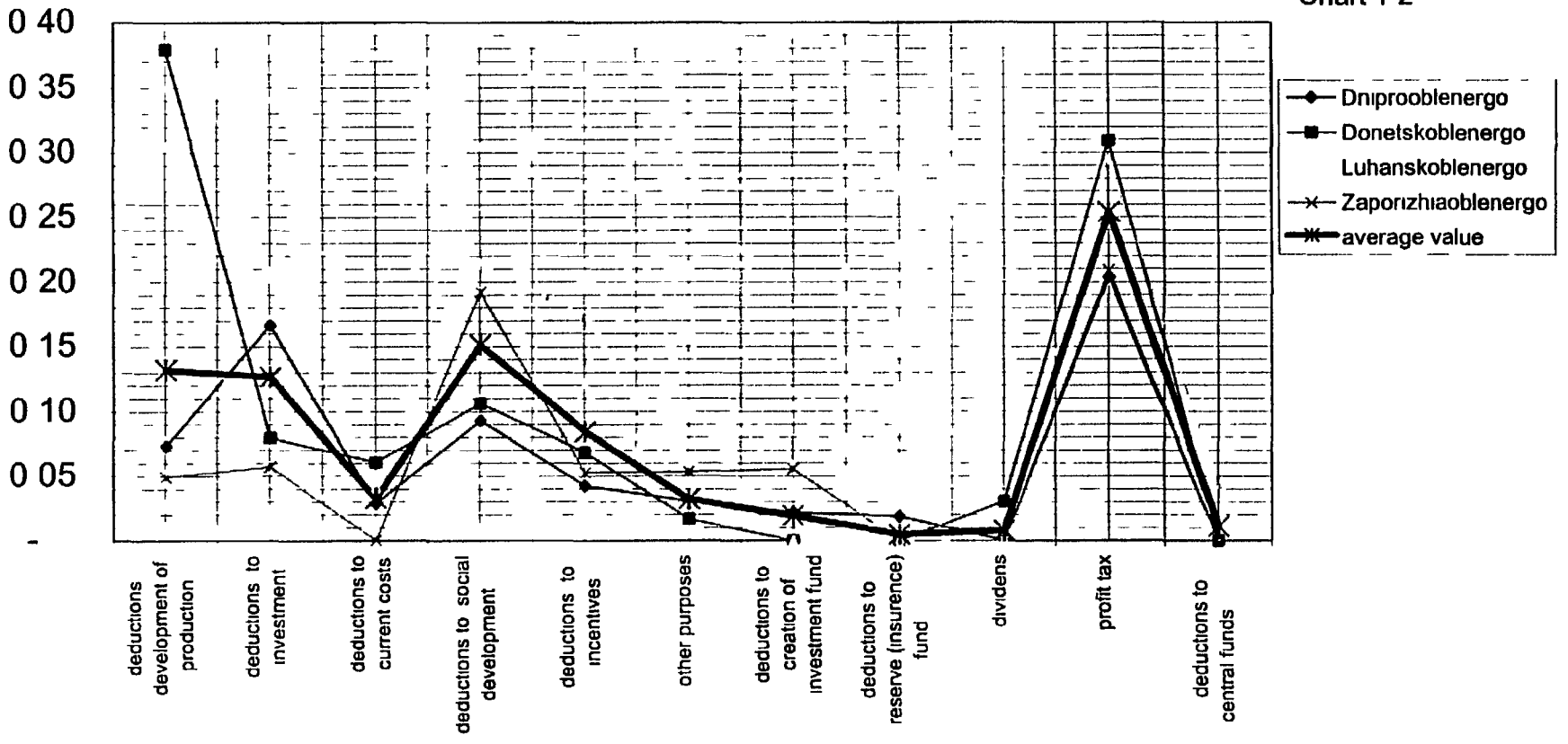
Chart 1-1



Tariff Structure for Electricity Tansmission by Local Electric Networks, 1st Voltage Class

Expenses from Profit

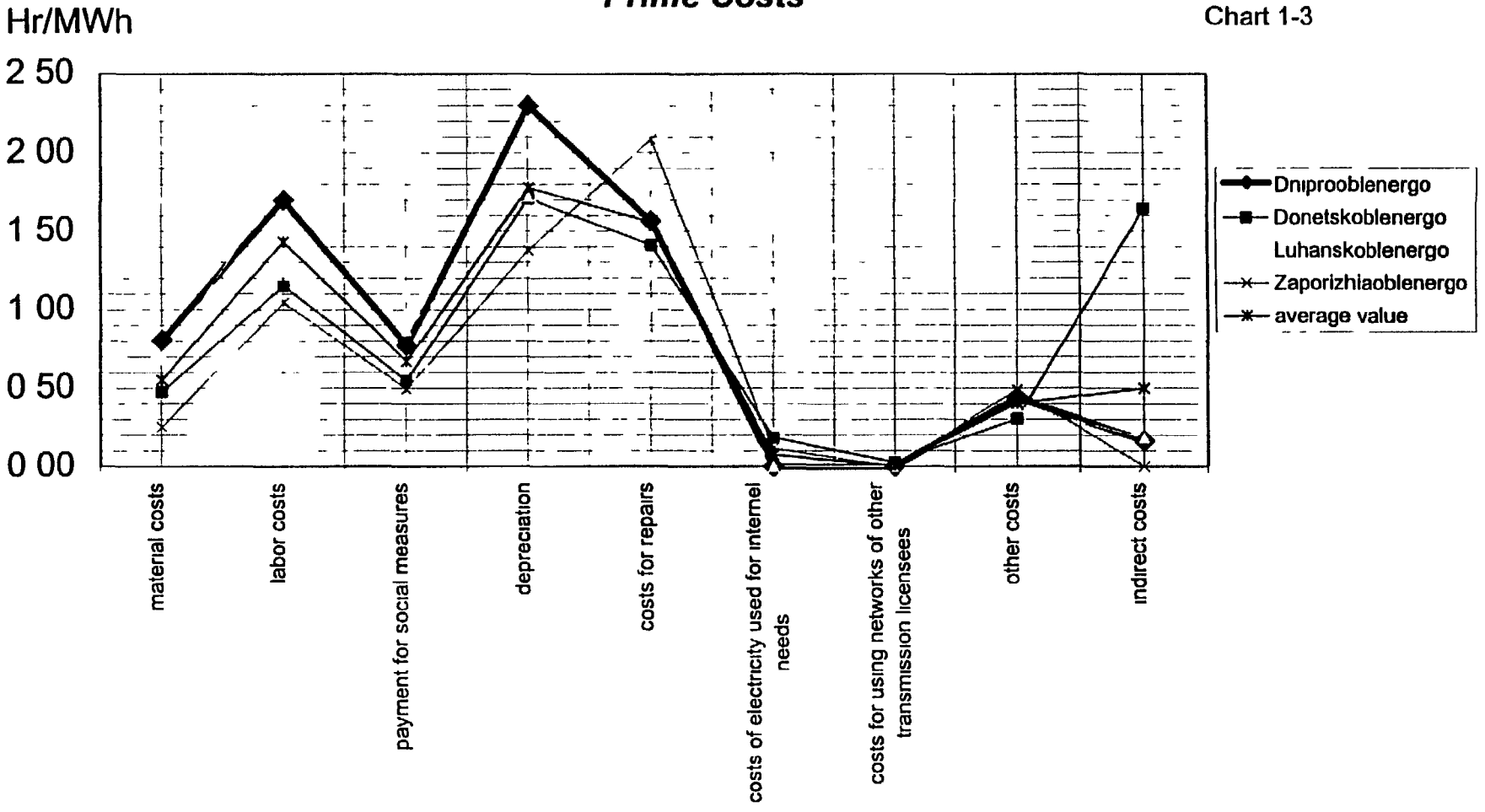
Chart 1-2



Tariff Structure for Electricity Transmission by Local Electric Networks, 2nd Voltage Class

Prime Costs

Chart 1-3



Tariff Structure for Electricity Tansmission by Local Electric Networks, 2nd Voltage Class

Expenses from Profit

Chart 1-4

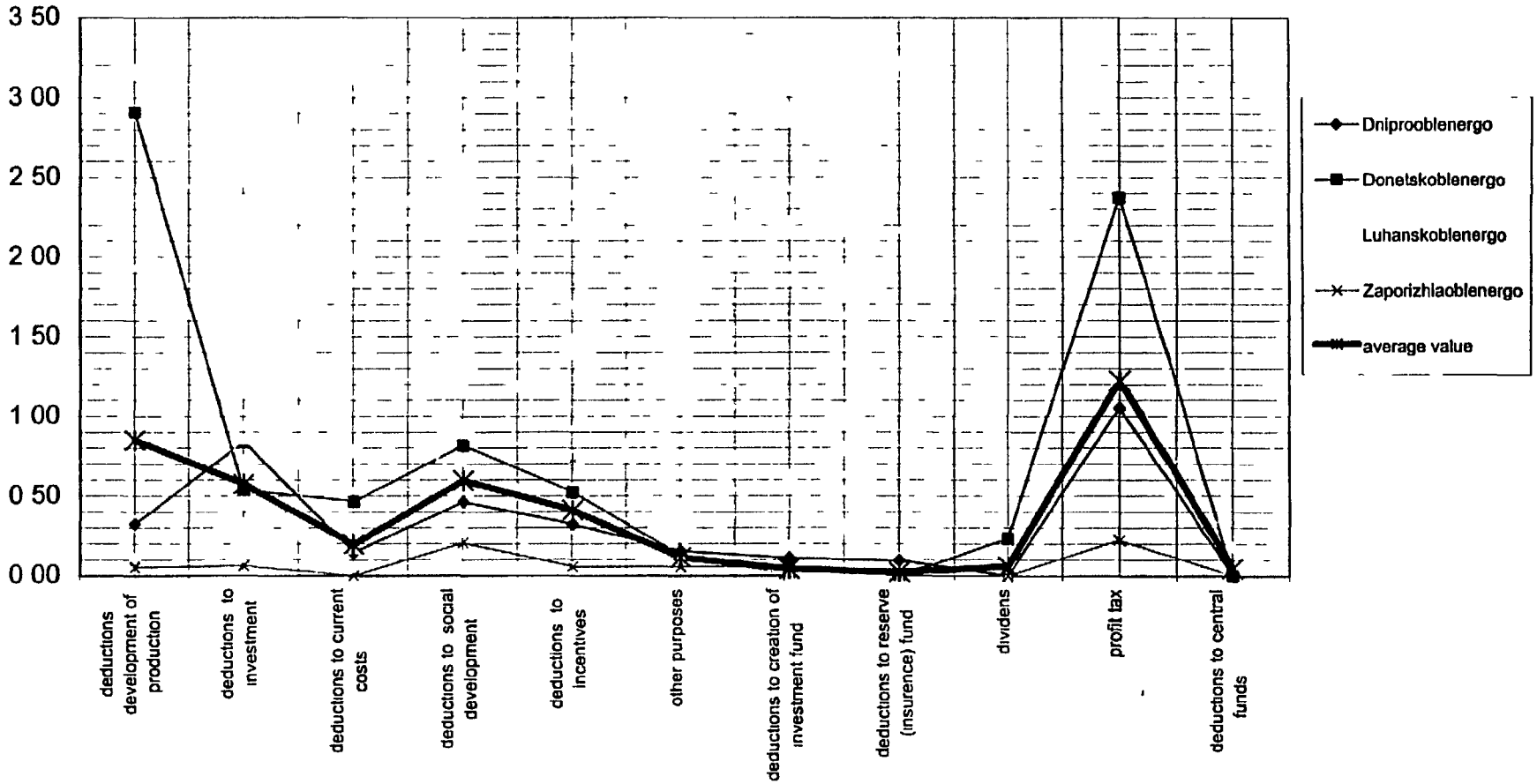
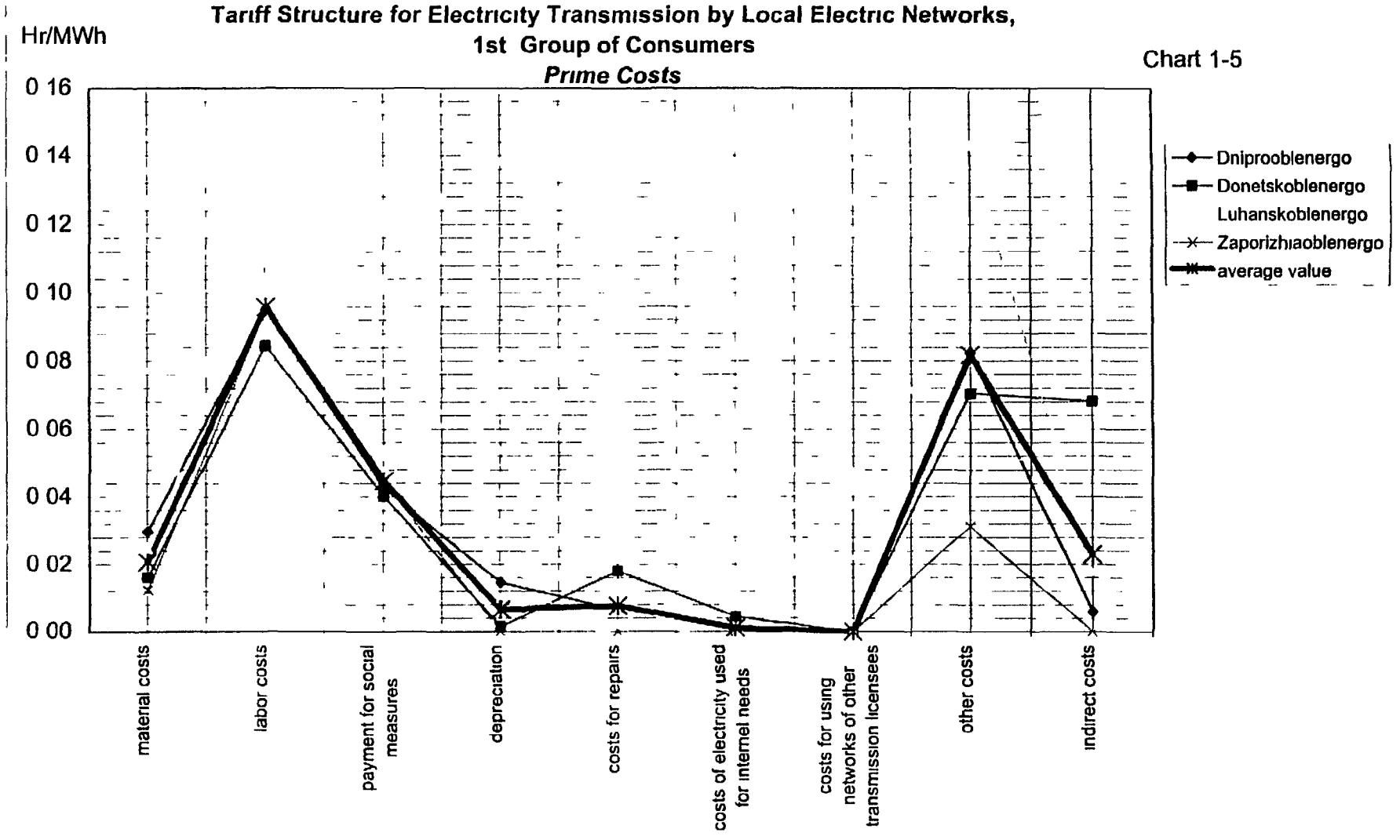


Chart 1-5


Tariff Structure for Electricity Transmission by Local Electric Networks,
1st Group of Consumers
Prime Costs
Hr/MWh
0 16
0 14
0 12
0 10
0 08
0 06
0 04
0 02
0 00
material costs
labor costs
payment for social measures
depreciation
costs for repairs
costs of electricity used for internal needs
costs for using networks of other transmission licensees
other costs
indirect costs
Dniprooblenergo
Donetskoblenergo
Luhanskoblenergo
Zaporizhiaoblenergo
average value

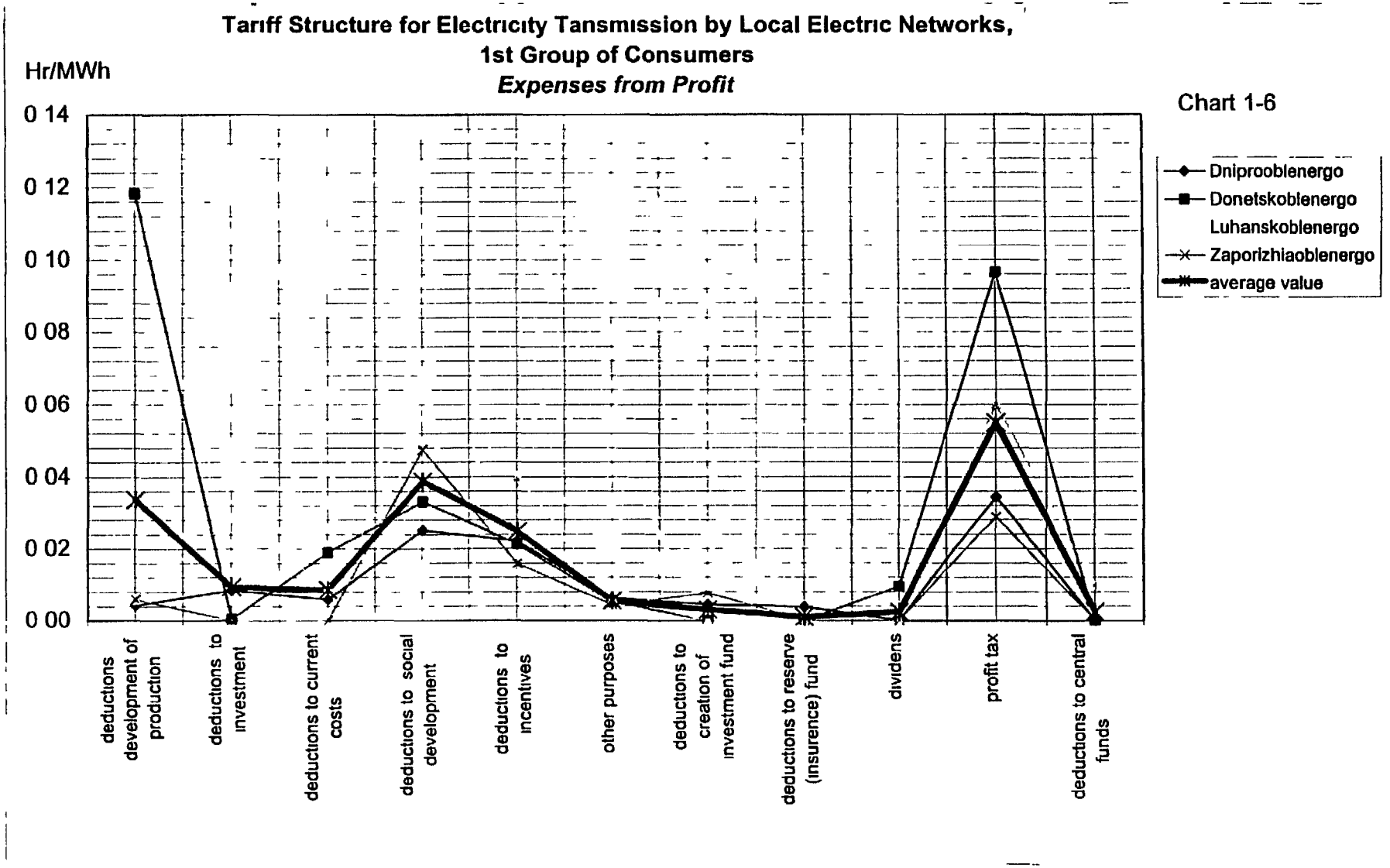

Tariff Structure for Electricity Tansmission by Local Electric Networks,
1st Group of Consumers
Expenses from Profit
Hr/MWh
0 14
0 12
0 10
0 08
0 06
0 04
0 02
0 00
deductions development of production
deductions to investment
deductions to current costs
deductions to social development
deductions to incentives
other purposes
deductions to creation of investment fund
deductions to reserve (insurence) fund
dividens
profit tax
deductions to central funds
Dniprooblenergo
Donetskoblenergo
Luhanskoblenergo
Zaporizhiaoblenergo
average value

Chart 1-6

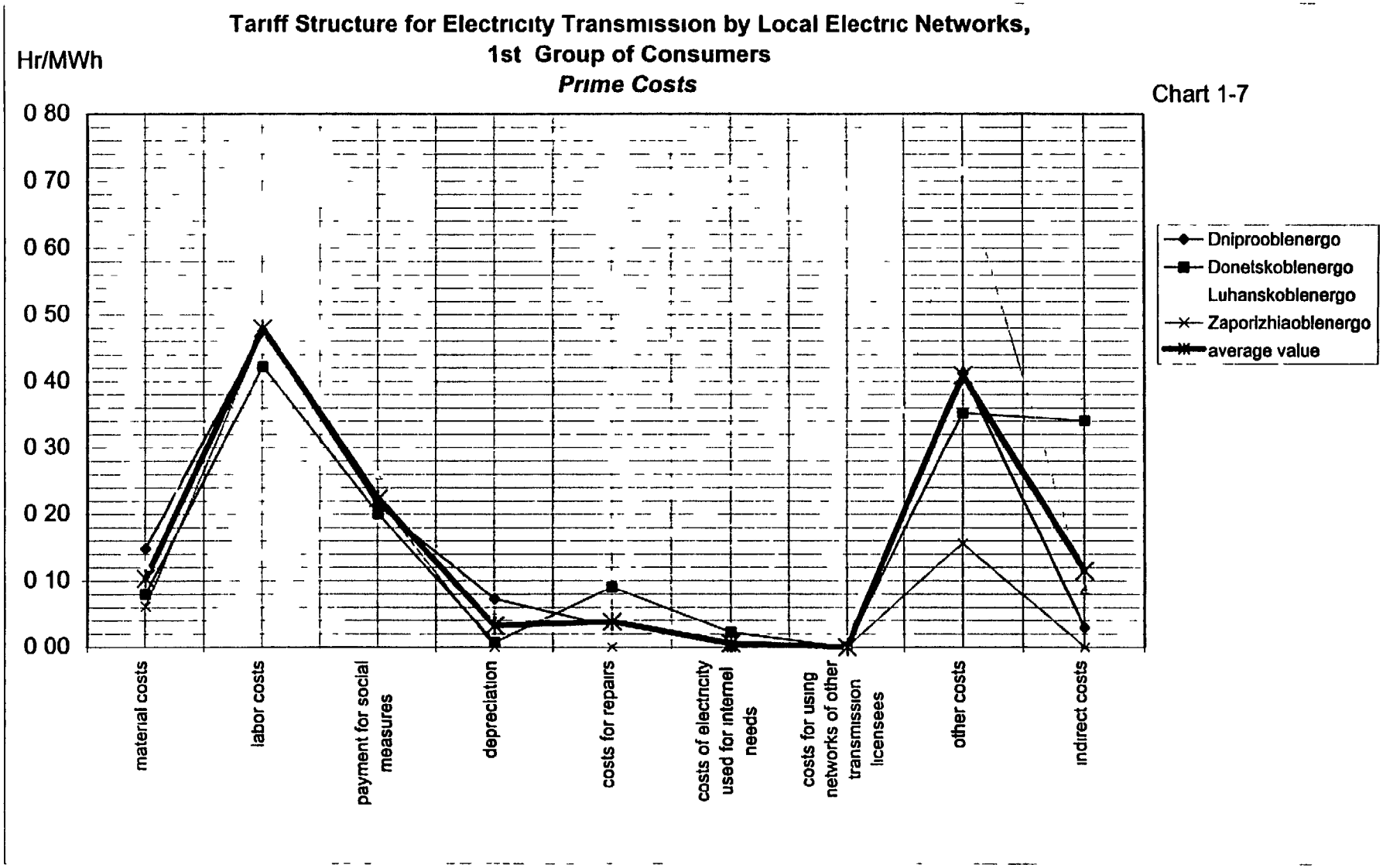
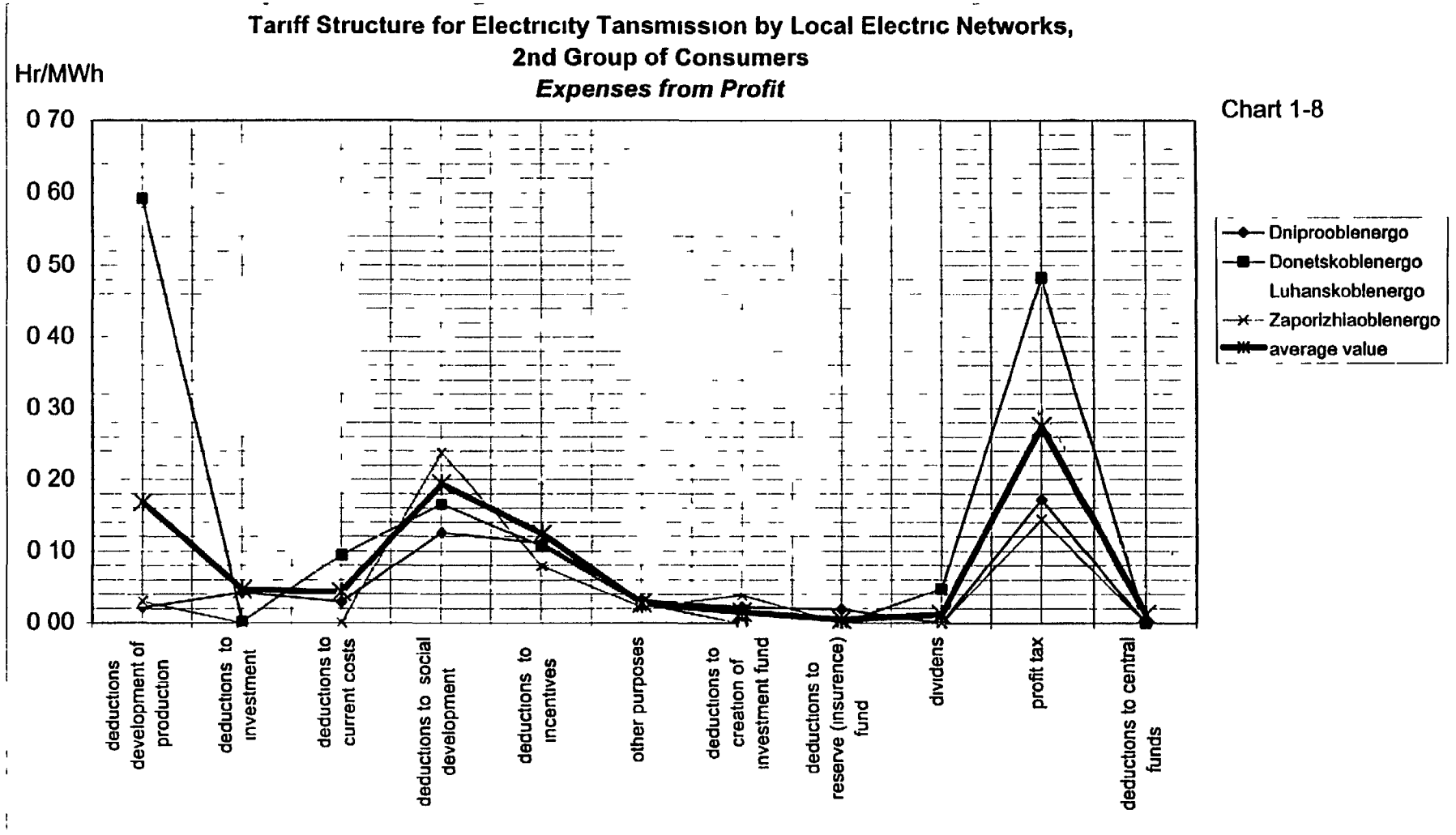

Tariff Structure for Electricity Transmission by Local Electric Networks,
1st Group of Consumers
Prime Costs
Chart 1-7
Hr/MWh
0 80
0 70
0 60
0 50
0 40
0 30
0 20
0 10
0 00
material costs
labor costs
payment for social measures
depreciation
costs for repairs
costs of electricity used for internel needs
costs for using networks of other transmission licensees
other costs
indirect costs
Dniprooblenergo
Donetskoblenergo
Luhanskoblenergo
Zaporizhiaoblenergo
average value

Chart 1-8


Tariff Structure for Electricity Tansmission by Local Electric Networks,
2nd Group of Consumers
Expenses from Profit
Hr/MWh
0 70
0 60
0 50
0 40
0 30
0 20
0 10
0 00
deductions development of production
deductions to investment
deductions to current costs
deductions to social development
deductions to incentives
other purposes
deductions to creation of investment fund
deductions to reserve (insurence) fund
dividens
profit tax
deductions to central funds
Dniprooblenergo
Donetskoblenergo
Luhanskoblenergo
Zaporizhiaoblenergo
average value

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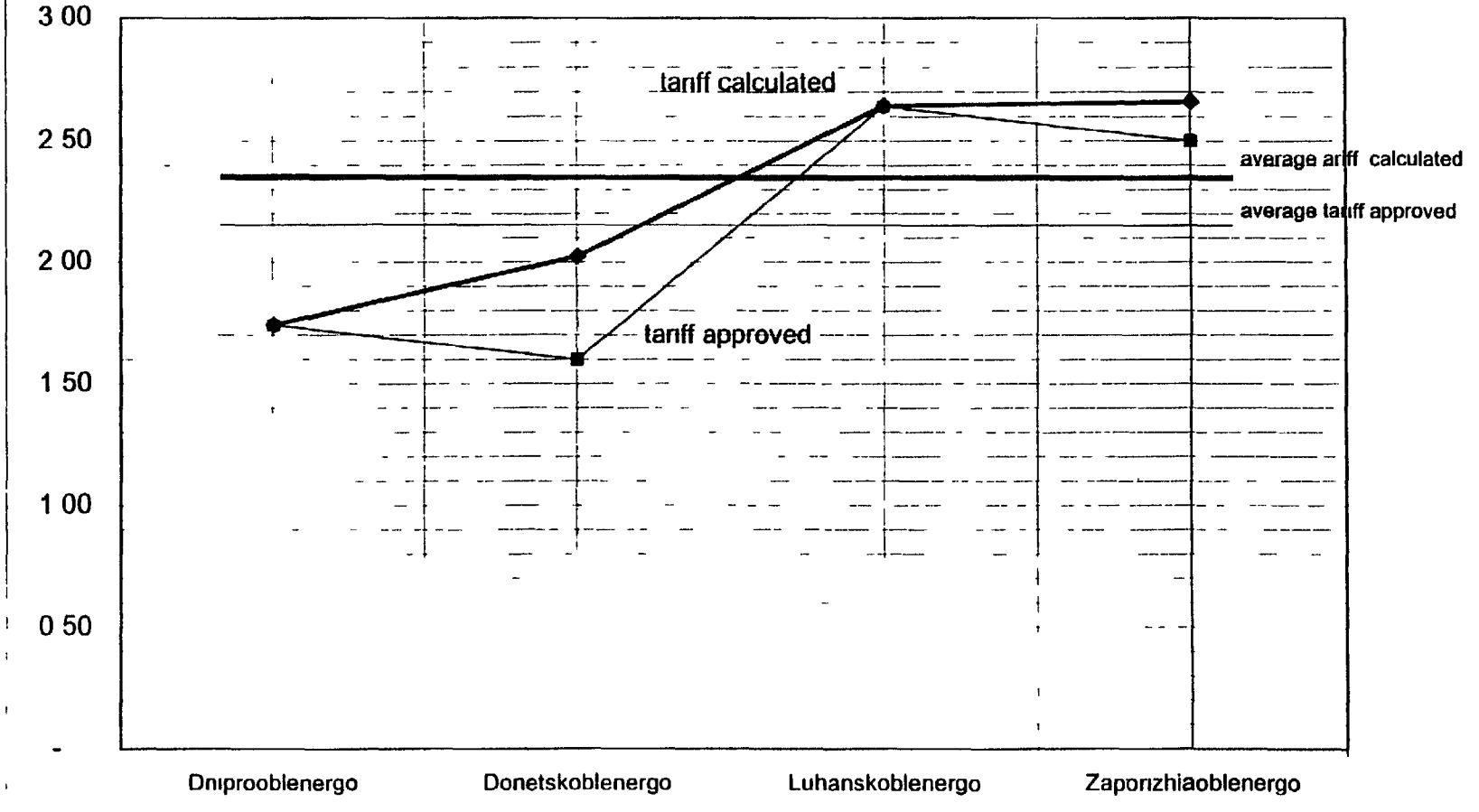
Tariff for Transmission, *1st Voltage Class*

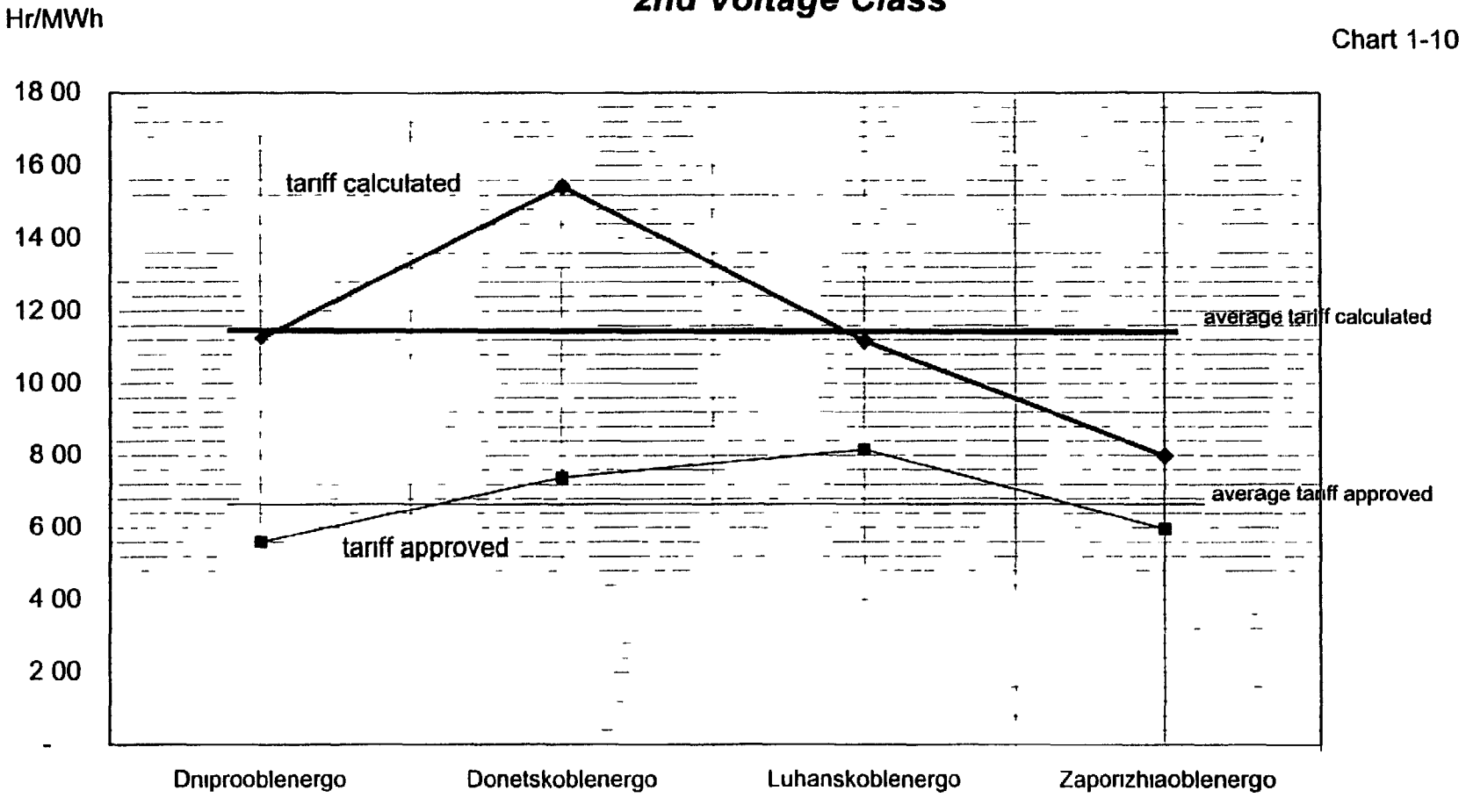
Chart 1-9

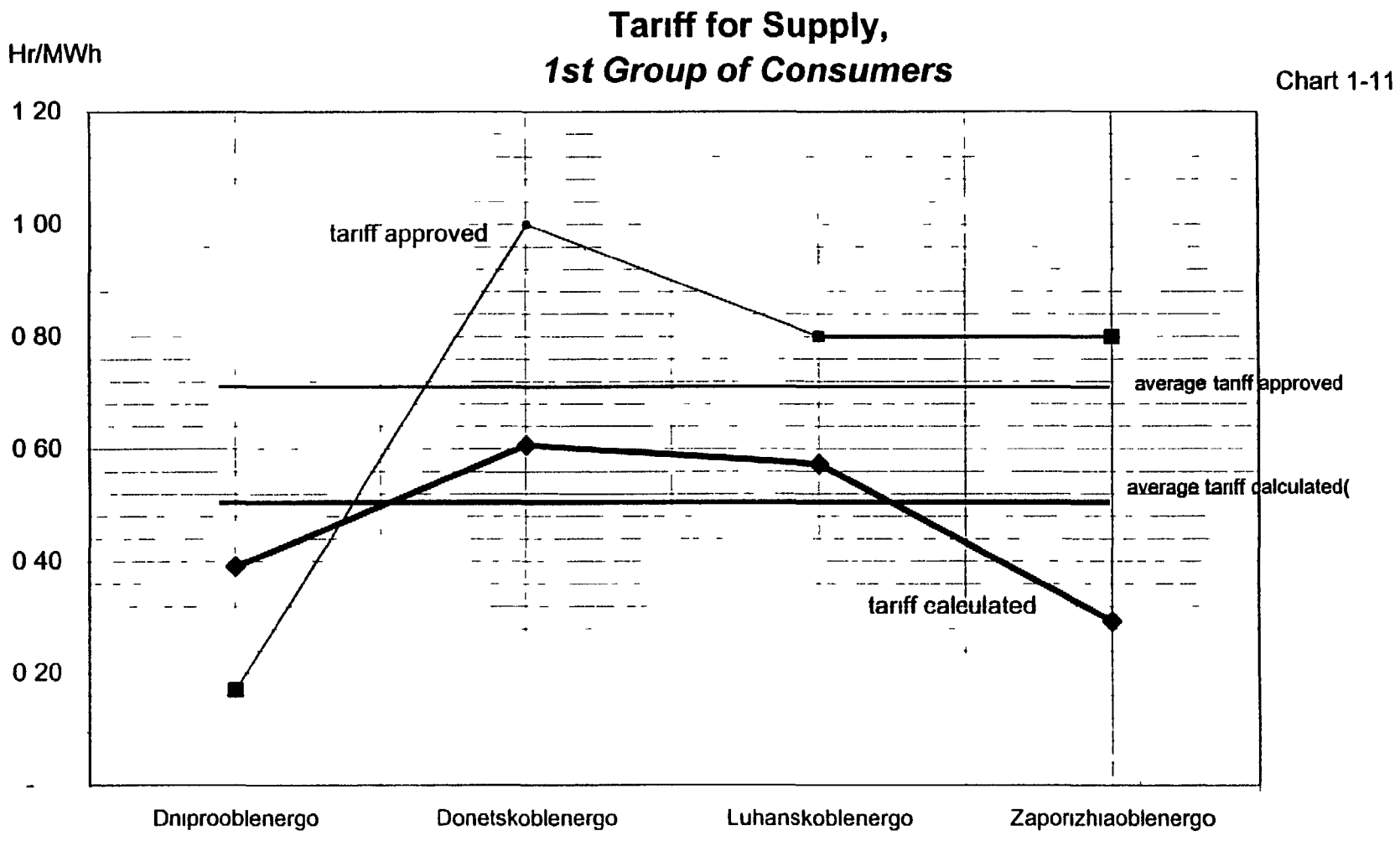


56

Tariff for Transmission,
2nd Voltage Class

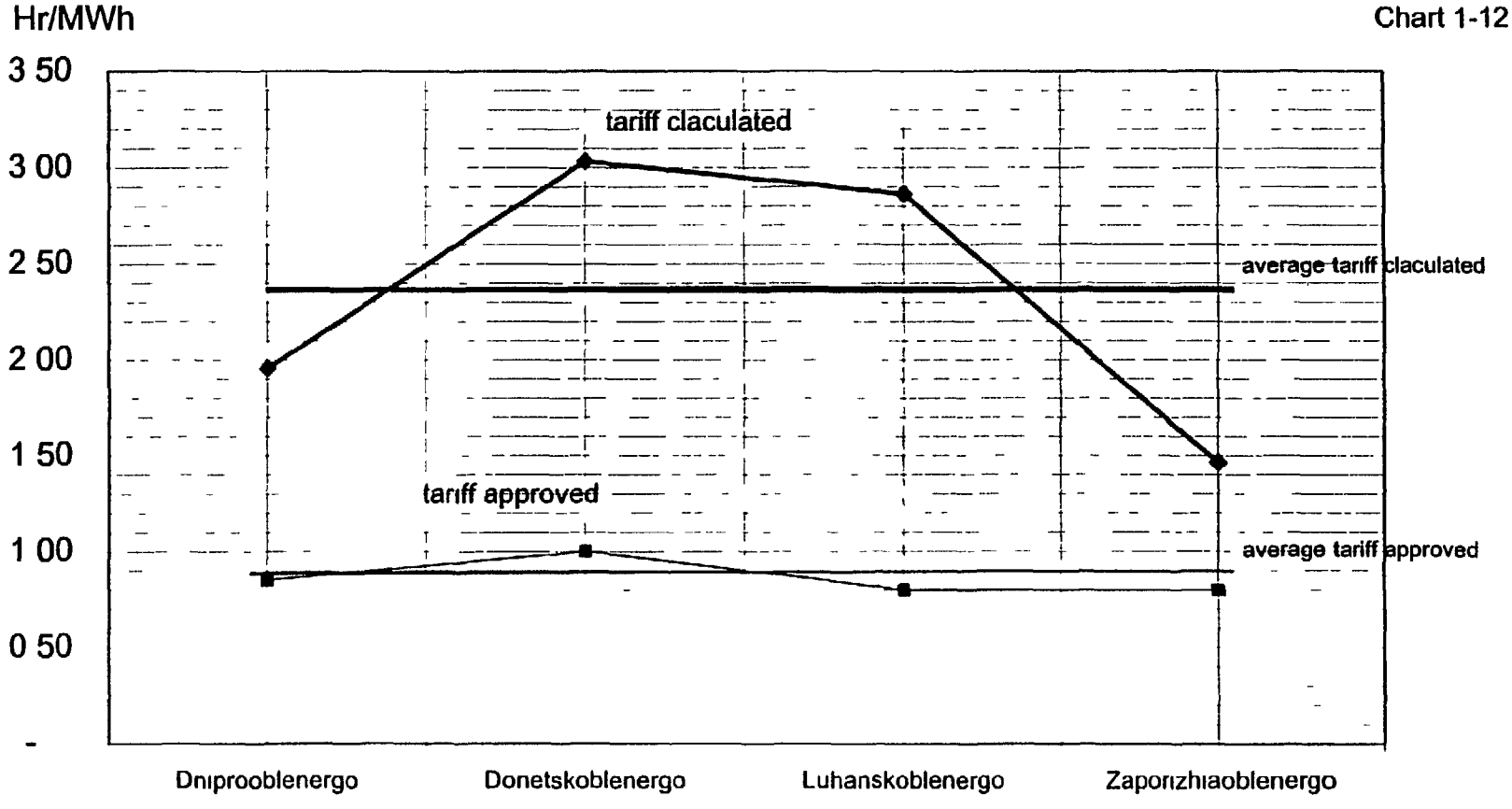
Chart 1-10




Tariff for Supply,
1st Group of Consumers
Chart 1-11
Hr/MWh
1 20
1 00
0 80
0 60
0 40
0 20
tariff approved
average tariff approved
average tariff calculated(
tariff calculated
Dniprooblenergo
Donetskoblenergo
Luhanskoblenergo
Zaporizhiaoblenergo

Tariff for Supply,
2nd Group of Consumers

Chart 1-12



Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for POLTAVAOBLENERGO

Table 2 1

	Value	Average for 2nd Group of Companies	Deviation of average for 2nd Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	20	42	23
Profitability of electricity transmission for 2nd voltage class (calculated) %	21	43	22
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	16	37	21
Transmission tariff for 1st voltage class (calculated) Hr/MWh	3 43	0 04	3 39
Transmission tariff for 1st voltage class (approved) Hr/MWh	3 43	1 46	1 97
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	13 41	0 14	13 27
Transmission tariff for 2nd voltage class (approved) Hr/MWh	13 41	6.59	6 82
Supply tariff for 1st group of consumers (calculated) Hr/MWh	1 02	0 00	1 02
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 51	0 36	0 15
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	5 10	0 00	5 09
Supply tariff for 2nd group of consumers (approved) Hr/MWh	2 55	0 36	2 19

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for POLTAVAOBLENERGO

Table 2 1b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 26	0 26	0 36
Average of ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 05	0 04	0 15
Ratio of indirect costs to sum of direct and indirect costs	0 02	0 02	0 00
Average ratio of indirect costs to sum of direct and indirect costs for 2nd Group of Companies	0 05	0 06	0 06
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 04	-0 04	0 06
Ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 17	0 17	0 01
Average ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 25	0 27	0 15
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	-0 08	-0 10	-0 14
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 12	0 12	0 31
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 20	0 17	0 29
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 08	-0 06	0 02

Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for KHARKIVOBLENERGO

Table 2 2

	Value	Average for 2nd Group of Companies	Deviation of average for 2nd Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	45	42	3
Profitability of electricity transmission for 2nd voltage class (calculated) %	63	43	20
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	10	37	27
Transmission tariff for 1st voltage class (calculated) Hr/MWh	5.39	0 04	5 35
Transmission tariff for 1st voltage class (approved) Hr/MWh	4 00	1 46	2 54
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	23 40	0 14	23 25
Transmission tariff for 2nd voltage class (approved) Hr/MWh	12 63	6 59	6 04
Supply tariff for 1st group of consumers (calculated) Hr/MWh	0 82	0 00	0 82
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 40	0 36	0 04
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	4 10	0 00	4 10
Supply tariff for 2nd group of consumers (approved) Hr/MWh	2 00	0 36	1 64

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for KHARKIVOBLENERGO

Table 2 2b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 12	0 12	0 50
Average of ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	-0 09	-0 10	0 29
Ratio of indirect costs to sum of direct and indirect costs	0 00	0 00	0 00
Average ratio of indirect costs to sum of direct and indirect costs for 2nd Group of Companies	0 05	0 06	0 06
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 05	-0 06	-0 06
Ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 02	0 19	0 00
Average ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 25	0 27	0 15
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	-0 23	-0 08	-0 15
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 48	0 35	0 70
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 20	0 17	0 29
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	0 28	0 18	0 41

Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for PRYKARPATTIAOBLENERGO

Table 2-3

	Value	Average for 2nd Group of Companies	Deviation of average for 2nd Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	44	42	1
Profitability of electricity transmission for 2nd voltage class (calculated) %	43	43	1
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	33	37	-4
Transmission tariff for 1st voltage class (calculated) Hr/MWh	6 59	0 04	6 55
Transmission tariff for 1st voltage class (approved) Hr/MWh	5 44	1 46	3 98
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	22 78	0 14	22 64
Transmission tariff for 2nd voltage class (approved) Hr/MWh	18 82	6 59	12 23
Supply tariff for 1st group of consumers (calculated) Hr/MWh	1 11	0 00	1 11
Supply tariff for 1st group of consumers (approved) Hr/MWh	1 00	0 38	0 64
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	5 56	0 00	5 56
Supply tariff for 2nd group of consumers (approved) Hr/MWh	5 00	0 36	4 64

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for PRYKARPATTIAOBLENERGO

Table 2-3b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 13	0 17	0 48
Average of ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	-0 08	-0 05	0 27
Ratio of indirect costs to sum of direct and indirect costs	0 34	0 34	0 39
Average ratio of indirect costs to sum of direct and indirect costs for 2nd Group of Companies	0 05	0 06	0 06
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	0 29	0 28	0 32
Ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 44	0 42	0 04
Average ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 25	0 27	0 15
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	0 19	0 15	-0 11
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 13	0 15	0 33
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 20	0 17	0 29
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 07	-0 03	0 04

Calculated Indicators (Profitability and Tariff), Averages of Indicators and Variances with Indicator Averages for LVIVOBLENERGO

Table 2-4

	Value	Average for 2nd Group of Companies	Deviation of average for 2nd Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	17	42	25
Profitability of electricity transmission for 2nd voltage class (calculated) %	17	43	25
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	20	37	17
Transmission tariff for 1st voltage class (calculated) Hr/MWh	4 61	0 04	4 58
Transmission tariff for 1st voltage class (approved) Hr/MWh	4 90	1 46	3 44
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	22 17	0 14	22 02
Transmission tariff for 2nd voltage class (approved) Hr/MWh	20 44	6 59	13 85
Supply tariff for 1st group of consumers (calculated) Hr/MWh	22 17	0 00	22 17
Supply tariff for 1st group of consumers (approved) Hr/MWh	20 44	0 36	20 08
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	6 57	0 00	6 57
Supply tariff for 2nd group of consumers (approved) Hr/MWh	4 00	0 36	3 64

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for LVIVOBLENERGO

Table 2-4b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 23	0 22	0 50
Average of ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 03	0 01	0 29
Ratio of indirect costs to sum of direct and indirect costs	0 05	0 04	0 10
Average ratio of indirect costs to sum of direct and indirect costs for 2nd Group of Companies	0 05	0 06	0 06
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	0 00	-0 02	0 03
Ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 25	0 24	0 25
Average ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 25	0 27	0 15
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	0 00	-0 03	0 09
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 15	0 15	0 16
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 20	0 17	0 29
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 05	-0 02	-0 13

Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for CHERKASYOBLENERGO

Table 2-5

	Value	Average for 2nd Group of Companies	Deviation of average for 2nd Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	41	42	2
Profitability of electricity transmission for 2nd voltage class (calculated) %	40	43	2
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	40	37	3
Transmission tariff for 1st voltage class (calculated) Hr/MWh	2 96	0 04	2 92
Transmission tariff for 1st voltage class (approved) Hr/MWh	2.31	1 46	0 85
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	29 71	0 14	29 57
Transmission tariff for 2nd voltage class (approved) Hr/MWh	22.18	6 59	15 59
Supply tariff for 1st group of consumers (calculated) Hr/MWh	2 09	0 00	2 09
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 47	0 36	0 11
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	10 46	0 00	10 45
Supply tariff for 2nd group of consumers (approved) Hr/MWh	2 36	0 36	2 00

Ratio of Calculated Cost Components to Sum of Costs, and Ratio of Profit Components to Profit for CHERKASYOBLENERGO

Table 2 5b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 19	0 19	0 19
Average of ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	-0 02	-0 02	-0 02
Ratio of indirect costs to sum of direct and indirect costs	0 00	0 00	0 00
Average ratio of indirect costs to sum of direct and indirect costs for 2nd Group of Companies	0 05	0 06	0 06
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 05	-0 06	-0 06
Ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 19	0 20	0 19
Average ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 25	0 27	0 15
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	-0 06	-0 07	0 03
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 08	0 08	0 09
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0.20	0 17	0 29
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 12	-0 10	-0 20

Calculated Indicators (Profitability and Tariff), Averages of Indicators, and Variances with Indicator Averages for KYIVENERGO

Table 2-6

	Value	Average for 2nd Group of Companies	Deviation of average for 2nd Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	129	42	87
Profitability of electricity transmission for 2nd voltage class (calculated) %	131	43	88
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	167	37	130
Transmission tariff for 1st voltage class (calculated) Hr/MWh	2.14	0 04	2 10
Transmission tariff for 1st voltage class (approved) Hr/MWh	2.14	1 46	0 68
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	10 13	0 14	9 99
Transmission tariff for 2nd voltage class (approved) Hr/MWh	10 18	6 59	3 59
Supply tariff for 1st group of consumers (calculated) Hr/MWh	1 66	0 00	1 66
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 45	0 36	0 09
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	8 30	0 00	8 30
Supply tariff for 2nd group of consumers (approved) Hr/MWh	2 24	0 38	1 88

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for KYIVENERGO

Table 2-6b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 21	0	0 14
Average of ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 00	0 01	-0 07
Ratio of indirect costs to sum of direct and indirect costs	0 02	0 02	0 02
Average ratio of indirect costs to sum of direct and indirect costs for 2nd Group of Companies	0 05	0 06	0 06
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 04	-0 04	-0 05
Ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 03	0 03	0 22
Average ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 25	0 27	0 15
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	-0 22	-0 24	0 07
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 17	0 18	0 10
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 20	0 17	0.29
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0.03	0 00	-0 18

Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for ODESAOBLENERGO

Table 2 7

	Value	Average for 2nd Group of Companies	Deviation of average for 2nd Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	25	42	17
Profitability of electricity transmission for 2nd voltage class (calculated) %	13	43	29
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	10	37	27
Transmission tariff for 1st voltage class (calculated) Hr/MWh	3 58	0 04	3 54
Transmission tariff for 1st voltage class (approved) Hr/MWh	4 2	1 46	2 74
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	16 55	0 14	16 41
Transmission tariff for 2nd voltage class (approved) Hr/MWh	18 10	6 59	11 51
Supply tariff for 1st group of consumers (calculated) Hr/MWh	1 02	0 00	1 02
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 70	0 36	0 34
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	5 11	0 00	5 11
Supply tariff for 2nd group of consumers (approved) Hr/MWh	3 50	0 36	3 14

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for ODESAOBLENERGO

Table 2 7b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 21	0 19	0 51
Average of ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 00	-0 02	0 30
Ratio of indirect costs to sum of direct and indirect costs	0 04	0 04	0 04
Average ratio of indirect costs to sum of direct and indirect costs for 2nd Group of Companies	0 06	0 06	0 06
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 01	-0 02	-0 03
Ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 49	0 34	0 19
Average ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 25	0 27	0 15
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	0 24	0 07	0 03
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 08	0 12	0 31
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 20	0 17	0 29
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 11	-0 05	0 02

Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for KIROVOHRADOBLENERGO

Table 2-8

	Value	Average for 2nd Group of Companies	Deviation of average for 2nd Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	10	42	-32
Profitability of electricity transmission for 2nd voltage class (calculated) %	18	43	24
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	14	37	24
Transmission tariff for 1st voltage class (calculated) Hr/MWh	7 51	0 04	7 47
Transmission tariff for 1st voltage class (approved) Hr/MWh	5 51	1 46	4 05
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	20 46	0 14	20 32
Transmission tariff for 2nd voltage class (approved) Hr/MWh	18 46	6 59	11 87
Supply tariff for 1st group of consumers (calculated) Hr/MWh	0 94	0 00	0 93
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 45	0 36	0 09
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	4 69	0 00	4 68
Supply tariff for 2nd group of consumers (approved) Hr/MWh	2 25	0 36	1 89

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for KIROVOHRADOBLENERGO

Table 2-8b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 13	0 21	0 20
Average of ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	-0 07	0 00	-0 01
Ratio of indirect costs to sum of direct and indirect costs	0 08	0 13	0 12
Average ratio of indirect costs to sum of direct and indirect costs for 2nd Group of Companies	0 05	0 06	0 06
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	0 03	0 07	0 05
Ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 26	0 30	0 22
Average ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 25	0 27	0 15
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	0 01	0 03	0 06
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 39	0 35	0 42
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 20	0 17	0 29
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	0 19	0 17	0 13

Calculated Indicators (Profitability and Tariff), Averages of Indicators, and Variances with Indicator Averages for RIVNEOBLENERGO

Table 2 9

	Value	Average for 2nd Group of Companies	Deviation of average for 2nd Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	38	42	5
Profitability of electricity transmission for 2nd voltage class (calculated) %	20	43	23
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	15	37	22
Transmission tariff for 1st voltage class (calculated) Hr/MWh	5 04	0 04	5 00
Transmission tariff for 1st voltage class (approved) Hr/MWh	4 83	1 46	3 37
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	20 26	0 14	20 12
Transmission tariff for 2nd voltage class (approved) Hr/MWh	19 51	6 59	12 92
Supply tariff for 1st group of consumers (calculated) Hr/MWh	0 42	0 00	0 42
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 70	0 36	0 34
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	2 09	0 00	2 09
Supply tariff for 2nd group of consumers (approved) Hr/MWh	3 .0	0 36	3 14

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for RIVNEOBLENERGO

Table 2 9b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 25	0 26	0 16
Average of ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 05	0 05	-0 05
Ratio of indirect costs to sum of direct and indirect costs	0 00	0 00	0 00
Average ratio of indirect costs to sum of direct and indirect costs for 2nd Group of Companies	0 05	0 06	0 06
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 05	0 06	-0 06
Ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 24	0 38	0 00
Average ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 25	0 27	0 15
development plus capital expenses to profits and average	-0 02	0 11	-0 15
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 30	0 13	0 41
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 20	0 17	0.29
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	0 10	-0 04	0 13

Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for KYIVOBLENERGO

Table 2 10

	Value	Average for 2nd Group of Companies	Deviation of average for 2nd Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	51	42	9
Profitability of electricity transmission for 2nd voltage class (calculated) %	53	43	10
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	52	37	15
Transmission tariff for 1st voltage class (calculated) Hr/MWh	4 62	0 04	4 58
Transmission tariff for 1st voltage class (approved) Hr/MWh	4 11	1 46	2 65
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	21 37	0 14	21 23
Transmission tariff for 2nd voltage class (approved) Hr/MWh	18 38	6 59	11 79
Supply tariff for 1st group of consumers (calculated) Hr/MWh	1 22	0 00	1 22
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 72	0 36	0 36
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	6 11	0 00	6 11
Supply tariff for 2nd group of consumers (approved) Hr/MWh	3 60	0 36	3 24

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for KYIVOBLENERGO

Table 2 10b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 29	0 26	0 32
Average of ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 08	0 05	0 11
Ratio of indirect costs to sum of direct and indirect costs	0 00	0 00	0 00
Average ratio of indirect costs to sum of direct and indirect costs for 2nd Group of Companies	0 05	0 06	0 06
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 05	-0 06	-0 06
Ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 51	0 51	0 51
Average ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 25	0 27	0 15
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	0 26	0 24	0 36
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 10	0 10	0 10
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 20	0 17	0 29
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 10	-0 08	-0 19

Calculated Indicators (Profitability and Tariff), Averages of Indicators, and Variances with Indicator Averages for CRIMEAENERGO

Table 2 11

	Value	Average for 2nd Group of Companies	Deviation of average for 2nd Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	47	42	4
Profitability of electricity transmission for 2nd voltage class (calculated) %	48	43	6
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	32	37	5
Transmission tariff for 1st voltage class (calculated) Hr/MWh	4 84	0 04	4 80
Transmission tariff for 1st voltage class (approved) Hr/MWh	3 80	1 46	2 34
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	17 58	0 14	17 44
Transmission tariff for 2nd voltage class (approved) Hr/MWh	14 58	6 59	7 99
Supply tariff for 1st group of consumers (calculated) Hr/MWh	0 81	0 00	0 80
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 52	0 36	0 16
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	4 03	0 00	4 03
Supply tariff for 2nd group of consumers (approved) Hr/MWh	2 60	0 36	2 24

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for CRIMEAENERGO

Table 2 11b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 26	0 25	0 37
Average of ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 06	0 04	0 16
Ratio of indirect costs to sum of direct and indirect costs	0 05	0 05	0 05
Average ratio of indirect costs to sum of direct and indirect costs for 2nd Group of Companies	0 05	0 06	0 06
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 01	-0 01	-0 02
Ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 17	0 18	0 06
Average ratio of profit spent on production development plus capital expenses to profits for 2nd Group of Companies	0 25	0 27	0 15
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	-0 08	-0 09	-0 10
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 19	0 19	0 24
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 20	0 17	0 29
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 01	0 02	-0 05

Costs of Electricity Transmission by Local Electric Networks at the 1st Voltage Class (thous Hr)

Table 2 1

	Poltava oblenergo	Kharkiv oblenergo	Prykarpattia oblenergo	Lviv oblenergo	Cherkasy oblenergo	Kyiv energo	Odesa oblenergo	Kirovohrad oblenergo	Rivne-oblenrtgo	Kyiv oblenergo	Crimea energo
Prime Costs											
material costs	7078	5746	0	907	646	399	843	324	634	2320	1371
labor costs	3531	2778	1300	3243	1343	1329	3080	1265	2216	5259	3347
payment for social measures	1910	1340	0	1543	638	693	1463	622	1054	2498	1663
depreciation	2900	7316	4840	3800	1097	1392	3143	2865	2593	3756	2829
costs for repairs	2085	3228	250	1575	1378	1700	1915	3316	662	2858	2128
costs of electricity used for internel needs	359	0	0	111	0	138	200	137	191	0	0
costs for using networks of other transmission licenses	0	0	0	1300	0	0	1106	0	0	0	0
other costs	571	2411	0	644	1901	514	2513	51	1349	1604	739
Total	13384	22819	6390	13123	6998	6165	14263	8580	8698	18295	12077
indirect costs	243	0	3310	692	0	120	618	791	0	0	572
Total direct and indirect costs	13628	22819	9 00	13815	6998	6285	14881	9371	8698	18295	12649
Expenses from profit											
deductions development of production	38	258	134	858	26	194	395	12	58	205	230
deductions to investment	635	0	2497	0	763	156	2139	350	1045	6653	1200
deductions to current costs	317	1329	0	450	432	772	428	0	428	372	2550
deductions to social development	170	6060	400	262	241	591	277	243	395	428	667
deductions to incentives	333	537	380	257	100	1164	162	298	1010	856	920
other purposes	997	37	438	377	1126	1126	241	80	46	447	138
deductions to creation of investment fund	261	0	0	207	173	772	145	0	300	0	0
deductions to reserve (insurence) fund	0	0	390	0	0	2563	0	0	0	0	0
dividens	0	0	0	0	0	772	0	0	0	0	0
profit tax	115	3574	1 [illegible]8	1033	1226	2134	1408	421	1407	4000	2445
deductions to central funds	0	7121	0	0	0	0	0	0	0	372	190
Total expences from profit	3851	13866	5967	3444	4087	10244	5194	1404	4689	13333	8340
Total expenses	17478	36684	15667	17259	11085	16529	20075	10775	13388	31628	20989
Profitability of licensed activity (the ratio of aftertax profitability to the sum of direct and indirect costs)	0 20	0 45	0 44	0 17	0 41	1 29	0 25	0 10	0 38	0 51	0 47
Average profitability	0 42										
Deviation from average profitability	-0 23	0 03	0 01	-0 25	0 02	0 87	0 17	0 32	0 05	0 09	0 04

Costs of Electricity Transmission by Local Electric Networks at the 2nd Voltage Class (thous Hr)

Table 2 2

	Poltava oblenergo	Kharkiv - oblenergo	Prykarpattia oblenergo	Lviv oblenergo	Cherkasy oblenergo	Kyiv energo	Odesa oblenergo	Kirovohrad-oblenergo	Rivne-oblenrtgo	Kyiv - oblenergo	Crimea energo
Prime Costs											
material costs	4360	11154	0	1491	2721	926	2334	1288	733	2585	2781
labor costs	7595	5397	1998	6923	5652	3133	8475	5247	3114	6428	6964
payment for social measures	4107	2601	0	3278	2684	1637	4026	2471	1470	3053	3482
depreciation	6238	14201	5008	8362	4594	3099	5323	7166	3658	8764	7422
costs for repairs	4483	8302	250	5925	5797	3784	8710	3720	890	2070	4648
costs of electricity used for internel needs	775	0	0	632		180	505	547	265	766	0
costs for using networks of other transmission licenses	0	0	0	2300		0	7370	0	0	0	0
other costs	1229	4679	0	1504	8004	836	6797	203	1603	1787	2056
Total	28785	46329	7256	30414	29452	13595	43540	20642	11733	25453	27353
indirect costs	523	0	3711	1037	3	296	1880	3147	0	0	1297
Total direct and indirect costs	29307	46329	10967	31451	29449	13891	45420	23789	11733	25453	28649
Expenses from profit		0		0	0				0	0	0
deductions development of production	86	501	158	1866	109	430	1092	50	81	295	1009
deductions to investment	1432	9081	2578	0	3237	343	1361	1874	1465	9573	2800
deductions to current costs	716	2581	0	1027	1727	1710	1305	0	596	536	6400
deductions to social development	270	11764	600	616	1015	1310	821	968	21	616	2913
deductions to incentives	751	1041	420	601	300	2742	445	1184	88	1232	87
other purposes	2237	73	531	881	4739	2496	717	320	65	643	312
fund	588	0	0	472	733	1710	323	0	24	0	0
deductions to reserve (insurence) fund	0	0	448	0	0	5681	0	0	0	0	0
dividens	0	0	0	0	0	1710	0	0	0	0	0
profit tax	2605	10737	1958	2341	5083	4776	2966	1884	1002	5756	5720
deductions to central funds	0	4117	0	0	0	0	0	0	0	536	430
Total expences from profit	8684	39889	6693	7804	16943	22908	9030	6280	3340	19186	19496
Total expenses	37991	86219	17660	39255	46392	36799	54450	30069	15073	44639	48145
Profitability of licensed activity (the ratio of aftertax profitability to the sum of direct and indirect costs)	0 21	0 63	0 43	0 17	0 40	1 31	0 13	0 18	0 20	0 53	0 48
Average profitability	0 43										
Deviation from average profitability	0 22	0 20	0 01	0 25	0 02	0 88	0 29	-0 24	0 23	0 10	0 06

Costs of Electricity Supply (thous Hr)

Table 2 3

	Poltava oblenergo	Kharkiv - oblenergo	Prykarpattia oblenergo	Lviv oblenergo	Cherkasy oblenergo	Kyiv energo	Odesa-oblenergo	Kirovohrad oblenergo	Rivne oblenrtgo	Kyiv - oblenergo	Crimea-energo
Prime Costs											
material costs	181	1425	0	512	653	1960	160	214	28	545	480
labor costs	2045	3854	1250	2690	1316	897	4050	863	463	1371	2409
payment for social measures	1101	1830	0	1281	626	477	1924	410	219	653	882
depreciation	176	135	100	61	1093	29	379	1329	399	1391	1670
costs for repairs	949	35	0	0	1390	30		932	32	0	130
costs of electricity used for internel needs	125	0	0	121	0	5	0	91	14	0	0
costs for using networks of other transmission licenses	0	0	0	0	0	0	0	0	0	0	0
other costs	1097	500	230	164	1812	3086	1129	34	188	377	618
Total	5674	7779	1580	4829	6890	6484	7642	3873	1344	4337	6189
indirect costs	0	0	1005	516	0	104	309	522	0	0	293
Total direct and indirect costs	5674	7779	2585	5345	6890	6588	7951	4395	1344	4337	6482
Expenses from profit											
deductions development of production	12	0	8	372	23	207	211	8	1	50	161
deductions to investment	0	0	51	0	700	2865	0	176	0	1616	0
deductions to current costs	100	0	0	199	386	823	227	0	43	90	1050
deductions to social development	142	567	200	118	242	630	136	161	22	104	420
deductions to incentives	250	196	250	117	90	794	213	196	96	208	263
other purposes	305	0	231	172	1104	1308	0	53	1	108	71
fund	80	0	0	80	175	823	32	0	36	0	0
deductions to reserve (insurence) fund	0	0	118	0	0	2734	0	0	0	0	0
dividens	0	0	0	0	0	823	0	0	0	0	0
profit tax	381	327	526	453	1166	2951	308	255	85	971	842
deductions to central funds	0	0	0	0	0		0	0	0	90	97
Total expences from profit	1270	1090	1384	1511	3899	13958	1127	849	285	3238	2904
Total expenses	6944	8869	3969	6856	10789	20546	9078	5244	1628	7575	9386
Profitability of licensed activity (the ratio of aftertax profitability to the sum of direct and indirect costs)	0 16	0 10	0 33	0 20	0 40	1 67	0 10	0 14	0 15	0 52	0 32
Average profitability	0 37										
Deviation from average profitability	-0 21	0 27	-0 04	-0 17	0 03	1 30	0 27	0 24	-0 22	0 15	0 05

Individual Tariff Components for Electricity Transmission by Local Electric Networks at the 1st Voltage Class (thous Hr)

Table 2 4

Tariff components	Poltava oblenergo	Kharkiv oblenergo	Prykarpattia oblenergo	Lviv oblenergo	Cherkasy oblenergo	Kyiv energo	Odesa oblenergo	Kirovohrad oblenergo	Rivne oblenrtgo	Kyiv oblenergo	Crimea energo	*average value*
Prime Costs												
material costs	0 41	0 34		0 74	0 17	0 05	0 15	0 23	0 24	0 34	0 32	0 27
labor costs	0 71	0 41	0 [illegible]	0 8	0 36	0 17	0 55	0 88	0 83	0 77	0 77	0 62
payment for social measures	0 38	0 [illegible]		0 41	0 17	0 09	0 76	0 43	0 40	0 36	0 38	0 28
depreciation	0 58	1 0	04	1 07	0 79	0 18	0 56	2 00	0 98	0 55	0 65	0 90
costs for repairs	0 47	0 4	0 11	0 47	0 37	0 77	0 34	2 31	0 25	0 42	0 49	0 53
costs of electricity used for internel needs	0 07			0 03	0	0 07	0 04	0 10	0 07			0 03
costs for using networks of other transmission licensees				0 35	0		0 20					0 05
other costs	0 11	0 35		0 17	0 51	0 07	0 45	0 04	0 51	0 23	0 17	0 24
indirect costs	0 05	0	1 39	0 18	0	0 02	0 11	0 55			0 13	0 22
total direct and indirect costs	2 74	3 35	4 08	3 69	1 87	0 81	2 65	6 53	3 27	2 67	2 91	3 14
Expenses from profit												
deductions development of production	0 01	0 04	0 06	0 73	0 01	0 03	0 07	0 01	0 02	0 03	0 05	0 05
deductions to investment	0 11		1 05	0	0 20	0 02	0 38	0 24	0 39	0 97	0 28	0 33
deductions to current costs	0 06	0 70		0 17	0 12	0 10	0 08		0 16	0 05	0 59	0 13
deductions to social development	0 07	0 39	0 17	0 07	0 06	0 08	0 05	0 17	0 15	0 06	0 15	0 17
deductions to incentives	0 06	0 03	0 16	0 07	0 03	0 15	0 03	0 21	0 38	0 13	0 21	0 14
other purposes	0 18	0 01	0 18	0 10	0 30	0 15	0 04	0 06	0 02	0 07	0 03	0 10
deductions to creation of investment fund	0 05			0 06	0 05	0 10	0 03		0 11			0 04
deductions to reserve (insurence) fund			0 16	0	0	0 33						0 05
dividens	[illegible]			0	0	0 10						0 01
profit tax	0 71	0 57	0 73	0 78	0 33	0 78	0 25	0 29	0 53	0 58	0 56	0 41
deductions to central funds		0 31		0	0					0 05	0 04	0 04
total expences from profitt	0 69	2 04	2 51	0 92	1 09	1 33	0 93	0 98	1 77	1 95	1 92	1 46
Transmission tariff (calculated)	3 43	5 39	6 59	4 61	2 96	2 14	3 58	7 51	5 04	4 62	4 84	4 61
Transmission tariff (approved)	3 43	4 00	5 44	4 90	2 31	2 14	4 2	5 51	4 83	4 11	3 80	4 06
Ratio of calculeted transmission tariff to average value of the tariff for 2nd Group of Companies	0 4	1 1	1 43	1 001	0 64	0 46	0 78	1 63	1 09	1 002	1 05	
Ratio of labour expenses to sum of direct and indirect costs	0 0	0 1	0 15	0 3	0 19	0 21	0 21	0 13	0 25	0 29	0 26	0 20
Variance between ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	-0 06	0 03	0 06	-0 04	0 01	-0 01	0 01	0 06	0 06	0 09	0 07	
Ratio of indirect costs to sum of direct and indirect costs	0 0	0 00	0 34	0 0	0 00	0 07	0 04	0 08	0 00	0 00	0 05	0 07
Ratio of profit spent on production development plus capital expenditures to profit for	0 1	0 07	0 44	0 75	0 19	0 03	0 49	0 26	0 24	0 51	0 17	0 26
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 17	0 48	0 13	0 15	0 08	0 17	0 08	0 39	0 30	0 10	0 19	0 21

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Individual Tariff Components for Electricity Transmission by Local Electric Networks at the 2nd Voltage Class (thous Hr)

Table 2 5

Tariff components	Poltava oblenergo	Kharkiv oblenergo	Prykarpattia oblenergo	Lviv oblenergo	Cherkasy oblenergo	Kyiv energo	Odesa oblenergo	Kirovohrad oblenergo	Rivne oblenrtgo	Kyiv oblenergo	Crimea energo	average value
Prime Costs												
material costs	1 55	3 18		0 97	1 4	0 75	0 71	0 84	0 98	1 32	1 03	1 14
labor costs	1	1 54	35	3 9	3 67	0 85	2 57	3 43	3 96	3 19	2 55	2 79
payment for social measures	1 46	0 4		1 88	1 7	0 44	1 22	1 62	1 87	1 52	1 27	1 25
depreciation	2	4 05	0 65	4 0	2 94	0 85	1 85	4 88	4 64	3 79	2 53	3 56
costs for repairs	1 67	2 70	0 34	3 04	3 1	1 04	2 39	2 86	1 14	1 22	1 68	1 93
costs of electricity used for internel needs	0 5			0 31	0	0 06	0 16	0 36	0 34	0 28		0 16
costs for using networks of other transmission licensees				1 38	0		1 93		0 00			0 30
other costs	0 44	1 34		0 84	5 17	0 75	2 07	0 13	2 12	0 91	0 69	1 26
indirect costs	0 19	0	4 80	0 66	0	0 08	0 56	2 06			0 46	0 80
total direct and indirect costs	10 44	13 66	14 14	17 6	18 85	3 83	13 44	16 19	15 05	12 23	10 21	13 20
Expenses from profit												
deductions development of production	0 03	0 14	0 70	1 66	0 07	0 12	0 33	0 03	0 10	0 14	0 31	0 23
deductions to investment	0 49	1 86	3 43	0	2 07	0 09	0 73	1 21	1 86	4 56	0 99	1 57
deductions to current costs	0 4	0 74		0 58	1 11	0 47	0 39		0 76	0 26	2 21	0 61
deductions to social development	0 09	3 36	0 71	0 34	0 65	0 36	0 74	0 63	0 19	0 29	0 88	0 71
deductions to incentives	0 6	0 30	0 55	0 34	0 70	0 75	0 13	0 78	0 51	0 59	0 55	0 45
other purposes	0	0 07	0 67	0 49	3 03	0 69	0 21	0 21	0 08	0 31	0 11	0 60
deductions to creation of investment fund	0 0			0 27	0 47	0 47	0 10		0 15			0 15
deductions to reserve (insurence) fund			0 57	0	0	1 57						0 19
dividens				0	0	0 47						0 04
profit tax	0 89	2 5	2 57	1 32	3 76	1 31	0 96	1 23	1 56	2 74	2 17	1 88
deductions to central funds		1 18		0	0					0 26	0 15	0 14
total expences from profitt	2 97	10 34	8 65	4 41	10 86	6 30	3 11	4 09	5 21	9 14	7 37	6 59
Transmission tariff (calculated)	13 41	23 40	22 78	22 17	29 71	10 13	16 55	20 46	20 26	21 37	17 58	19 80
Transmission tariff (approved)	13 41	12 63	18 87	20 44	22 18	10 18	18 10	18 46	19 51	18 38	14 58	16 97
Ratio of calculeted transmission tariff to average value of the tariff for 2nd Group of Companies	0 63	1 13	1 1	1 1	1 50	0 51	0 84	1 03	1 02	1 08	0 89	
Ratio of labour expenses to sum of direct and indirect costs	0 6	0 1	0 1	0 2	0 19	0 22	0 17	0 21	0 26	0 26	0 25	0 21
Variance between ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	-0 05	0 09	0 05	-0 01	0 02	-0 01	0 02	0 00	0 05	0 05	0 04	
Ratio of indirect costs to sum of direct and indirect costs	0 0	0	0 34	0 04	0	0 07	0 04	0 13	0	0	0 05	0 06
Ratio of profit spent on production development plus capital expenditures to profit for	0 17	0 19	0 47	0 74	0 70	0 03	0 34	0 30	0 38	0 51	0 18	0 27
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 12	0 35	0 15	0 15	0 08	0 18	0 12	0 35	0 13	0 10	0 19	0 18

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Individual Tariff Components for Electricity Supply for the 1st Group of Consumers (thous Hr)

Table 2 6

Tariff components	Poltava oblenergo	Kharkiv oblenergo	Prykarpattia oblenergo	Lviv oblenergo	Cherkasy oblenergo	Kyiv energo	Odesa oblenergo	Kirovohrad oblenergo	Rivne oblenrtgo	Kyiv oblenergo	Crimea energo	*average value*
Prime Costs												
material costs	0.03	0.13		0.10	0.13	0.16	0.07	0.04	0.01	0.09	0.04	0.07
labor costs	0.30	0.38	[illegible]	0.37	0.76	0.07	0.46	0.15	0.06	0.22	0.21	0.27
payment for social measures	0.16	0.1		0.[illegible]	0.17	0.04	0.22	0.07	0.10	0.11	0.08	0.12
depreciation	0.03	0.01	0.03	0.01	0.21	0.007	0.04	0.24	0.01	0.22	0.14	0.09
costs for repairs	0.14	0.00		0.00	0.27	0.007		0.17	0.12		0.01	0.06
costs of electricity used for internel needs	0.07			0.07		0		0.07	0			0.01
costs for using networks of other transmission licensees				0	#REF!							#REF!
other costs	0.16	0.05	0.00	0.03	0.35	0.75	0.13	0.01	0.05	0.06	0.05	0.11
indirect costs		0.00	0.[illegible]	0.10	#REF!	0.01	0.03	0.09			0.03	#REF!
total direct and indirect costs	0.83	0.[illegible]	0.[illegible]	1.07	1.34	0.53	0.90	0.79	0.34	0.70	0.56	0.77
Expenses from profit												
deductions development of production	0		0	0.0	0.004	0.07	0.07	0	0	0.01	0.01	0.01
deductions to investment			0.01	0	0.14	0.73		0.03		0.26		0.06
deductions to current costs	0.01			0.04	0.07	0.07	0.03		0.01	0.01	0.09	0.03
deductions to social development	0.07	0.03	0.00	0.07	0.05	0.05	0.07	0.03	0.01	0.02	0.04	0.03
deductions to incentives	0.04	0.0	0.0	0.07	0.07	0.06	0.07	0.04	0.02	0.03	0.02	0.03
other purposes	0.04		0.00	0.03	0.21	0.11		0.01	0	0.02	0.01	0.05
deductions to creation of investment fund	0.01			0.07	0.03	0.07	0		0.01			0.01
deductions to reserve (insurence) fund			0.03	0	#REF!	0.77						#REF!
dividens				0	#REF!	0.07						#REF!
profit tax	0.06	0.03	0.1	0.09	0.73	0.74	0.03	0.05	0.07	0.16	0.07	0.10
deductions to central funds				0	#REF!					0.01	0.01	#REF!
total expences from profitt	0.19	0.10	0.39	0.79	0.[illegible]5	1.13	0.13	0.15	0.07	0.52	0.25	0.36
Supply tariff (calculated)	1.07	0.8	1.11	1.31	0.9	1.06	1.07	0.94	0.42	1.22	0.81	1.13
Supply tariff (approved)	0.51	0.40	1.00	0.80	0.47	0.45	0.70	0.45	0.70	0.72	0.52	0.61
Ratio of calculeted supply tariff to average value of the tariff for 2nd Group of Companies	0.90	0	0.9	1.16	1.85	1.47	0.91	0.83	0.37	1.08	0.71	
Ratio of labour expenses to sum of direct and indirect costs	0.36	0	1.4	0.50	0.19	0.14	0.51	0.70	0.16	0.32	0.37	0.35
Variance between ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	-0.01	-0.1[illegible]	-0.1	-0.15	0.16	0.21	-0.16	0.15	0.19	0.03	-0.02	
Ratio of indirect costs to sum of direct and indirect costs	0	0	0	0.10	-REF	0.07	0.04	0.17	0	0	0.05	#REF!
Ratio of profit spent on production development plus capital expenditures to profit for	0.01	0	0.0[illegible]	0.75	0.19	0.77	0.17	0.22	0.005	0.51	0.06	0.21
Ratio of profit spent on social infrastructure development and incentivisation to profit	0.31	0.70	0.3	0.16	0.09	0.10	0.31	0.42	0.41	0.10	0.24	0.18

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Individual Tariff Components for Electricity Supply for the 1st Group of Consumers (thous Hr)

Table 2 7

Tariff components	Poltava oblenergo	Kharkiv oblenergo	Prykarpattia oblenergo	Lviv oblenergo	Cherkasy oblenergo	Kyiv energo	Odesa oblenergo	Kirovohrad oblenergo	Rivne oblenrigo	Kyiv oblenergo	Crimea energo	average value
Prime Costs												
material costs	0 13	0 00		0 49	0 63	0 9	0 09	0 19	0 04	0 44	0 21	0 33
labor costs	1 5	1 8	1 5	58	1 8	0 36	8	0 77	0 59	1 11	1 03	1 37
payment for social measures	0 81	0 85		1 3	0 61	0 19	1 08	0 37	0 28	0 53	0 38	0 57
depreciation	0 13	0 00	0 14	0 06	1 00	0 01	0 1	1 19	0 51	1 12	0 72	0 47
costs for repairs	0 0	0 0			1 35	0 01		0 83	0 04		0 06	0 27
costs of electricity used for internel needs	0 09			0 1		0 00		0 08	0 02			0 03
costs for using networks of other transmission licensees					REF							#REF!
other costs	0 80	0 3	0 3	0 16	1 6	1 75	0 64	0 03	0 24	0 30	0 27	0 55
indirect costs			1 41	0 49	#REF	0 04	0 17	0 47			0 13	#REF!
total direct and indirect costs	4 16	3 00	3 6	5 1	6 69	2 66	4 48	3 93	1 72	3 50	2 78	3 84
Expenses from profit												
deductions development of production	0 01		0 01	0 36	0 07	0 08	0 17	0 01	0 00	0 04	0 07	0 07
deductions to investment			0 0		0 68	1 16		0 16		1 30		0 31
deductions to current costs	0 0			0 19	0 37	0 33	0 13		0 05	0 07	0 45	0 15
deductions to social development	0 10	0 6	0 8	0 11	0 73	0 25	0 08	0 14	0 03	0 08	0 18	0 16
deductions to incentives	0 13	0 09	0 35	0 11	0 69	0 37	0 12	0 18	0 12	0 17	0 11	0 17
other purposes	0 _		0 3	0 16	1 07	0 53		0 05	0 00	0 09	0 03	0 23
deductions to creation of investment fund	0 06			0 08	0 17	0 33	0 07		0 05			0 06
deductions to reserve (insurence) fund			0 1		#REF	1 10						#REF!
dividens					#REF	0 33						#REF!
profit tax	0 8	0 15	0 4	0 43	1 13	1 19	0 17	0 23	0 11	0 78	0 36	0 51
deductions to central funds					REF					0 07	0 04	#REF!
total expences from profitt	0 93	0 50	1 94	1 45	3 77	5 64	0 63	0 76	0 36	2 61	1 25	1 80
Supply tariff (calculated)	5 10	4 10	5 6	6 57	10 46	8 30	5 11	4 69	2 09	6 11	4 03	5 65
Supply tariff (approved)	1 54	2 00	5 00	4 00	2 36	2 24	3 50	2 25	3 50	3 60	2 60	3 05
Ratio of calculeted supply tariff to average value of the tariff for 2nd Group of Companies	0 9[illegible]	0 3	0 9[illegible]	1 1[illegible]	1 8	1 4	0 91	0 83	0 37	1 08	0 71	
Ratio of labour expenses to sum of direct and indirect costs	0 36	0 50	0 45	0 30	0 19	0 14	0 51	0 20	0 34	0 32	0 37	0 36
Variance between ratios of labour expenses to sum of direct and indirect costs for 2nd Group of Companies	-0 005	-0 14	-0 13	-0 15	0 16	0 22	-0 15	0 16	0 01	0 04	-0 02	
Ratio of indirect costs to sum of direct and indirect costs	0	0	0 39	0 10	REF	0 0	0 04	0 1	0	0	0 05	#REF!
Ratio of profit spent on production development plus capital expenditures to profit for	0 0	0	0 04	0 [illegible]	0 19	0	0 19	0 2[illegible]	0 005	0 51	0 06	0 21
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 31	0 70	0 33	0 10	0 09	0 10	0 31	0 42	0 41	0 10	0 24	0 18

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Ratio of Individual Tariff Components for Electricity Transmission by Local Electric Networks to Average Tariff at the 1st Voltage Class

Table 2 8

Tariff Components	Poltava oblenergo	Kharkiv-oblenergo	Prykarpattia oblenergo	Lviv oblenergo	Cherkasy oblenergo	Kyiv energo	Odesa-oblenergo	Kirovohrad-oblenergo	Rivne-oblenrtgo	Kyiv-oblenergo	Crimea energo
Prime Costs											
material costs	1 50	3 11		0 89	0 64	0 19	0 55	0 83	0 88	1 25	1 16
labor costs	1 14	0 65	0 88	1 39	0 57	0 28	0 88	1 41	1 34	1 23	1 24
payment for social measures	1 36	0 70		1 47	0 61	0 32	0 93	1 54	1 41	1 30	1 36
depreciation	0 65	1 19	2 26	1 13	0 32	0 20	0 62	2 22	1 08	0 61	0 72
costs for repairs	0 79	0 90	0 20	0 80	0 70	0 42	0 65	4 37	0 47	0 79	0 93
costs of electricity used for internel needs	2 46			1 01	0	0 61	1 22	3 26	2 45		
costs for using networks of other transmission licenses				7 02	0		3 98				
other costs	0 48	1 49		0 73	2 14	0 28	1 89	0 15	2 14	0 99	0 72
indirect costs	0 22	0	6 29	0 84	0	0 07	0 50	2 49			0 60
Total direct and indirect costs	0 87	1 07	1 30	1 17	0 59	0 26	0 84	2 08	1 04	0 85	0 93
Expenses from profit											
deductions development of production	0 14	0 76	1 13	4 62	0 14	0 51	1 42	0 17	0 44	0 60	1 07
deductions to investment	0 34		3 16	0	0 61	0 06	1 15	0 73	1 18	2 93	0 83
deductions to current costs	0 43	1 46		0 90	0 86	0 75	0 57		1 21	0 41	4 41
deductions to social development	0 13	5 22	0 92	0 41	0 38	0 45	0 29	0 99	0 87	0 37	0 90
deductions to incentives	0 44	0 58	1 17	0 50	0 20	1 11	0 21	1 52	2 79	0 92	1 56
other purposes	1 74	0 05	1 80	0 98	2 93	1 42	0 42	0 54	0 17	0 64	0 31
deductions to creation of investment fund	1 33			1 57	1 31	2 84	0 73		3 21		
deductions to reserve (insurence) fund			3 64	0	0	7 36					
dividens				0	0	11 00					
profit tax	0 50	1 25	1 76	0 67	0 79	0 67	0 61	0 71	1 28	1 41	1 30
deductions to central funds		8 37		0	0					1 46	1 17
Total expences from profit	0 47	1 39	1 71	1 71	0 75	0 91	0 63	0 67	1 21	1 33	1 31

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Ratio of Individual Tariff Components for Electricity Transmission by Local Electric Networks to Average Tariff at the 2nd Voltage Class

Table 2-9

Tariff Components	Poltava-oblenergo	Kharkiv-oblenergo	Prykarpattia-oblenergo	Lviv-oblenergo	Cherkasy-oblenergo	Kyiv-energo	Odesa-oblenergo	Kirovohrad-oblenergo	Rivne-oblenrtgo	Kyiv-oblenergo	Crimea-energo
Prime Costs											
material costs	1 36	2 80		0 81	1 53	0 22	0 62	0 74	0 86	1 16	0 90
labor costs	0 97	0 55	0 84	1 42	1 30	0 30	0 92	1 23	1 42	1 14	0 91
payment for social measures	1 17	0 59		1 51	1 37	0 36	0 98	1 30	1 50	1 21	1 02
depreciation	0 62	1 14	1 87	1 34	0 83	0 24	0 52	1 37	1 30	1 07	0 71
costs for repairs	0 83	1 14	0 17	1 58	1 92	0 54	1 24	1 48	0 59	0 63	0 87
costs of electricity used for internel needs	1 71			1 91	0 00	0 36	0 97	2 23	2 10	1 73	-
costs for using networks of other transmission licenses				4 60	0		6 40		0		-
other costs	0 35	1 06		0 67	4 05	0 20	1 63	0 11	1 68	0 72	0 55
indirect costs	0 23	0	6 00	0 82	0	0 10	0 70	2 58		-	0 58
Total direct and indirect costs	0 79	0 99	1 07	1 35	1 43	0 29	1 02	1 23	1 14	0 93	0 77
Expenses from profit											
deductions development of production	0 13	0 62	0 87	4 62	0 30	0 51	1 43	0 14	0 44	0 61	1 32
deductions to investment	0 31	1 18	2 18	0	1 32	0 06	0 47	0 77	1 18	2 90	0 63
deductions to current costs	0 40	1 20		0 94	1 81	0 77	0 63		1 23	0 42	3 60
deductions to social development	0 13	4 76	1 01	0 49	0 92	0 51	0 35	0 90	0 26	0 42	1 25
deductions to incentives	0 57	0 66	1 21	0 75	0 45	1 66	0 30	1 73	1 13	1 31	1 23
other purposes	1 28	0 03	1 12	0 82	5 06	1 15	0 36	0 35	0 14	0 51	0 19
deductions to creation of investment fund	1 33			1 77	3 11	3 12	0 68		0 98		
deductions to reserve (insurence) fund			2 95	0	0	8					
dividens				0	0	11					
profit tax	0 47	1 46	1 34	0 70	1 73	0 70	0 51	0 65	0 83	1 46	1 15
deductions to central funds		8 16		0	0					2	1
Total expences from profit	0 45	1 57	1 31	1 31	1 65	0 96	0 47	0 62	0 79	1 39	1 12

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Ratio of Individual Tariff Components for Electricity Supply by Local Electric Networks to Average Tariff for the 1st Group of Customers

Table 2-10

Tariff Components	Poltava-oblenergo	Kharkiv-oblenergo	Prykarpattia oblenergo	Lviv-oblenergo	Cherkasy-oblenergo	Kyiv-energo	Odesa-oblenergo	Kirovohrad-oblenergo	Rivne-oblenrtgo	Kyiv-oblenergo	Crimea-energo
Prime Costs											
material costs	0 40	1 97		1 47	1 90	2 37	0 27	0 57	0 11	1 32	0 62
labor costs	1 12	1 33	1 31	1 92	0 95	0 27	1 70	0 58	0 21	0 83	0 77
payment for social measures	1 36	1 42		2 06	1 02	0 32	1 82	0 62	0 86	0 88	0 64
depreciation	0 30	0 14	0 33	0 14	2 46	0 03	0 50	2 75	0 09	2 60	1 66
costs for repairs	2 15	0 05		0 00	4 17	0 04		2 58	1 84		0 17
costs of electricity used for internel needs	3 26			4 13		0 07		2 89	0 64		
costs for using networks of other transmission licenses				5 46	5 54						
other costs	1 48	0 42	0 59	0 29	3 22	2 29	1 17	0 06	0 44	0 56	0 49
indirect costs		0	5 72	2 00	0	0 17	0 71	1 89			0 51
Total direct and indirect costs	1 08	0 94	0 94	1 33	1 74	0 69	1 17	1 02	0 45	0 91	0 72
Expenses from profit											
deductions development of production	0 13		0 17	5 45	0 34	1 28	1 82	0 11	0 03	0 61	1 06
deductions to investment			0 25	0	2 22	3 78		0 51		4 26	
deductions to current costs	0 48			1 25	2 45	2 18	0 84		0 36	0 48	2 96
deductions to social development	0 65	1 64	1 75	0 71	1 47	1 59	0 48	0 90	0 18	0 52	1 13
deductions to incentives	1 09	0 54	2 09	0 67	0 52	1 91	0 71	1 05	0 73	1 00	0 67
other purposes	0 99		1 44	0 73	4 75	2 35		0 21	0 01	0 39	0 14
deductions to creation of investment fund	0 92			1 20	2 66	5 21	0 28		0 72		
deductions to reserve (insurence) fund			1 45	0	0	9 57					
dividens				0	0	11 00					
profit tax	0 55	0 30	1 45	0 86	2 23	2 35	0 34	0 45	0 22	1 54	0 71
deductions to central funds				0	0					7 00	4 00
Total expences from profit	0 52	0 28	1 08	1 08	2 09	3 13	0 35	0 42	0 20	1 45	0 69

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Ratio of Individual Tariff Components for Electricity Supply by Local Electric Networks to Average Tariff for the 2nd Group of Customers

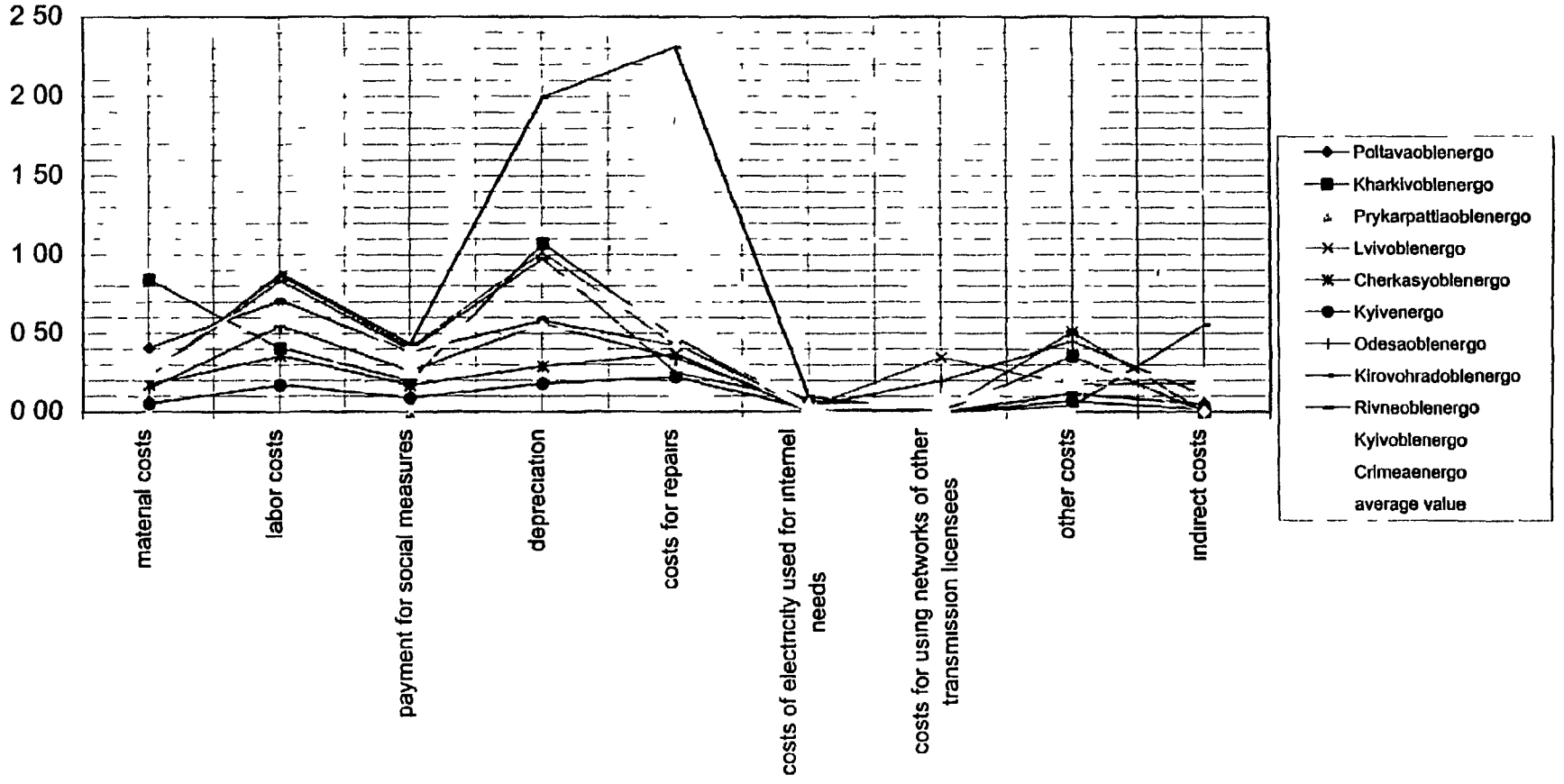
Table 2-11

Tariff Components	Poltava-oblenergo	Kharkiv-oblenergo	Prykarpattia oblenergo	Lviv oblenergo	Cherkasy oblenergo	Kyiv-energo	Odesa-oblenergo	Kirovohrad-oblenergo	Rivne-oblenrtgo	Kyiv-oblenergo	Crimea energo
Prime Costs											
material costs	0 40	1 97		1 47	1 90	2 37	0 27	0 57	0 11	1 32	0 62
labor costs	1 10	1 30	1 28	1 88	0 93	0 27	1 67	0 56	0 43	0 81	0 76
payment for social measures	1 41	1 47		2 14	1 06	0 34	1 89	0 64	0 49	0 92	0 66
depreciation	0 27	0 13	0 30	0 12	2 24	0 02	0 45	2 51	1 08	2 37	1 51
costs for repairs	2 55	0 06			4 94	0 04		3 05	0 15		0 20
costs of electricity used for internel needs	3 26			4 13		0 07		2 89	0 64		
costs for using networks of other transmission licenses	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
other costs	1 48	0 42	0 59	0 29	3 22	2 29	1 17	0 06	0 44	0 56	0 49
indirect costs			5 72	2 00		0 17	0 71	1 89			0 51
Total direct and indirect costs	1 08	0 94	0 94	1 33	1 74	0 69	1 17	1 02	0 45	0 91	0 72
Expenses from profit											
deductions development of production	0 13		0 17	5 45	0 34	1 28	1 82	0 11	0 03	0 61	1 06
deductions to investment			0 23		2 22	3 78		0 51		4 26	
deductions to current costs	0 48			1 25	2 45	2 18	0 84		0 36	0 48	2 96
deductions to social development	0 63	1 64	1 75	0 71	1 47	1 59	0 48	0 90	0 18	0 52	1 13
deductions to incentives	1 09	0 54	2 09	0 67	0 52	1 91	0 71	1 05	0 73	1 00	0 67
other purposes	0 99		1 44	0 73	4 75	2 35		0 21	0 01	0 39	0 14
deductions to creation of investment fund	0 92			1 20	2 66	5 21	0 28		0 72		
deductions to reserve (insurence) fund			1 43			9 57					
dividens						11 00					
profit tax	0 55	0 30	1 45	0 86	2 23	2 35	0 34	0 45	0 22	1 54	0 71
deductions to central funds										7 00	4 00
Total expences from profit	0 52	0 28	1 08	1 08	2 09	3 13	0 35	0 42	0 20	1 45	0 69

Tariff Structure for Electricity Transmission by Local Electric Networks, 1st Voltage Class

Prime Costs

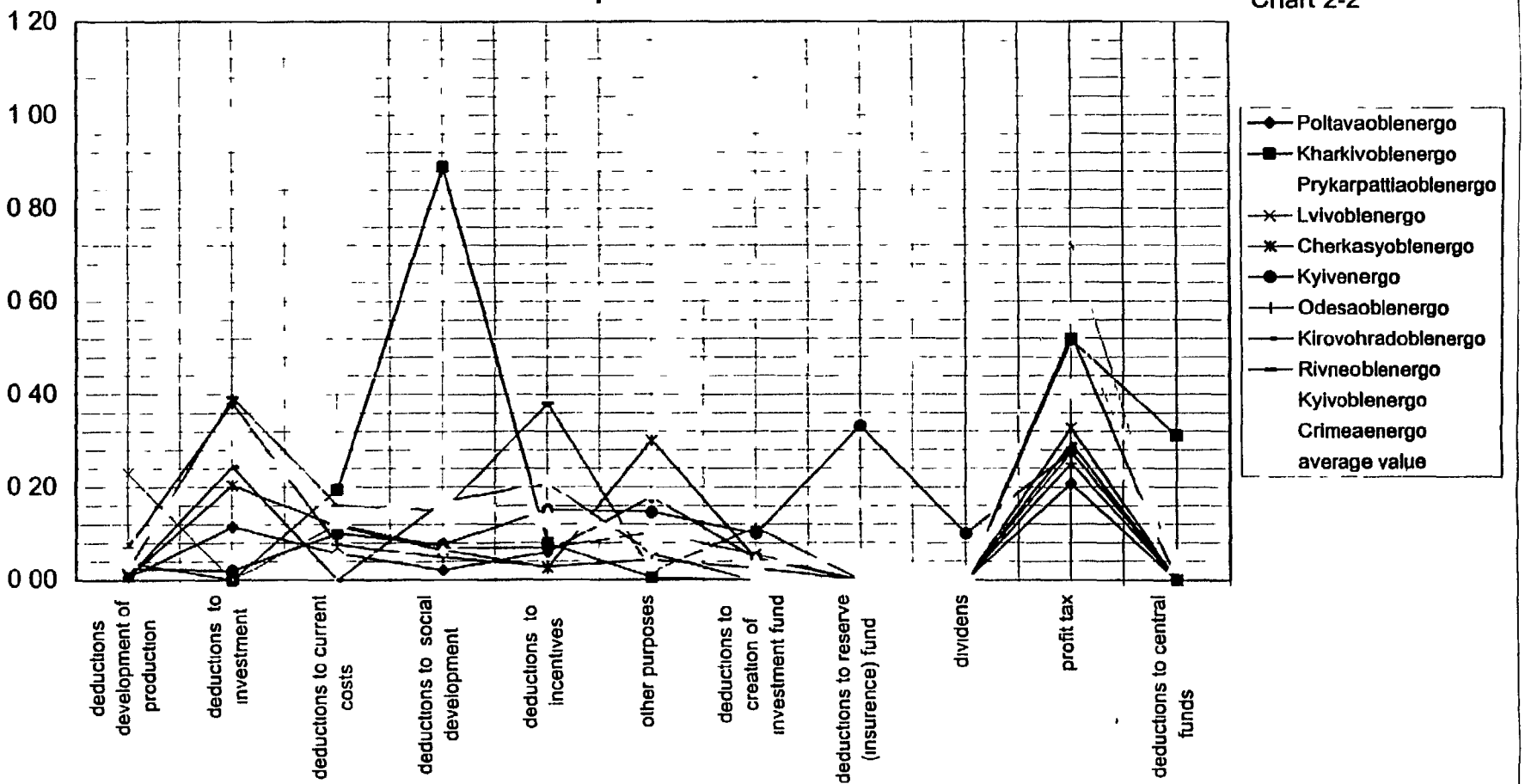
Chart 2-1



Tariff Structure for Electricity Tansmission by Local Electric Networks, 1st Voltage Class

Expenses from Profit

Chart 2-2



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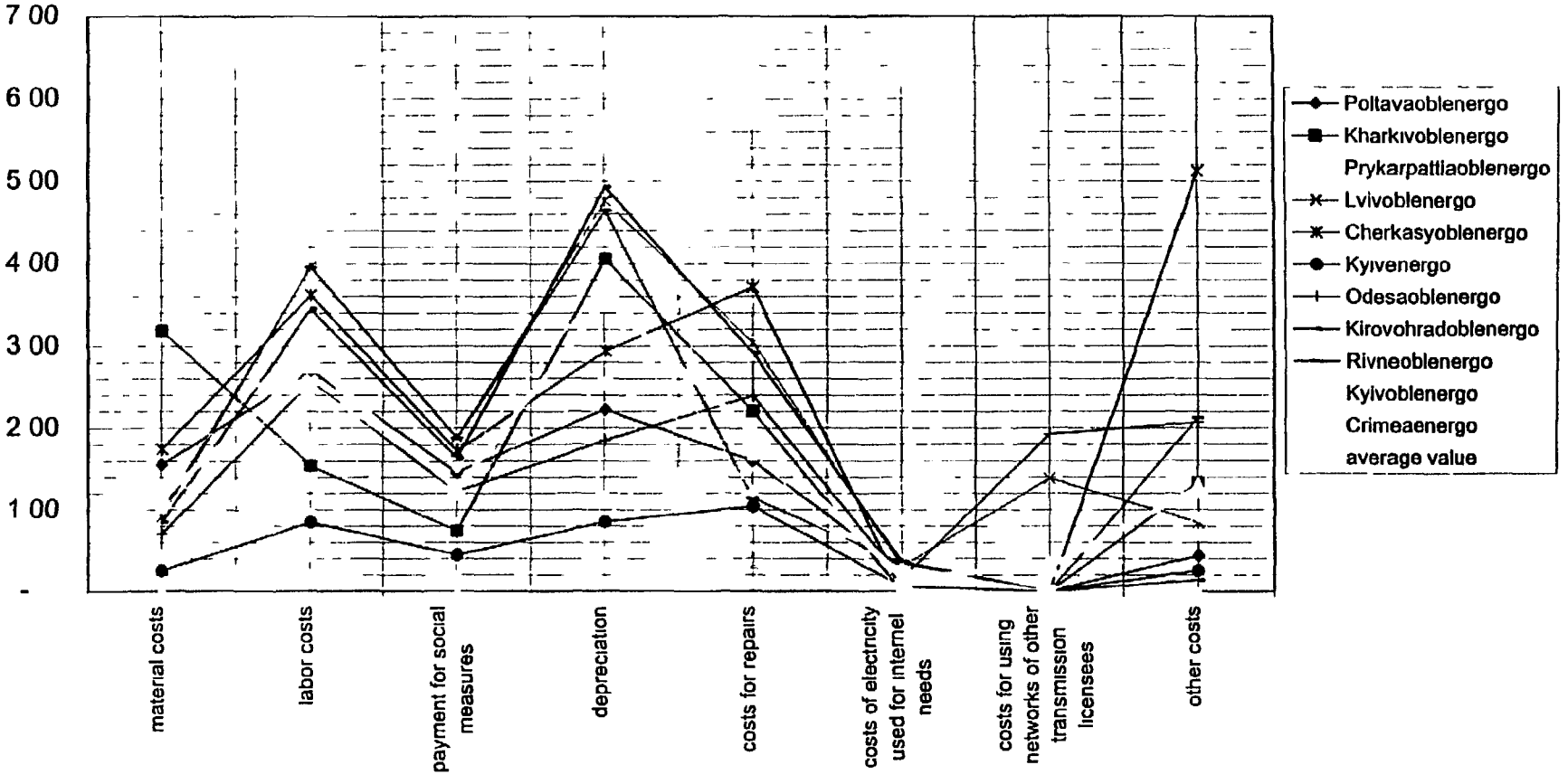
Tariff Structure for Electricity Transmission by Local Electric Networks, 2nd Voltage Class

Prime Costs

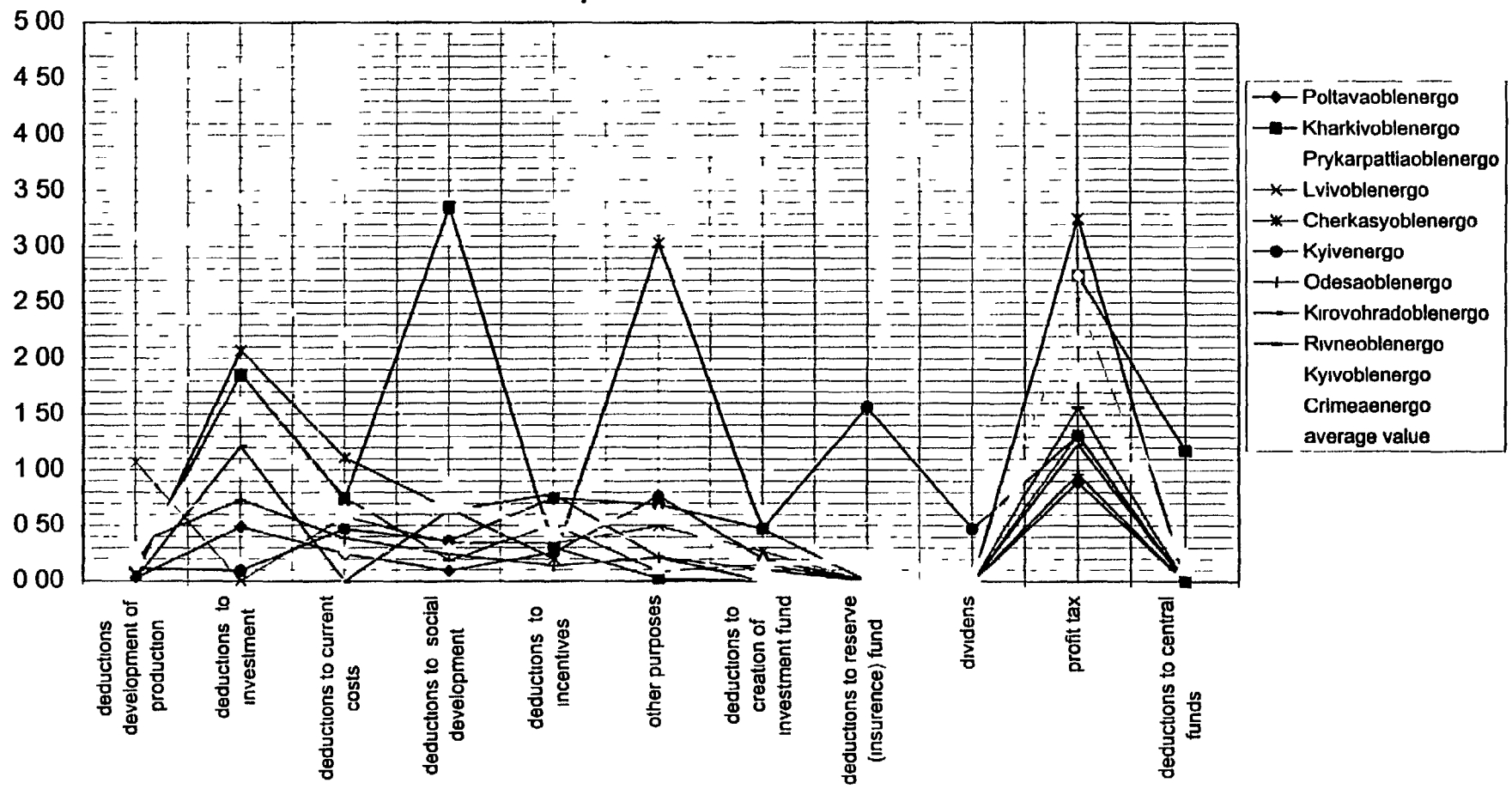
Chart 2-3



Tariff Structure for Electricity Tansmission by Local Electric Networks, 2nd Voltage Class

Expenses from Profit

Chart 2-4



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Tariff Structure for Electricity Transmission by Local Electric Networks,
1st Group of Consumers
Prime Costs

Chart 2-5

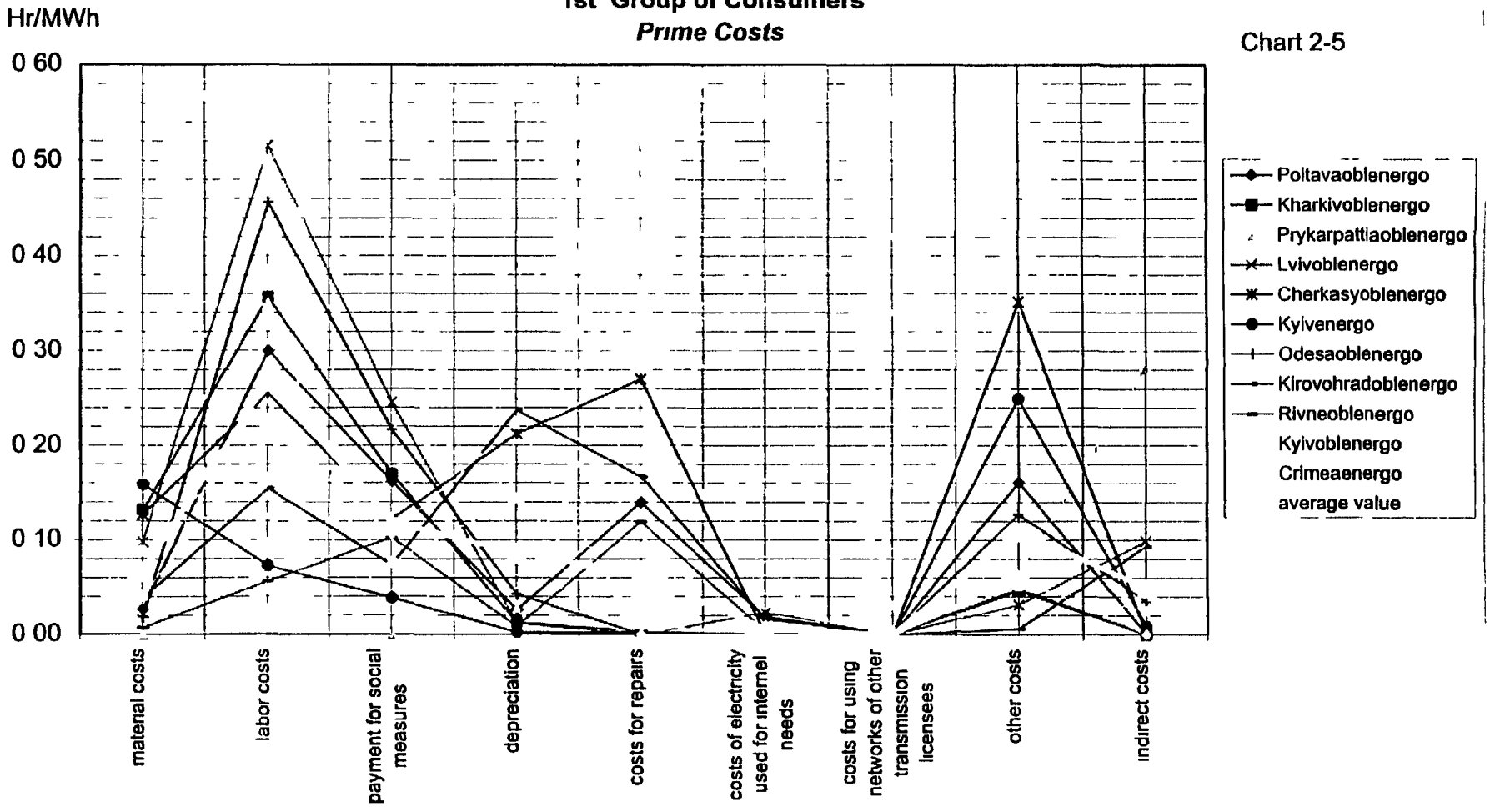
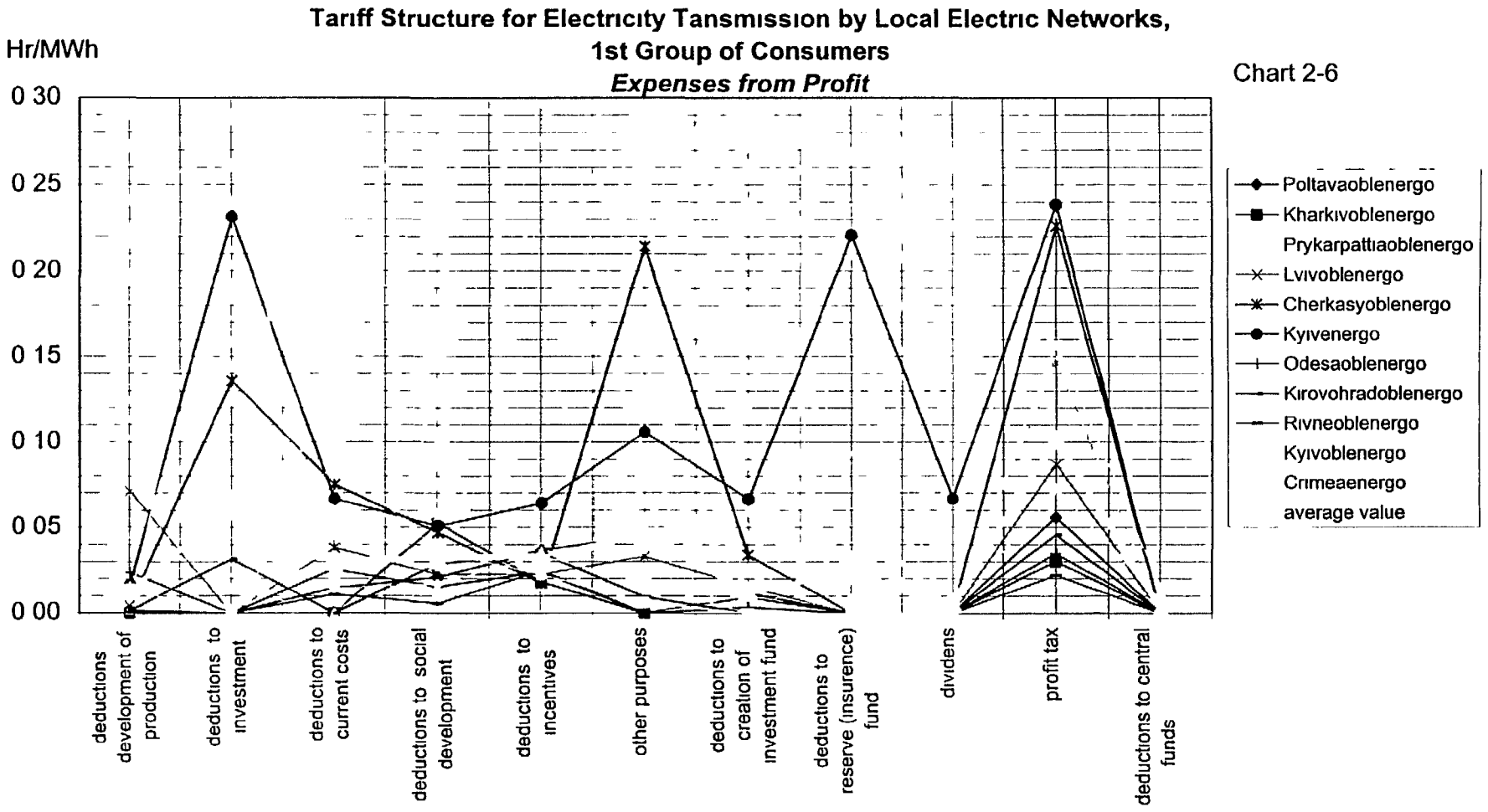


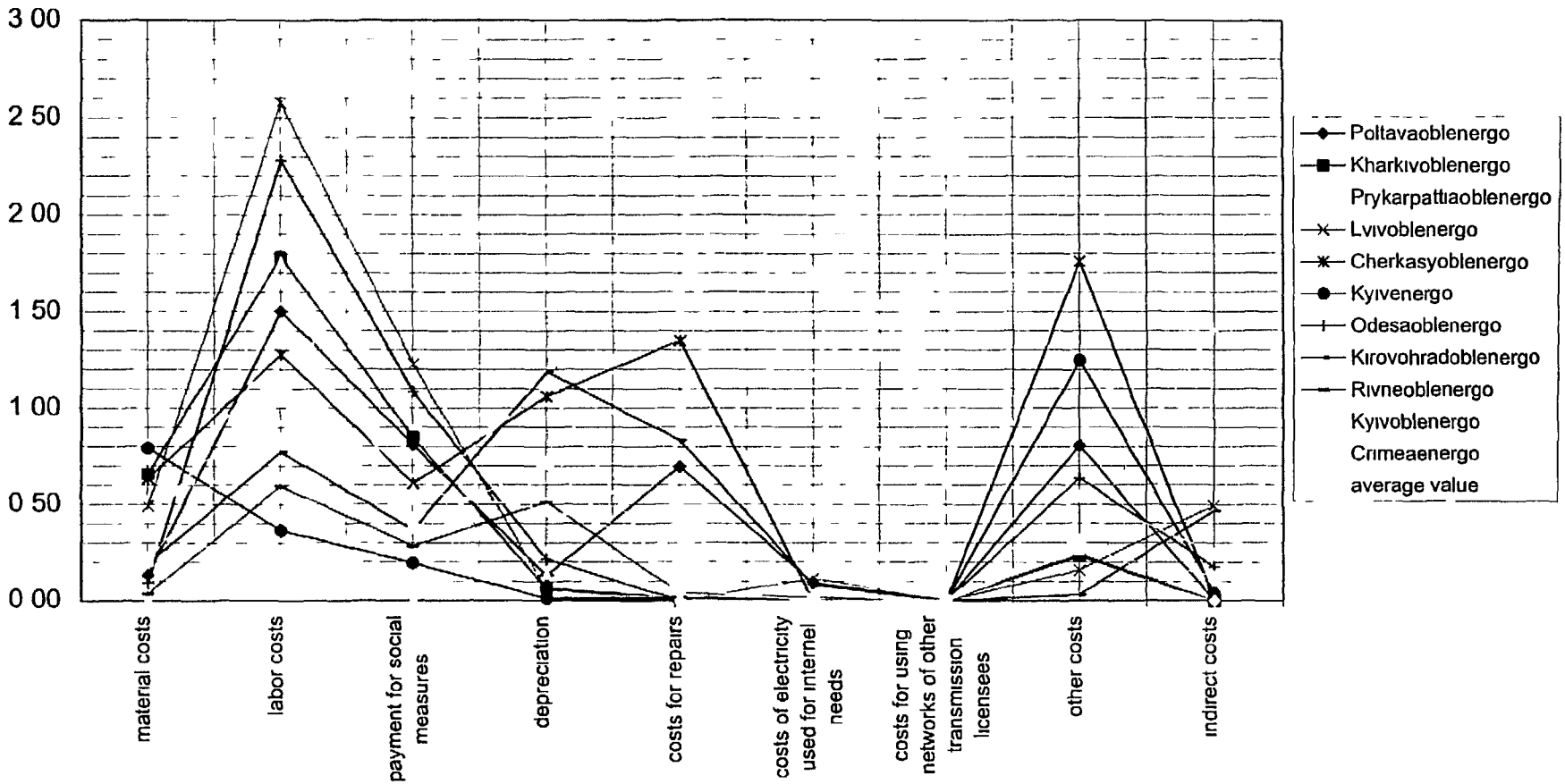
Chart 2-6


Tariff Structure for Electricity Tansmission by Local Electric Networks,
1st Group of Consumers
Expenses from Profit
Hr/MWh
0 30
0 25
0 20
0 15
0 10
0 05
0 00
deductions development of production
deductions to investment
deductions to current costs
deductions to social development
deductions to incentives
other purposes
deductions to creation of investment fund
deductions to reserve (insurence) fund
dividens
profit tax
deductions to central funds
Poltavaoblenergo
Kharkivoblenergo
Prykarpattiaoblenergo
Lvivoblenergo
Cherkasyoblenergo
Kyivenergo
Odesaoblenergo
Kirovohradoblenergo
Rivneoblenergo
Kyivoblenergo
Crimeaenergo
average value

Tariff Structure for Electricity Transmission by Local Electric Networks, 1st Group of Consumers

Prime Costs

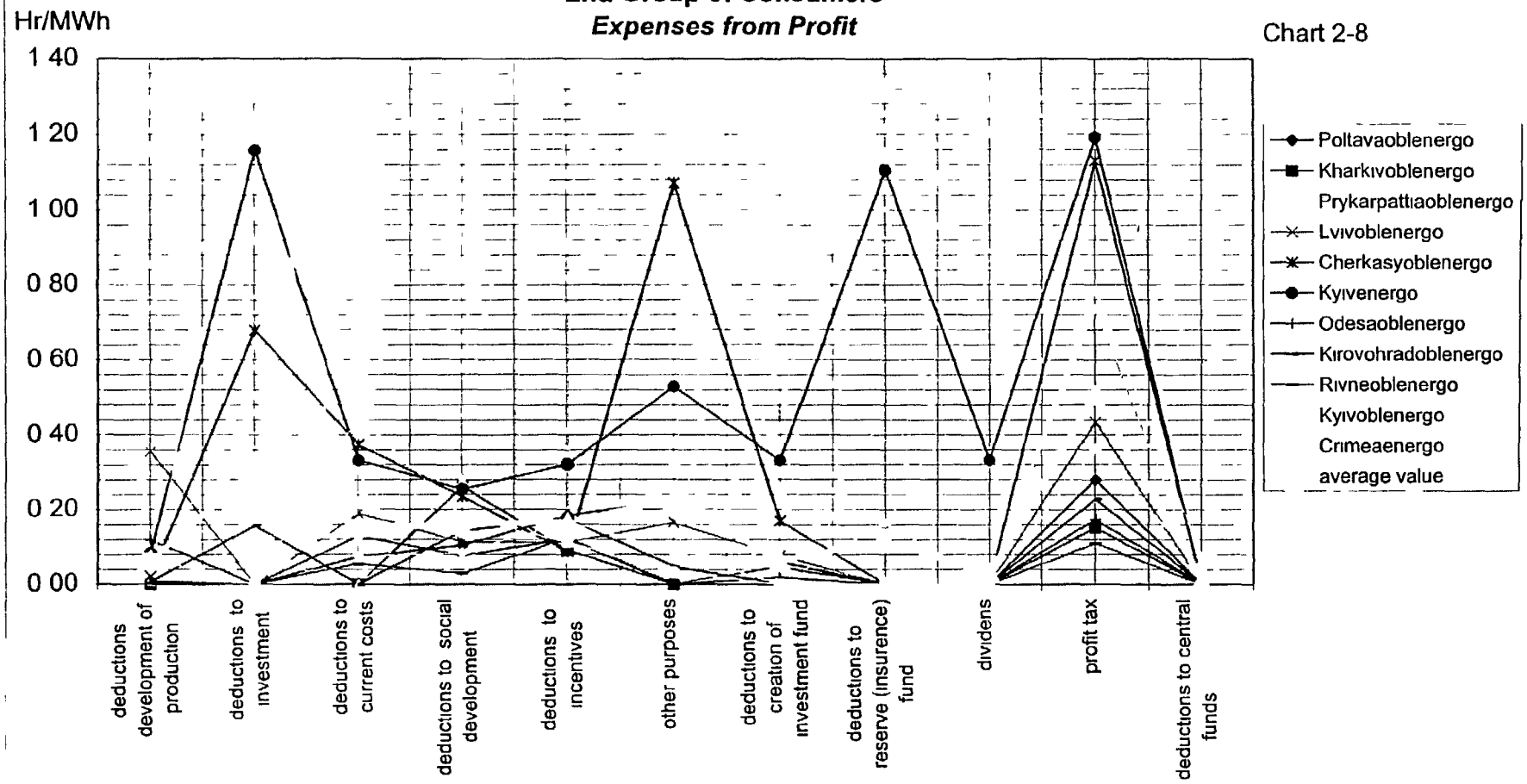
Chart 2-7



Tariff Structure for Electricity Tansmission by Local Electric Networks, 2nd Group of Consumers

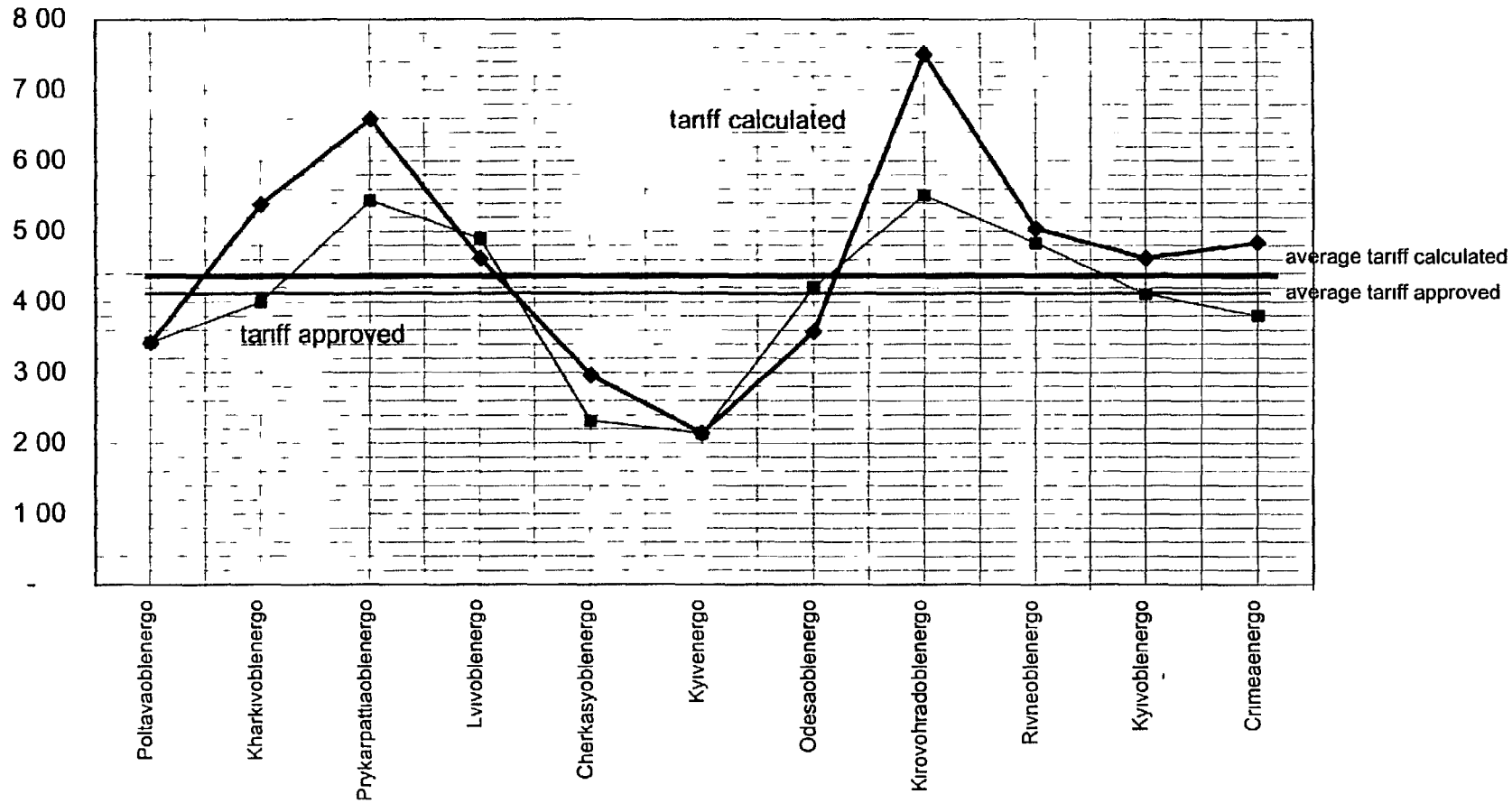
Expenses from Profit

Chart 2-8



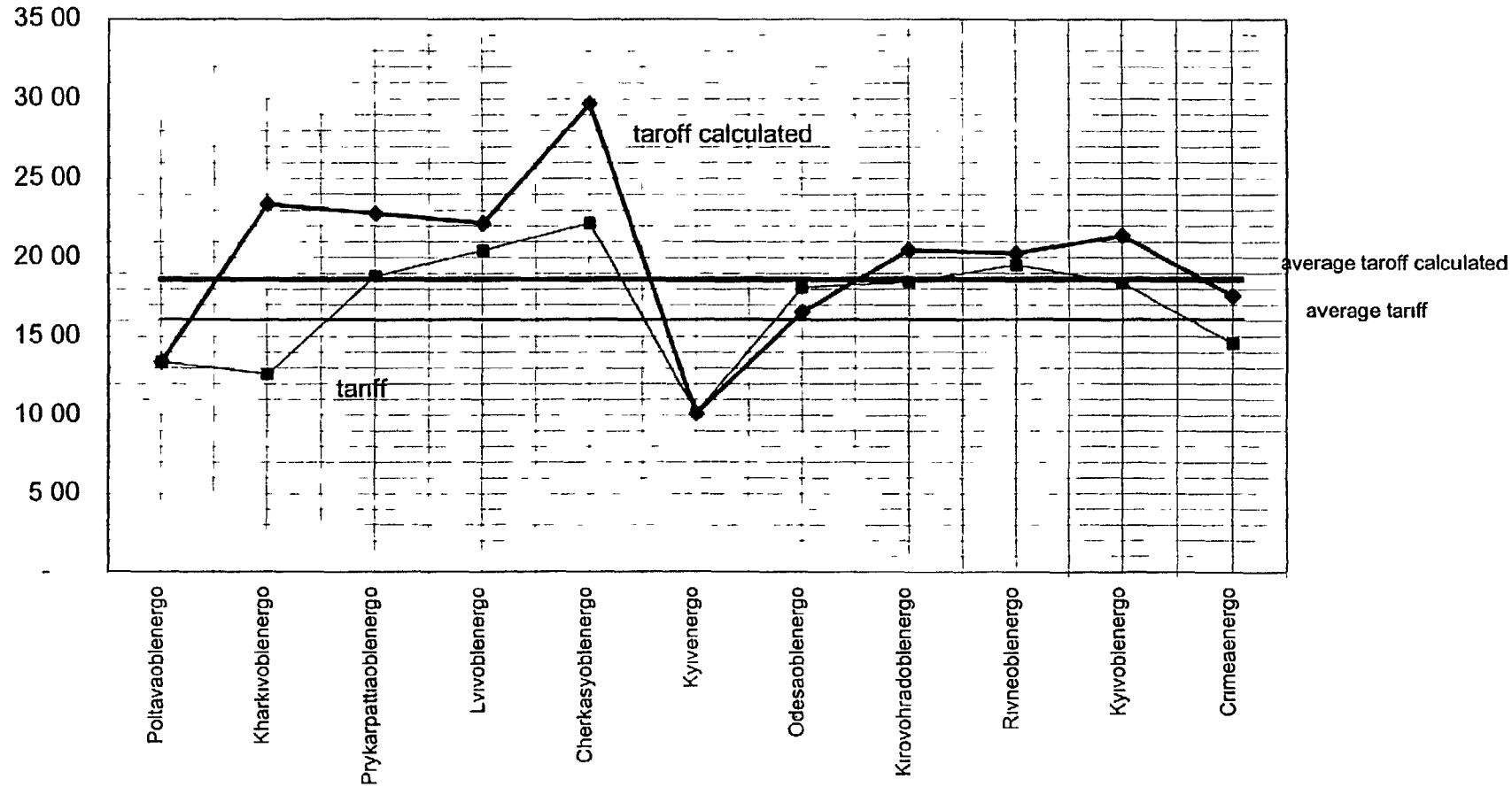
Tariff for Transmission, *1st Voltage Class*

Chart 2-9



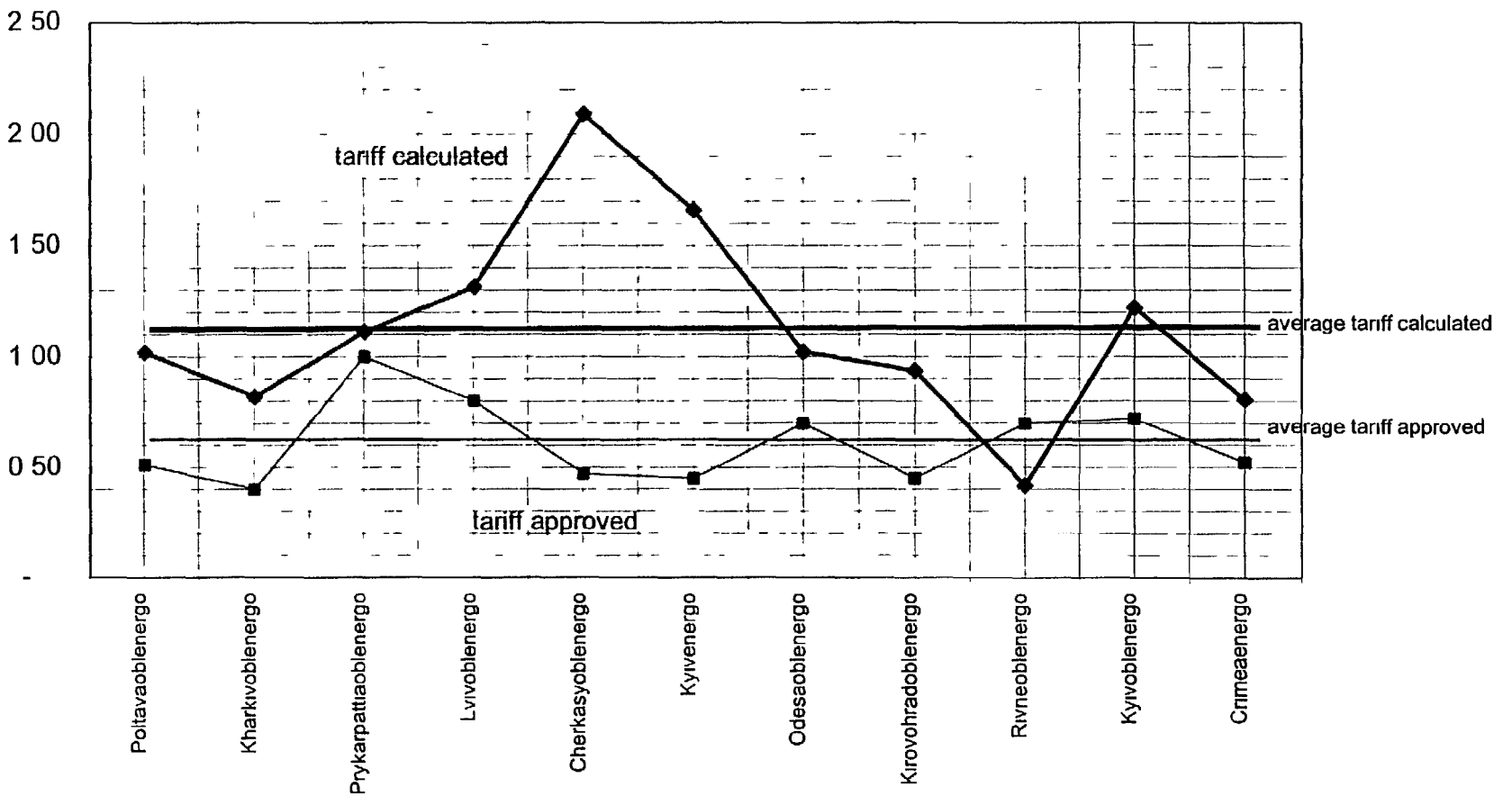
Tariff for Transmission, *2nd Voltage Class*

Chart 2-10



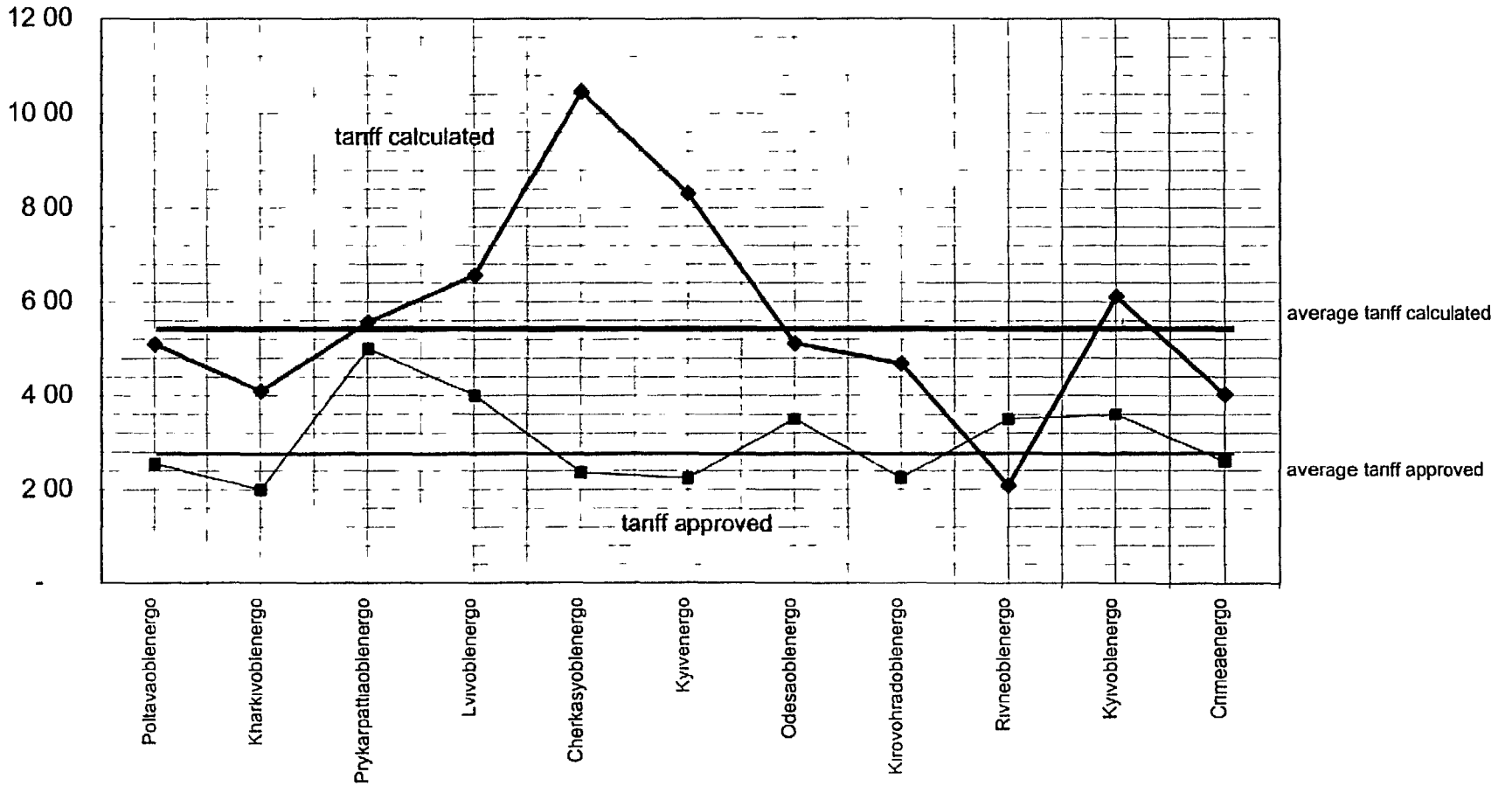
Tariff for Supply,
1st Group of Consumers

Chart 2-11



Tariff for Supply,
2nd Group of Consumers

Chart 2-12



Calculated Indicators (Profitability and Tariff), Averages of Indicators and Variances with Indicator Averages for SUMYOBLENERGO

Table 3-1

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	17	42	25
Profitability of electricity transmission for 2nd voltage class (calculated) %	19	38	19
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculeted) %	21	40	19
Transmission tariff for 1st voltage class (calculated) Hr/MWh	**5 38**	0 14	5 24
Transmission tariff for 1st voltage class (approved) Hr/MWh	**5 38**	2 22	3 16
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	**21 33**	0 42	20 91
Transmission tariff for 2nd voltage class (approved) Hr/MWh	**15 25**	7 51	7 74
Supply tariff for 1st group of consumers (calculated) Hr/MWh	**1 76**	0 03	1 72
Supply tariff for 1st group of consumers (approved) Hr/MWh	**0 52**	0 46	0 06
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	8 79	0 17	8 62
Supply tariff for 2nd group of consumers (approved) Hr/MWh	**2 60**	2 31	0 29

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for SUMYOBLENERGO

Table 3 1b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 17	0 17	0 17
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 24	0 24	0 24
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	-0 07	0 07	-0 07
Ratio of indirect costs to sum of direct and indirect costs	**0 21**	0 21	0 21
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 05	0 05	0 05
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	0 16	0 16	0 15
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 42	0 44	0 49
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 32	0 32	0 26
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	0 10	0 12	0 22
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 16	0 15	0 13
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 09	0 09	0 12
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	0 07	0 06	0 00

Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for MYKOLAIVOBLENERGO

Table 3 2

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	55	42	13
Profitability of electricity transmission for 2nd voltage class (calculated) %	37	38	1
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	53	40	13
Transmission tariff for 1st voltage class (calculated) Hr/MWh	4 83	0 14	4 69
Transmission tariff for 1st voltage class (approved) Hr/MWh	4 43	2 22	2 21
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	18 84	0 42	18 43
Transmission tariff for 2nd voltage class (approved) Hr/MWh	16 39	7 51	8 88
Supply tariff for 1st group of consumers (calculated) Hr/MWh	1 00	0 03	0 97
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 90	0 46	0 44
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	5 00	0 17	4 8[illegible]
Supply tariff for 2nd group of consumers (approved) Hr/MWh	4 50	2 31	2 19

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for MYKOLAIVOBLENERGO

Table 3 2b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 25	0 21	0 31
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 24	0 24	0 24
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 01	0 01	0 07
Ratio of indirect costs to sum of direct and indirect costs	0 00	0 00	0 00
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 05	0 05	0 05
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 05	-0 05	-0 05
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 03	0 04	0 00
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 32	0 32	0 26
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	-0 29	0 28	0 26
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 07	0 09	0 09
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 09	0 09	0 12
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 02	-0 01	-0 03

Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for MYKOLAIVOBLENERGO

Table 3-2

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	55	42	13
Profitability of electricity transmission for 2nd voltage class (calculated) %	37	38	1
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	53	40	13
Transmission tariff for 1st voltage class (calculated) Hr/MWh	4 83	0 14	4 69
Transmission tariff for 1st voltage class (approved) Hr/MWh	4.43	2 22	2 21
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	18 84	0 42	18 43
Transmission tariff for 2nd voltage class (approved) Hr/MWh	16 39	7 51	8 88
Supply tariff for 1st group of consumers (calculated) Hr/MWh	1 00	0 03	0 97
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 90	0 46	0 44
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	5 00	0 17	4 83
Supply tariff for 2nd group of consumers (approved) Hr/MWh	4 50	2 31	2 19

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for MYKOLAIVOBLENERGO

Table 3 2b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 25	0 24	0 31
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 24	0 24	0 24
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 01	0 01	0 07
Ratio of indirect costs to sum of direct and indirect costs	0 00	0 00	0 00
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 05	0 05	0 05
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 05	-0 05	-0 05
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 03	0 04	0 00
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 32	0 32	0 26
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	-0 29	0 28	0 26
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 07	0 09	0 09
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 09	0 09	0 12
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 02	-0 01	-0 03

Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for KHERSONOBLENERGO

Table 3-4

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	45	42	3
Profitability of electricity transmission for 2nd voltage class (calculated) %	45	38	7
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	45	40	5
Transmission tariff for 1st voltage class (calculated) Hr/MWh	5 63	0 14	5 50
Transmission tariff for 1st voltage class (approved) Hr/MWh	4 63	2 22	2 41
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	18 69	0 42	18 27
Transmission tariff for 2nd voltage class (approved) Hr/MWh	16 69	7 51	9 18
Supply tariff for 1st group of consumers (calculated) Hr/MWh	1 40	0 03	1 36
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 31	0 46	-0 15
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	6 98	0 17	6 81
Supply tariff for 2nd group of consumers (approved) Hr/MWh	1 55	2 31	0 76

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for KHERSONOBLENERGO

Table 3-4b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 22	0 22	0 33
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 24	0 24	0 24
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	-0 02	0 02	0 15
Ratio of indirect costs to sum of direct and indirect costs	0 00	0 00	0 00
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 05	0 05	0 05
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 05	0 05	-0 05
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 12	0 12	0 11
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 32	0 3	0 26
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	0 20	0 20	0 15
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 06	0 06	0 07
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 09	0 09	0 12
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 03	0 03	-0 05

Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for CHERNIHIVOBLENERGO

Table 3 5

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	26	42	16
Profitability of electricity transmission for 2nd voltage class (calculated) /	24	38	15
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) /	16	40	24
Transmission tariff for 1st voltage class (calculated) Hr/MWh	4 72	0 14	4 58
Transmission tariff for 1st voltage class (approved) Hr/MWh	4 72	2 22	2 50
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	22 76	0 42	22 35
Transmission tariff for 2nd voltage class (approved) Hr/MWh	18 19	7 51	10 68
Supply tariff for 1st group of consumers (calculated) Hr/MWh	0 99	0 03	0 96
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 51	0 46	0 05
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	4 97	0 17	4 80
Supply tariff for 2nd group of consumers (approved) Hr/MWh	2 55	2 31	0 24

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for CHERNIHIVOBLENERGO

Table 3 5b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 24	0 23	0 10
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 24	0 24	0 24
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 00	0 00	0 16
Ratio of indirect costs to sum of direct and indirect costs	0 09	0 09	0 09
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 05	0 05	0 05
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	0 04	0 04	0 04
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 37	0 3	0 07
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 32	0 32	0 26
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	0 05	0 0[illegible]	0 24
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 11	0 1	0 31
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 09	0 09	0 1[illegible]
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	0 02	0 02	0 19

Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for KHMELNYTSKOBLENERGO

Table 3-6

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	51	42	10
Profitability of electricity transmission for 2nd voltage class (calculated) %	48	38	10
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	48	40	8
Transmission tariff for 1st voltage class (calculated) Hr/MWh	2 38	0 14	2 24
Transmission tariff for 1st voltage class (approved) Hr/MWh	2 38	2 22	0 16
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	19 78	0 42	19 36
Transmission tariff for 2nd voltage class (approved) Hr/MWh	19 84	7 51	12 33
Supply tariff for 1st group of consumers (calculated) Hr/MWh	19 78	0 03	19 74
Supply tariff for 1st group of consumers (approved) Hr/MWh	19 84	0 46	19 38
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	6 88	0 17	6 71
Supply tariff for 2nd group of consumers (approved) Hr/MWh	1 90	2 31	-0 41

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for KHMELNYTSKOBLENERGO

Table 3-6b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 35	0 31	0 34
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 24	0 24	0 24
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 11	0 10	0 10
Ratio of indirect costs to sum of direct and indirect costs	0 00	0 00	0 00
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 05	0 05	0 05
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 05	-0 05	-0 05
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 44	0 14	0 43
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 32	0 32	0 26
development plus capital expenses to profits and average	0 12	0 17	0 16
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 11	0 11	0 11
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 09	0 09	0 12
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	0 02	0 01	-0 01

Costs of Electricity Transmission by Local Electric Networks at the 1st Voltage Class (thous Hr)

Table 3 1

	Sumy oblenergo	Mykolaiv - oblenergo	Zhytomyr oblenergo	Kherson oblenergo	Chernihiv oblenergo	Khmelnytsk-oblenergo
Prime Costs						
material costs	707	508	1475	637	724	204
labor costs	1944	2573	4300	1917	1544	1271
payment for social measures	926	1222	2042	758	734	501
depreciation	4390	1989	4236	2328	1814	958
costs for repairs	697	3032	3983	1860	583	63
costs of electricity used for internel needs	0	310	614	0	95	102
costs for using networks of other transmission licenses	0	0	0	0	0	0
other costs	600	796	2905	1346	309	545
Total	9264	10430	19555	8846	5803	3644
indirect costs	2439	0	0	0	607	
Total direct and indirect costs	11703	10430	19555	8846	6410	3644
Expenses from profit						
deductions development of production	194	111	212	169	96	637
deductions to investment	893	129	7965	510	780	526
deductions to current costs	0	4096	871	1102	342	287
deductions to social development	289	346	690	242	74	136
deductions to incentives	128	197	106	99	193	143
other purposes	84	203	0	1725	90	65
deductions to creation of investment fund	0	0	0	0	95	0
deductions to reserve (insurence) fund	0	0	0	0	0	0
dividens	0	0	0	0	0	0
profit tax	681	1943	4885	1649	716	778
deductions to central funds	347	634	1270	90	0	74
Total expences from profit	2616	7659	15999	5586	2386	2646
Total expenses	**14319**	**18089**	**35554**	**14432**	**8796**	**6290**
Profitability of licensed activity (the ratio of aftertax profitability to the sum of direct and indirect costs)	0 17	0 55	0 57	0 45	0 26	0 51
Average profitability	0 42					
Deviation from average profitability	-0 25	0 13	0 15	0 03	0 16	0 10

Costs of Electricity Transmission by Local Electric Networks at the 2nd Voltage Class (thous Hr)

Table 3 2

	Sumy oblenergo	Mykolaiv oblenergo	Zhytomyr oblenergo	Kherson - oblenergo	Chernihiv oblenergo	Khmelnytsk-oblenergo
Prime Costs						
material costs	1424	1403	1025	1353	2897	982
labor costs	3911	4778	2988	4473	5169	6120
payment for social measures	1858	2270	1421	1770	2456	2891
depreciation	8834	3695	2943	3964	6825	4608
costs for repairs	1403	5632	2767	3770	2192	327
costs of electricity used for internel needs	0	577	427	270	302	542
costs for using networks of other transmission licenses	0	0	0	0	0	0
other costs	1209	1479	2019	4723	393	2543
Total	18639	19834	13590	20323	20234	18013
indirect costs	4891	0	0	0	2117	
Total direct and indirect costs	23530	19834	13590	20323	22351	18013
Expenses from profit						
deductions development of production	630	208	148	395	363	3018
deductions to investment	2082	239	5535	1190	2220	2417
deductions to current costs	0	4350	605	2568	1192	1380
deductions to social development	581	644	480	565	247	656
deductions to incentives	312	365	74	230	645	691
other purposes	169	377	0	4025	316	310
deductions to creation of investment fund	0	0	0	0	332	0
deductions to reserve (insurence) fund	0	0	0	0	0	0
dividens	0	0	0	0	0	0
profit tax	1617	3608	3395	3846	2278	3749
deductions to central funds	698	1176	881	210	0	259
Total expences from profit	6089	10967	11118	13029	7593	12479
Total expenses	**29619**	**30801**	**24708**	**33352**	**29944**	**30492**
Profitability of licensed activity (the ratio of aftertax profitability to the sum of direct and indirect costs)	0 19	0 37	0 57	0 45	0 24	0 48
Average profitability	0 38					
Deviation from average profitability	-0 19	-0 01	0 18	0 07	-0 15	0 10

Costs of Electricity Supply (thous Hr)

Table 3 3

	Sumy oblenergo	Mykolaiv - oblenergo	Zhytomyr oblenergo	Kherson oblenergo	Chernihiv- oblenergo	Khmelnytsk oblenergo
Prime Costs						
material costs	319	400	278	775	590	299
labor costs	875	900	810	2138	1279	1247
payment for social measures	416	427	384	838	608	589
depreciation	1976	634	798	402	267	922
costs for repairs	200	200	750	236	86	4
costs of electricity used for internel needs	0	98	116		18	106
costs for using networks of other transmission licenses	0	0	0		0	0
other costs	393	225	547	1071	61	504
Total	4179	2884	3683	5460	2909	3671
indirect costs	1095		0	0	292	0
Total direct and indirect costs	5274	2884	3683	5460	3201	3671
Expenses from profit						
deductions development of production	200		40	102	14	608
deductions to investment	525		1500	300	0	470
deductions to current costs	0	600	164	632	171	283
deductions to social development	130	170	130	147	61	134
deductions to incentives	60	103	20	108	160	141
other purposes	20	108	0	848	44	64
deductions to creation of investment fund	0		0	154	48	0
deductions to reserve (insurence) fund	0		0	133	0	0
dividens	0		0		0	0
profit tax	401	1361	920	1039	213	768
deductions to central funds	155	545	239	52	0	57
Total expences from profit	1491	2887	3013	3515	714	2525
Total expenses	**6765**	**5771**	**6696**	**8975**	**3915**	**6196**
Profitability of licensed activity (the ratio of aftertax profitability to the sum of direct and indirect costs)	0 21	0 53	0 57	0 45	0 16	0 48
Average profitability	0 40					
Deviation from average profitability	-0 19	0 13	0 17	0 05	0 24	0 08

Individual Tariff Components for Electricity Transmission by Local Electric Networks at the 1st Voltage Class (thous Hr)

Table 3-4

Tariff components	Sumy oblenergo	Mykolaiv oblenergo	Zhytomyr oblenergo	Kherson oblenergo	Chernihiv oblenergo	Khmelnytsk oblenergo	*average value*
Prime Costs							
material costs	0 27	0 14	0 54	0 25	0 39	0 08	0 28
labor costs	0 73	0 69	1 56	0 75	0 83	0 48	0 84
payment for social measures	0 35	0 33	0 74	0 30	0 39	0 19	0 38
depreciation	1 65	0 53	1 54	0 91	0 97	0 36	0 99
costs for repairs	0 26	0 81	1 45	0 73	0 31	0 02	0 60
costs of electricity used for internel needs		0 08	0 22		0 05	0 04	0 07
costs for using networks of other transmission licensees			0 00				0 00
other costs	0 23	0 21	1 06	0 53	0 17	0 21	0 40
indirect costs	0 92		0 00		0 33		0 21
total direct and indirect costs	4 40	2 78	7 11	3 45	3 44	1 38	3 76
Expenses from profit							
deductions development of production	0 07	0 03	0 08	0 07	0 05	0 24	0 09
deductions to investment	0 34	0 03	2 89	0 20	0 42	0 20	0 68
deductions to current costs		1 09	0 32	0 43	0 18	0 11	0 36
deductions to social development	0 11	0 09	0 25	0 09	0 04	0 05	0 11
deductions to incentives	0 05	0 05	0 04	0 04	0 10	0 05	0 06
other purposes	0 03	0 05	0	0 67	0 05	0 02	0 14
deductions to creation of investment fund			0		0 05		0 01
deductions to reserve (insurence) fund			0				0
dividens			0				0
profit tax	0 26	0 52	1 78	0 64	0 38	0 29	0 65
deductions to central funds	0 13	0 17	0 46	0 04		0 03	0 14
total expences from profitt	0 98	2 04	5 81	2 18	1 28	1 00	2 22
Transmission tariff (calculated)	**5 38**	**4 83**	**12 92**	**5 63**	**4 72**	**2 38**	**5 98**
Transmission tariff (approved)	**5 38**	**4 43**	**10 00**	**4 63**	**4 72**	**2 38**	**5 26**
Ratio of calculeted transmission tariff to average value of the tariff for 3rd Group of Companies	0 90	0 81	2 16	0 94	0 79	0 40	
Ratio of labour expenses to sum of direct and indirect costs	0 17	0 25	0 22	0 22	0 24	0 35	0 22
Variance between ratios of labour expenses to sum of direct and indirect costs for 3rd Group of Companies	0 06	0 02	0 003	0 01	0 02	0 13	
Ratio of indirect costs to sum of direct and indirect costs	0 21	0	0	0	0 09	0	0 06
Ratio of profit spent on production development plus capital expenditures to profit for	0 42	0 03	0 51	0 12	0 37	0 44	0 35
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 16	0 07	0 05	0 06	0 11	0 11	0 07

Individual Tariff Components for Electricity Transmission by Local Electric Networks at the 2nd Voltage Class (thous Hr)

Table 3 5

Tariff components	Sumy oblenergo	Mykolaiv oblenergo	Zhytomyr oblenergo	Kherson oblenergo	Chernihiv oblenergo	Khmelnytsk oblenergo	*average value*
Prime Costs							
material costs	1 03	0 76	1 15	0 78	2 14	0 64	1 08
labor costs	2 84	2 85	3 35	2 50	3 94	3 97	3 24
payment for social measures	1 35	1 36	1 59	0 99	1 87	1 83	1 50
depreciation	6 41	2 21	3 30	2 47	5 09	2 99	3 74
costs for repairs	1 02	3 36	3 10	2 20	1 63	0 21	1 92
costs of electricity used for internel needs		0 34	0 48	0 10	0 23	0 35	0 25
costs for using networks of other transmission licensees			0 00				0 00
other costs	0 88	0 88	2 26	2 37	0 40	1 66	1 41
indirect costs	3 55		0 00		1 60	0 00	0 86
total direct and indirect costs	17 08	11 77	15 23	11 41	16 91	11 65	14 01
Expenses from profit							
deductions development of production	0 41	0 12	0 17	0 22	0 27	1 96	0 53
deductions to investment	1 45	0 14	6 20	0 66	1 75	1 58	1 97
deductions to current costs		3 12	0 68	1 44	0 90	0 90	1 17
deductions to social development	0 42	0 38	0 54	0 32	0 19	0 43	0 38
deductions to incentives	0 21	0 22	0 08	0 13	0 49	0 45	0 26
other purposes	0 12	0 23	0	2 25	0 24	0 20	0 51
deductions to creation of investment fund			0		0 25		0 04
deductions to reserve (insurence) fund			0				0
dividens			0				0
profit tax	1 12	2 15	3 80	2 15	1 76	2 43	2 24
deductions to central funds	0 51	0 70	0 99	0 12		0 18	0 42
total expences from profitt	4 25	7 07	12 46	7 28	5 85	8 12	7 51
Transmission tariff (calculated)	**21 33**	**18 84**	**27 69**	**18 69**	**22 76**	**19 78**	**21 51**
Transmission tariff (approved)	**15 25**	**16 39**	**23 00**	**16 69**	**18 19**	**19 84**	**18 23**
Ratio of calculeted transmission tariff to average value of the tariff for 3rd Group of Companies	0 99	0 88	1 29	0 87	1 06	0 92	
Ratio of labour expenses to sum of direct and indirect costs	0 17	0 24	0 22	0 22	0 23	0 34	0 23
Variance between ratios of labour expenses to sum of direct and indirect costs for 3rd Group of Companies	0 07	0 01	0 012	0 01	0 002	0 11	
Ratio of indirect costs to sum of direct and indirect costs	0 21	0	0	0	0 09	0	0 06
Ratio of profit spent on production development plus capital expenditures to profit for	0 44	0 04	0 51	0 12	0 35	0 44	0 33
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 15	0 09	0 05	0 06	0 12	0 11	0 09

Individual Tariff Components for Electricity Supply for the 1st Group of Consumers (thous Hr)

Table 3-6

Tariff components	Sumy oblenergo	Mykolaiv oblenergo	Zhytomyr oblenergo	Kherson oblenergo	Chernihiv oblenergo	Khmelnytsk oblenergo	*average value*
Prime Costs							
material costs	0 08	0 07	0 06	0 12	0 15	0 07	0 09
labor costs	0 23	0 16	0 16	0 33	0 32	0 28	0 25
payment for social measures	0 11	0 07	0 08	0 13	0 15	0 13	0 11
depreciation	0 51	0 11	0 16	0 06	0 07	0 20	0 19
costs for repairs	0 05	0 03	0 15	0 04	0 02	0 001	0 05
costs of electricity used for internel needs		0 02	0 02	0	0 005	0 02	0 01
costs for using networks of other transmission licensees				0 00			0
other costs	0 10	0 04	0 11	0 17	0 02	0 11	0 09
indirect costs	0 28	0 00			0 07		0 06
	1 37	0 50	0 73	0 85	0 81	0 81	0 85
Expenses from profit							
deductions development of production	0 05	0	0 01	0 02	0 004	0 13	0 04
deductions to investment	0 14	0	0 30	0 05		0 10	0 10
deductions to current costs		0 10	0 03	0 10	0 04	0 06	0 06
deductions to social development	0 03	0 03	0 03	0 02	0 02	0 03	0 03
deductions to incentives	0 02	0 02	0 004	0 02	0 04	0 03	0 02
other purposes	0 01	0 02		0 13	0 01	0 01	0 03
deductions to creation of investment fund				0 02	0 01		0 01
deductions to reserve (insurence) fund				0 02			0
dividens				0			0
profit tax	0 10	0 24	0 18	0 16	0 05	0 17	0 15
deductions to central funds	0 04	0 09	0 05	0 01		0 01	0 03
total expences from profitt	0 39	0 50	0 60	0 55	0 18	0 56	0 46
Supply tariff (calculated)	1 76	1 00	1 33	1 40	0 99	1 38	1 31
Supply tariff (approved)	**0 52**	**0 90**	**1 64**	**0 31**	**0 51**	**0 38**	**0 71**
Ratio of calculeted supply tariff to average value of the tariff for 3rd Group of Companies	1 34	0 76	1 02	1 07	0 76	1 05	
Ratio of labour expenses to sum of direct and indirect costs	0 17	0 31	0 22	0 39	0 40	0 34	0 29
Variance between ratios of labour expenses to sum of direct and indirect costs for 3rd Group of Companies	0 13	-0 02	0 071	-0 10	-0 11	-0 05	
Ratio of indirect costs to sum of direct and indirect costs	0 21	0	0	0	0 09	0	0 07
Ratio of profit spent on production development plus capital expenditures to profit for	0 49	0 001	0 51	0 11	0 02	0 43	0 29
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 13	0 09	0 05	0 07	0 31	0 11	0 10

Individual Tariff Components for Electricity Supply for the 2nd Group of Consumers (thous Hr)

Table 3 7

Tariff components	Sumy oblenergo	Mykolaiv oblenergo	Zhytomyr oblenergo	Kherson oblenergo	Chernihiv oblenergo	Khmelnytsk-oblenergo	*average value*
Prime Costs							
material costs	0 41	0 35	0 28	0 60	0 75	0 33	0 45
labor costs	1 14	0 78	0 81	1 66	1 62	1 38	1 23
payment for social measures	0 54	0 37	0 38	0 65	0 77	0 65	0 56
depreciation	2 57	0 55	0 79	0 31	0 34	1 02	0 93
costs for repairs	0 26	0 17	0 75	0 18	0 11	0	0 25
costs of electricity used for internel needs		0 08	0 12		0 02	0 12	0 06
costs for using networks of other transmission licensees							
other costs	0 51	0 20	0 54	0 83	0 08	0 56	0 45
indirect costs	1 42				0 37		0 30
Total casts	6 85	2 50	3 66	4 24	4 06	4 07	4 23
Expenses from profit							
deductions development of production	0 26		0 04	0 08	0 02	0 67	0 18
deductions to investment	0 68		1 49	0 23		0 52	0 49
deductions to current costs		0 52	0 16	0 49	0 22	0 31	0 28
deductions to social development	0 17	0 15	0 13	0 11	0 08	0 15	0 13
deductions to incentives	0 08	0 09	0 02	0 08	0 20	0 16	0 11
other purposes	0 03	0 09		0 66	0 06	0 07	0 15
deductions to creation of investment fund				0 12	0 06		0 03
deductions to reserve (insurence) fund				0 10			0 02
dividens							
profit tax	0 52	1 18	0 92	0 81	0 27	0 85	0 76
deductions to central funds	0 20	0 47	0 24	0 04		0 06	0 17
total expences from profitt	1 94	2 50	3 00	2 73	0 90	2 80	2 31
Supply tariff (calculated)	8 79	5 00	6 66	6 98	4 97	6 88	6 55
Supply tariff (approved)	**2 60**	**4 50**	**8 22**	**1 55**	**2 55**	**1 90**	**3 55**
Ratio of calculeted supply tariff to average value of the tariff for 3rd Group of Companies	1 34	0 76	1 02	1 07	0 76	1 05	
Ratio of labour expenses to sum of direct and indirect costs	0 17	0 31	0 22	0 39	0 40	0 34	0 29
Variance between ratios of labour expenses to sum of direct and indirect costs for 3rd Group of Companies	0 13	0 02	0 071	0 10	0 11	0 05	
Ratio of indirect costs to sum of direct and indirect costs	0 21	0	0	0	0 09	0	0 07
Ratio of profit spent on production development plus capital expenditures to profit for	0 49	0	0 51	0 11	0 02	0 43	0 29
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 13	0 09	0 05	0 07	0 31	0 11	0 10

Ratio of Individual Tariff Components for Electricity Transmission by Local Electric Networks to Average Tariff at the 1st Voltage Class

Table 3 8

Tariff Components	Sumy oblenergo	Mykolaiv oblenergo	Zhytomyr oblenergo	Kherson oblenergo	Chernihiv-oblenergo	Khmelnytsk-oblenergo
Prime Costs						
material costs	0 96	0 49	1 95	0 90	1 41	0 28
labor costs	0 87	0 82	1 86	0 89	0 99	0 57
payment for social measures	0 91	0 85	1 94	0 77	1 03	0 50
depreciation	1 66	0 53	1 55	0 91	0 98	0 36
costs for repairs	0 44	1 36	2 42	1 22	0 52	0 04
costs of electricity used for internel needs		1 26	3 39		0 77	0 59
costs for using networks of other transmission licenses			6 00			
other costs	0 57	0 53	2 65	1 32	0 42	0 52
indirect costs	4 43		0		1 57	
Total direct and indirect costs	1 17	0 74	1 89	0 92	0 92	0 37
Expenses from profit						
deductions development of production	0 81	0 33	0 86	0 74	0 57	2 69
deductions to investment	0 49	0 05	4 26	0 29	0 62	0 29
deductions to current costs		3 08	0 59	1 21	0 52	0 31
deductions to social development	1 02	0 87	2 36	0 89	0 37	0 48
deductions to incentives	0 86	0 94	0 69	0 69	1 85	0 97
other purposes	0 23	0 39	0	4 86	0 35	0 18
deductions to creation of investment fund			0		6 00	
deductions to reserve (insurence) fund			6			
dividens			6			-
profit tax	0 40	0 80	2 75	1 00	0 60	0 46
deductions to central funds	0 95	1 23	3 36	0 26		0 20
Total expences from profit	0 44	0 92	2 62	0 28	0 58	0 45

Ratio of Individual Tariff Components for Electricity Transmission by Local Electric Networks to Average Tariff at the 2nd Voltage Class

Table 3 9

Tariff Components	Sumy oblenergo	Mykolaiv-oblenergo	Zhytomyr-oblenergo	Kherson oblenergo	Chernihiv-oblenergo	Khmelnytsk oblenergo
Prime Costs						
material costs	0 95	0 71	1 06	0 72	1 97	0 59
labor costs	0 88	0 88	1 03	0 77	1 22	1 23
payment for social measures	0 90	0 90	1 06	0 66	1 25	1 22
depreciation	1 71	0 59	0 88	0 66	1 36	0 80
costs for repairs	0 53	1 75	1 61	1 15	0 85	0 11
costs of electricity used for internel needs		1 37	1 90	0 42	0 93	1 38
costs for using networks of other transmission licenses			6 00			
other costs	0 62	0 63	1 61	1 68	0 28	1 18
indirect costs	4 14		0		1 86	0 001
Total direct and indirect costs	1 22	0 84	1 09	0 81	1 21	0 83
Expenses from profit						
deductions development of production	0 77	0 24	0 32	0 42	0 52	3 74
deductions to investment	0 74	0 07	3 16	0 34	0 89	0 80
deductions to current costs		2 66	0 58	1 23	0 77	0 76
deductions to social development	1 11	1 01	1 42	0 93	0 50	1 12
deductions to incentives	0 81	0 83	0 31	0 49	1 86	1 70
other purposes	0 24	0 44	0	4 44	0 47	0 40
deductions to creation of investment fund			0		6 00	
deductions to reserve (insurence) fund			6 00			
dividens			6 00			
profit tax	0 50	0 96	1 70	0 96	0 79	1 09
deductions to central funds	1 22	1 69	2 38	0 28		0 43
Total expences from profit	0 57	0 94	1 66	0 97	0 78	1 08

Ratio of Individual Tariff Components for Electricity Supply by Local Electric Networks to Average Tariff for the 1st Group of Customers

Table 3 10

Tariff Components	Sumy oblenergo	Mykolaiv oblenergo	Zhytomyr oblenergo	Kherson oblenergo	Chernihiv oblenergo	Khmelnytsk oblenergo
Prime Costs						
material costs	0 91	0 76	0 61	1 33	1 65	0 73
labor costs	0 92	0 63	0 65	1 35	1 32	1 12
payment for social measures	0 96	0 66	0 68	1 16	1 37	1 16
depreciation	2 76	0 59	0 85	0 34	0 36	1 10
costs for repairs	1 06	0 70	3 03	0 75	0 44	0 02
costs of electricity used for internel needs		1 49	2 03	0 01	0 40	2 07
costs for using networks of other transmission licenses				6 00		
other costs	1 13	0 43	1 20	1 84	0 17	1 23
indirect costs	4 76	0 003			1 24	
Total direct and indirect costs	1 62	0 59	0 87	1 00	0 96	0 96
Expenses from profit						
deductions development of production	1 45	0 00	0 22	0 44	0 10	3 78
deductions to investment	1 40	0 00	3 06	0 48		1 07
deductions to current costs		1 83	0 57	1 73	0 76	1 10
deductions to social development	1 29	1 12	0 99	0 87	0 59	1 14
deductions to incentives	0 74	0 85	0 19	0 80	1 93	1 49
other purposes	0 17	0 62		4 37	0 37	0 47
deductions to creation of investment fund				3 98	2 02	
deductions to reserve (insurence) fund				6 00		
dividens				6 00		
profit tax	0 69	1 56	1 21	1 07	0 36	1 12
deductions to central funds	1 19	2 79	1 40	0 24		0 37
Total expences from profit	0 84	1 08	1 30	1 18	0 39	1 21

Ratio of Individual Tariff Components for Electricity Supply by Local Electric Networks to Average Tariff for the 2nd Group of Customers

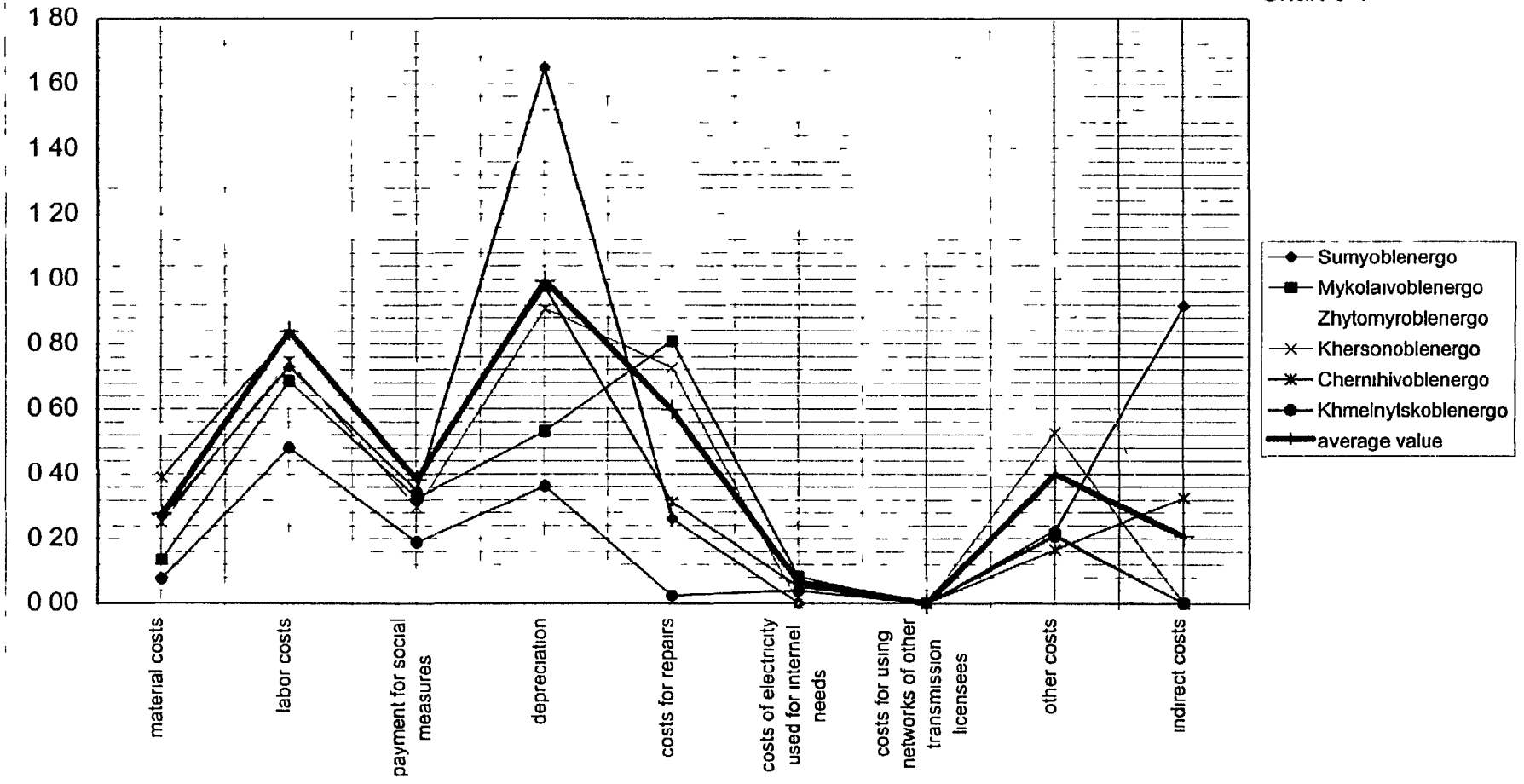
Table 3-11

Tariff Components	Sumy oblenergo	Mykolaiv oblenergo	Zhytomyr oblenergo	Kherson oblenergo	Chernihiv oblenergo	Khmelnytsk oblenergo
Prime Costs						
material costs	0 91	0 76	0 61	1 33	1 65	0 73
labor costs	0 92	0 63	0 65	1 35	1 32	1 12
payment for social measures	0 96	0 66	0 68	1 16	1 37	1 16
depreciation	2 76	0 59	0 85	0 34	0 36	1 10
costs for repairs	1 06	0 70	3 03	0 75	0 44	0 02
costs of electricity used for internel needs		1 50	2 03		0 40	2 07
costs for using networks of other transmission licenses	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
other costs	1 13	0 43	1 20	1 84	0 17	1 23
indirect costs	4 76				1 24	
Total direct and indirect costs	1 62	0 59	0 87	1 00	0 96	0 96
Expenses from profit						
deductions development of production	1 46		0 22	0 44	0 10	3 78
deductions to investment	1 40		3 06	0 48		1 07
deductions to current costs		1 83	0 57	1 73	0 76	1 10
deductions to social development	1 29	1 12	0 99	0 87	0 59	1 14
deductions to incentives	0 74	0 85	0 19	0 80	1 93	1 49
other purposes	0 17	0 62		4 37	0 37	0 47
deductions to creation of investment fund				3 98	2 02	
deductions to reserve (insurence) fund				6		
dividens	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
profit tax	0 69	1 56	1 21	1 07	0 36	1 12
deductions to central funds	1 19	2 79	1 40	0 24		0 37
Total expences from profit	0 84	1 08	1 30	1 18	0 39	1 21

Tariff Structure for Electricity Transmission by Local Electric Networks, 1st Voltage Class

Prime Costs

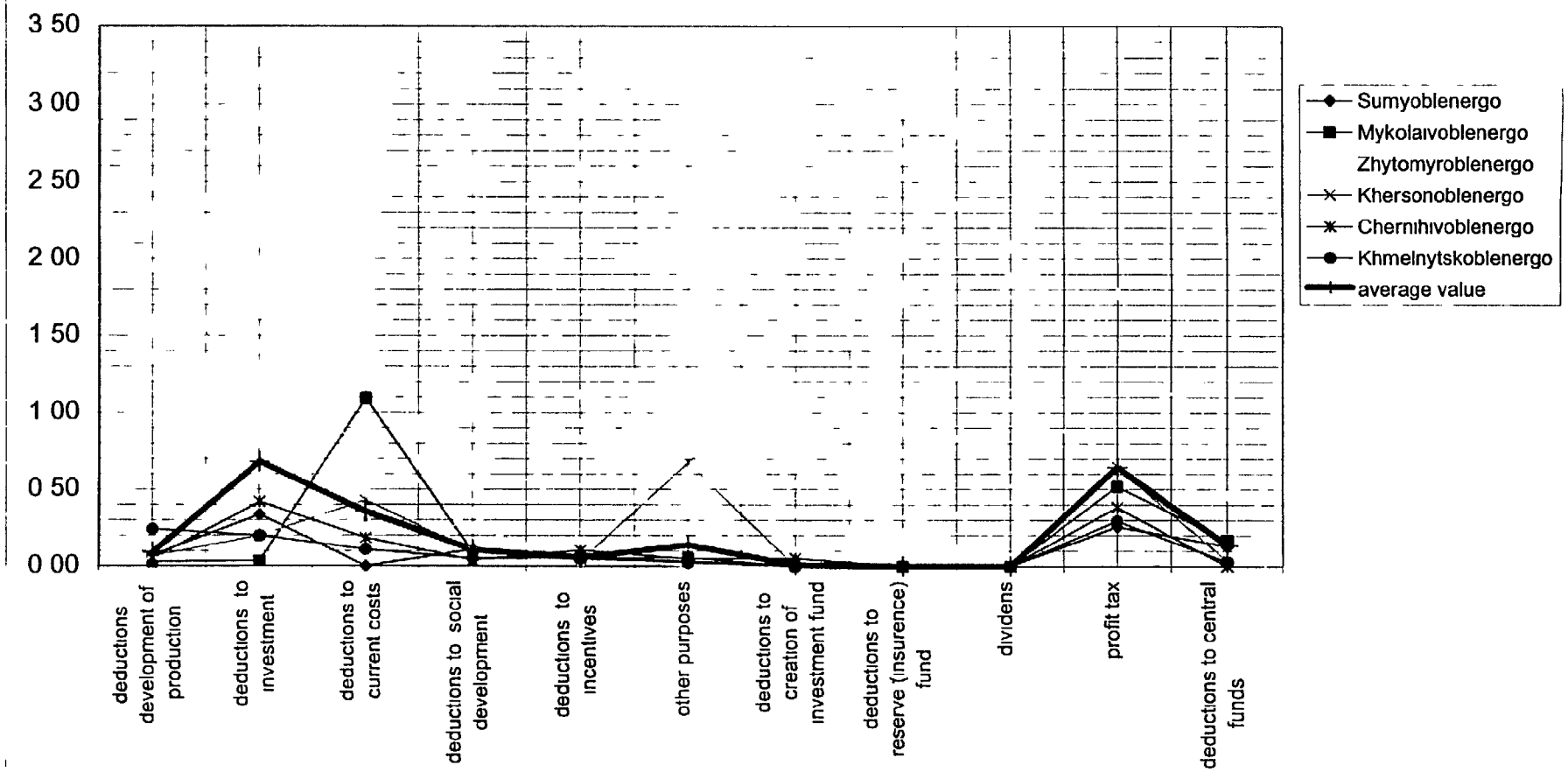
Chart 3-1



Tariff Structure for Electricity Tansmission by Local Electric Networks, 1st Voltage Class

Expenses from Profit

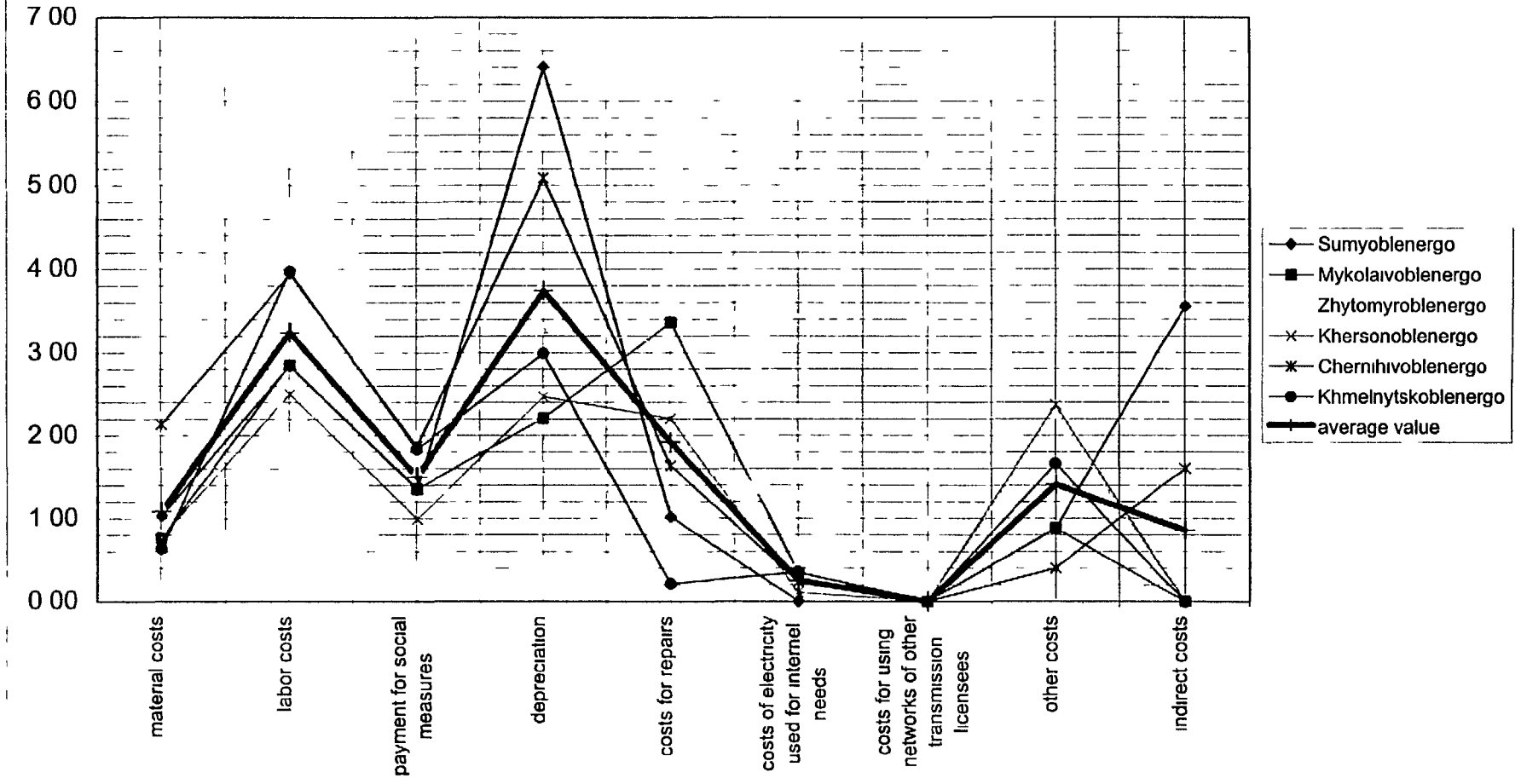
Chart 3-2



Tariff Structure for Electricity Transmission by Local Electric Networks, 2nd Voltage Class

Prime Costs

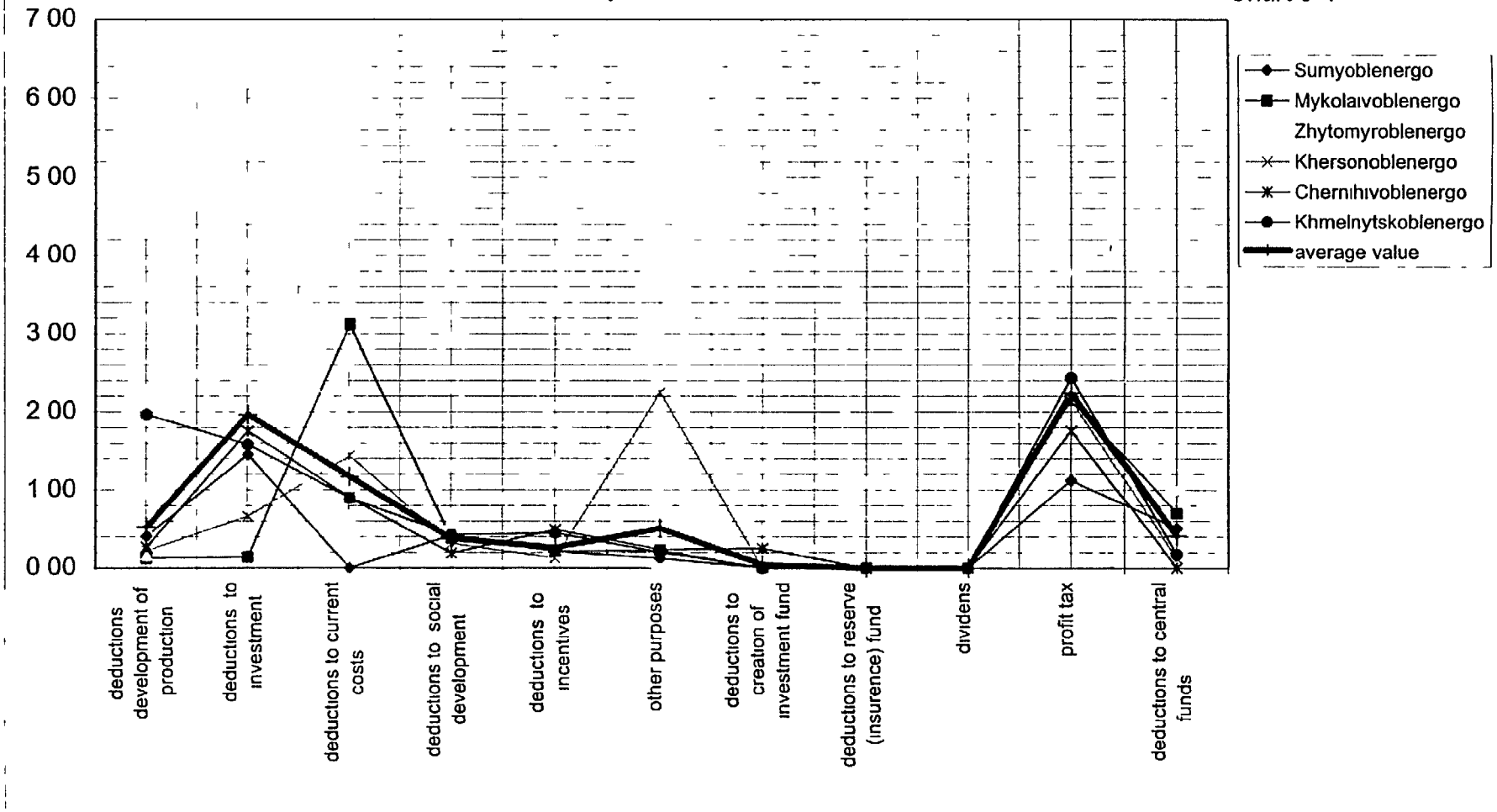
Chart 3-3



Tariff Structure for Electricity Tansmission by Local Electric Networks, 2nd Voltage Class

Expenses from Profit

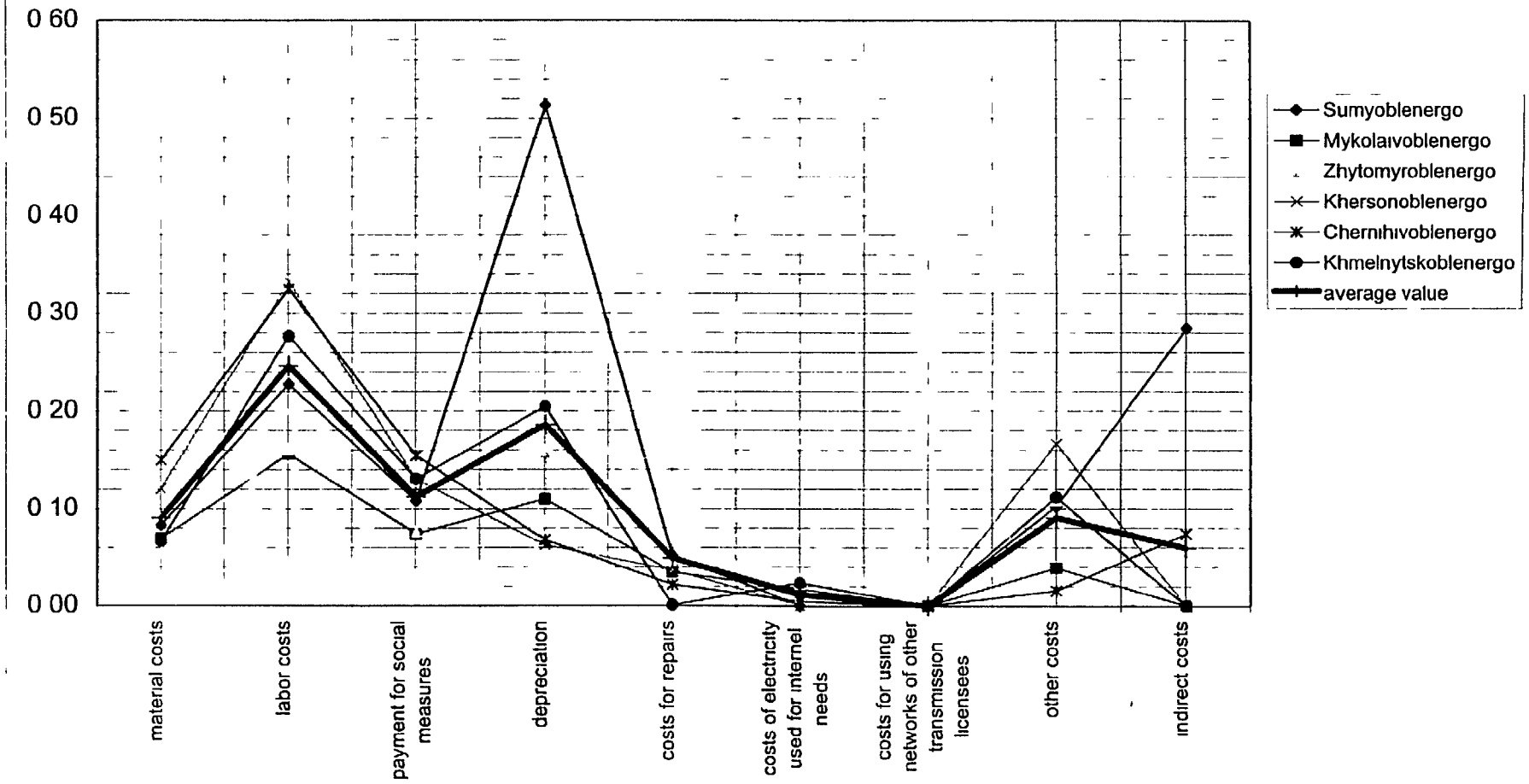
Chart 3-4



Tariff Structure for Electricity Transmission by Local Electric Networks, 1st Group of Consumers

Prime Costs

Chart 3-5



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Tariff Structure for Electricity Tansmission by Local Electric Networks, 1st Group of Consumers

Expenses from Profit

Chart 3-6

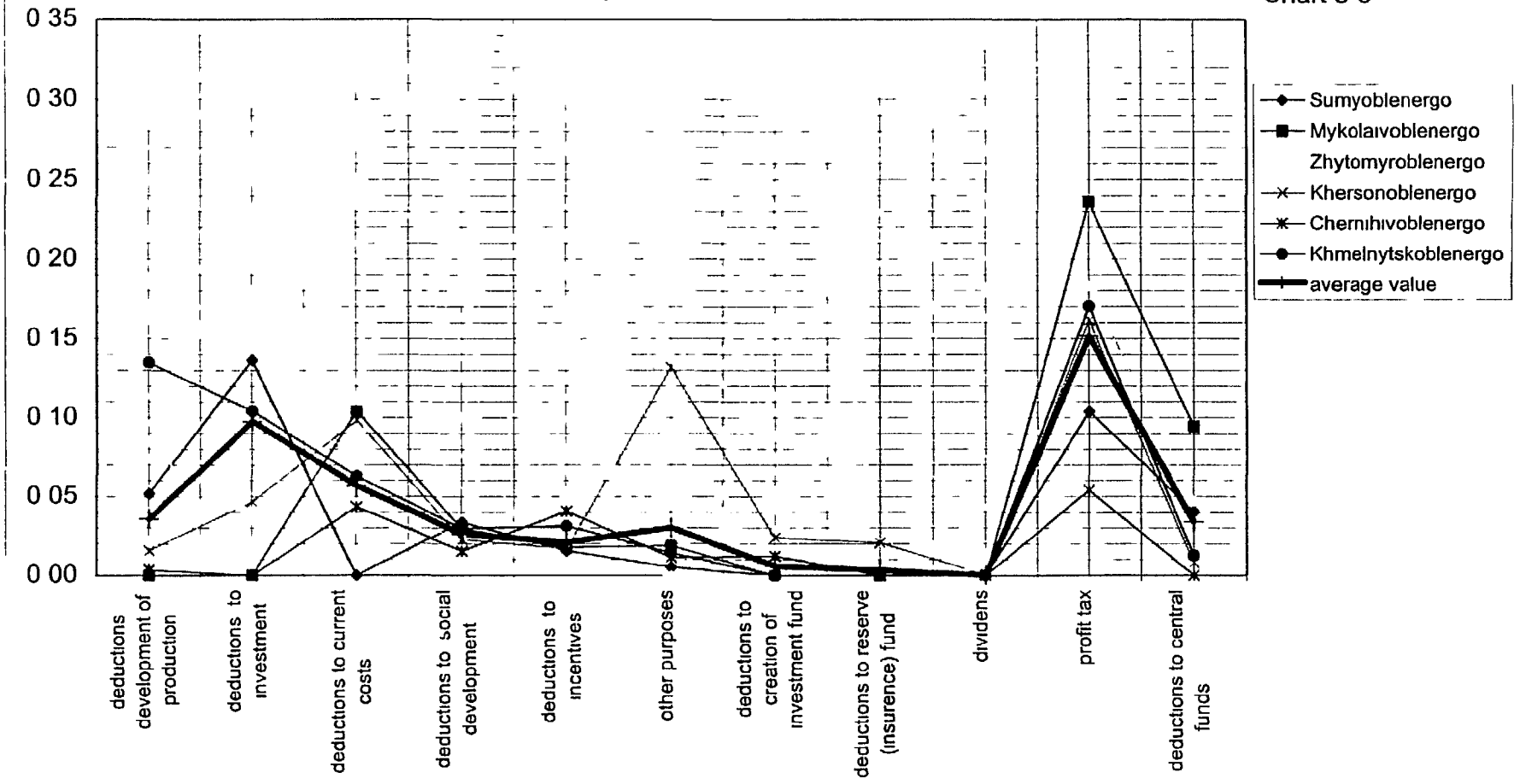
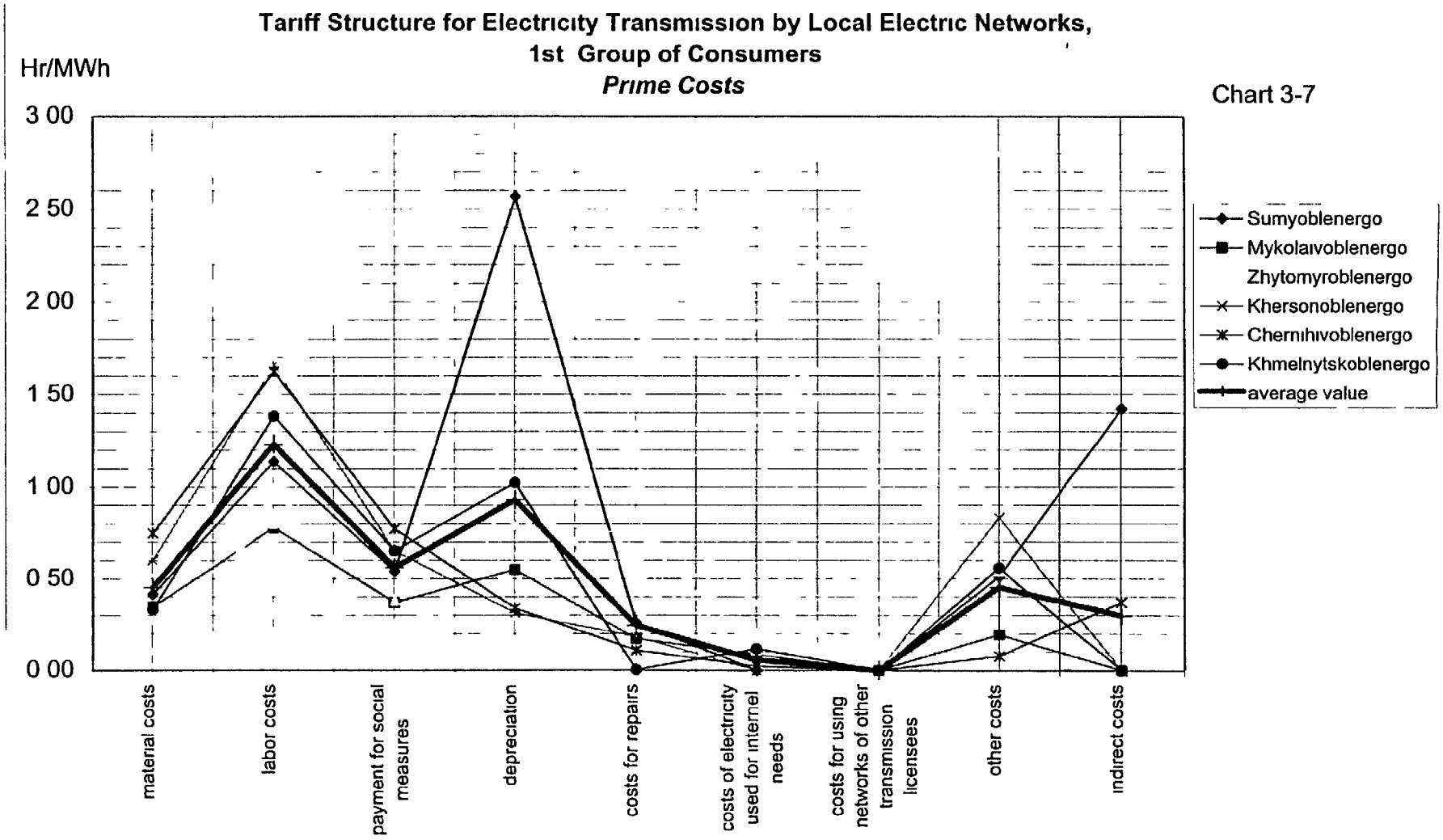


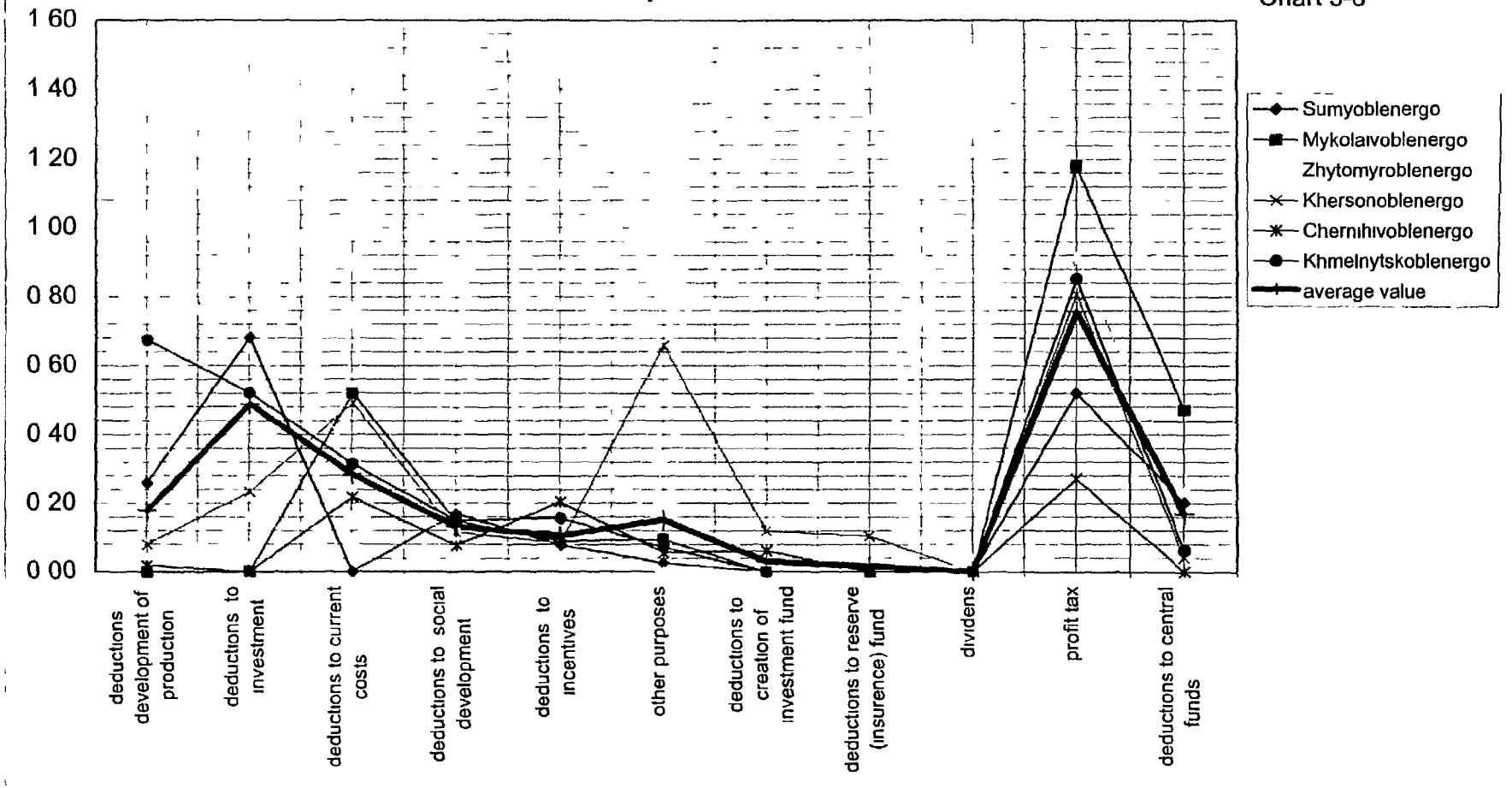
Chart 3-7


Tariff Structure for Electricity Transmission by Local Electric Networks,
1st Group of Consumers
Prime Costs
Hr/MWh
3 00
2 50
2 00
1 50
1 00
0 50
0 00
material costs
labor costs
payment for social measures
depreciation
costs for repairs
costs of electricity used for internel needs
costs for using networks of other transmission licensees
other costs
indirect costs
Sumyoblenergo
Mykolaivoblenergo
Zhytomyroblenergo
Khersonoblenergo
Chernihivoblenergo
Khmelnytskoblenergo
average value

Tariff Structure for Electricity Tansmission by Local Electric Networks, 2nd Group of Consumers

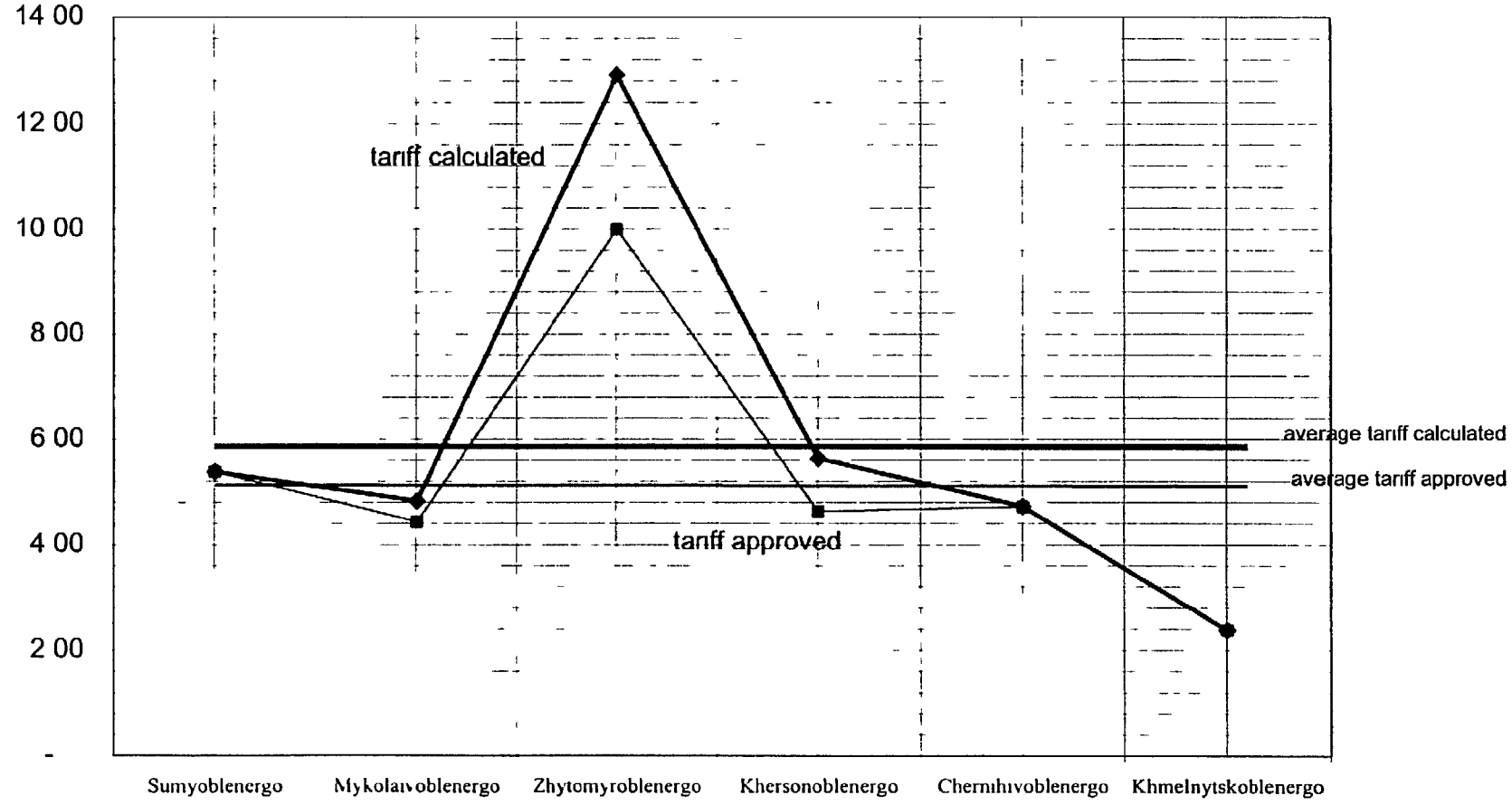
Expenses from Profit

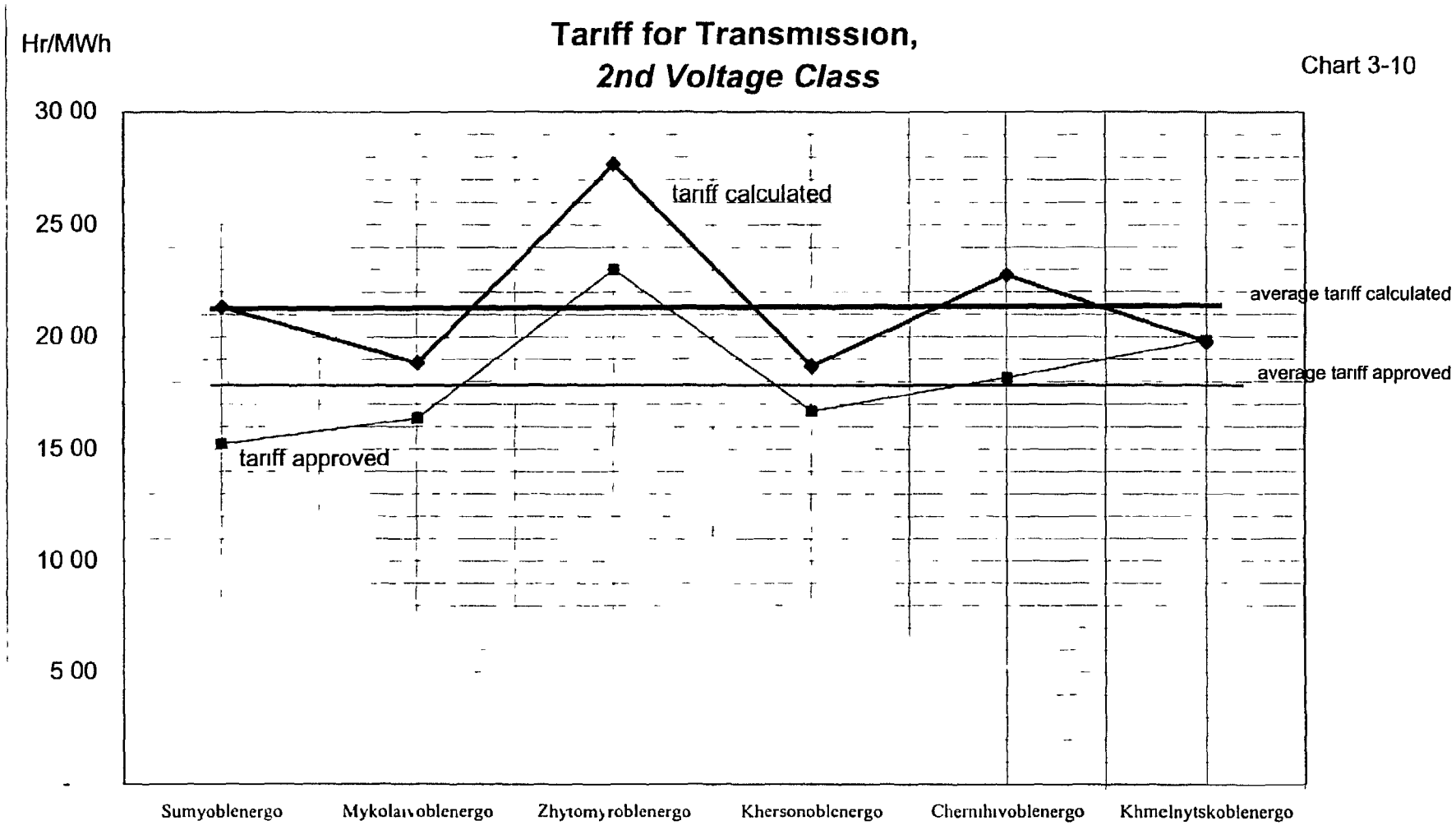
Chart 3-8



Tariff for Transmission,
1st Voltage Class

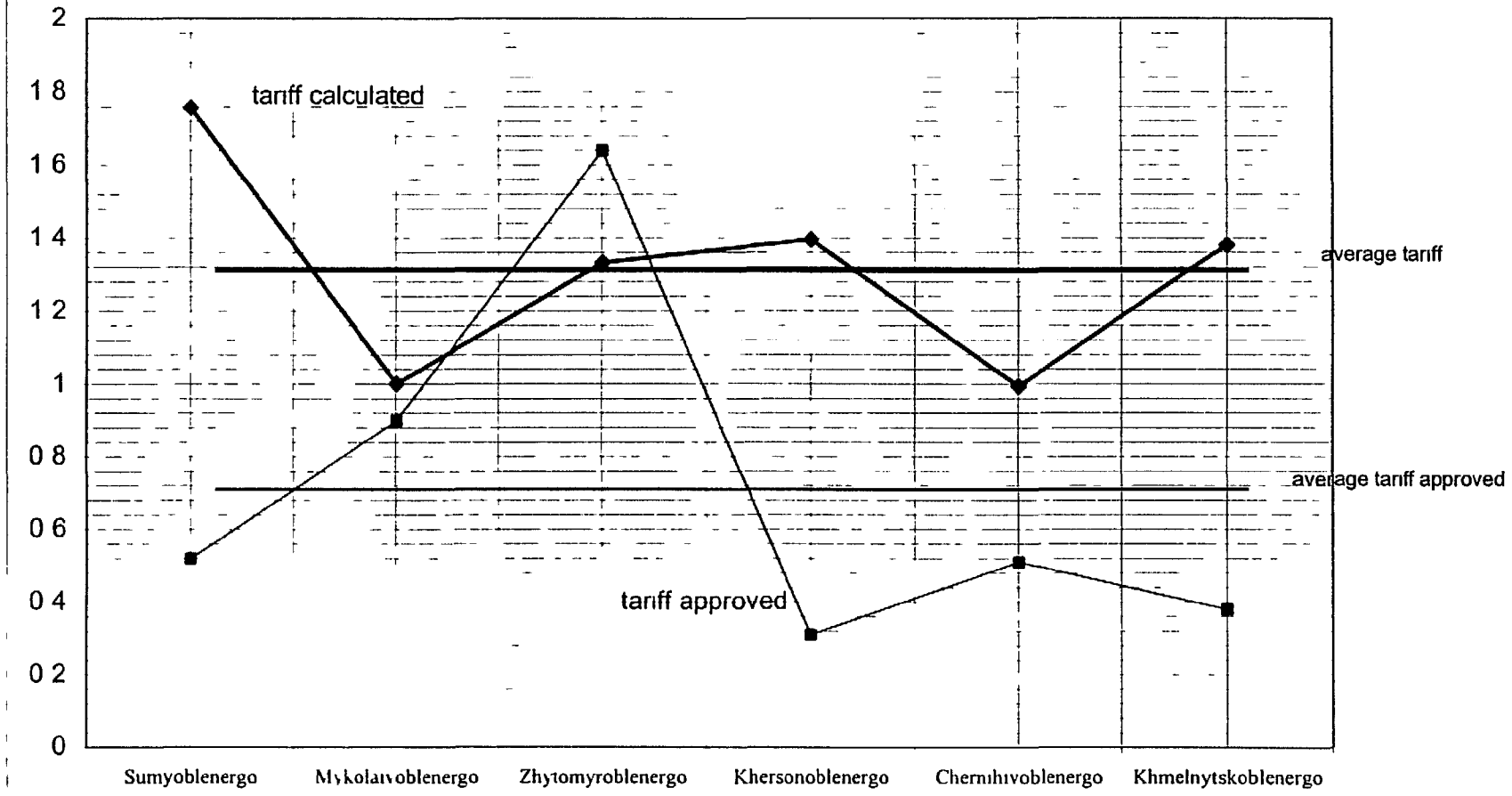
Chart 3-9




Hr/MWh
Tariff for Transmission,
2nd Voltage Class
Chart 3-10
30 00
25 00
20 00
15 00
10 00
5 00
-
tariff calculated
tariff approved
average tariff calculated
average tariff approved
Sumyoblenergo
Mykolaivoblenergo
Zhytomyroblenergo
Khersonoblenergo
Chernihivoblenergo
Khmelnytskoblenergo

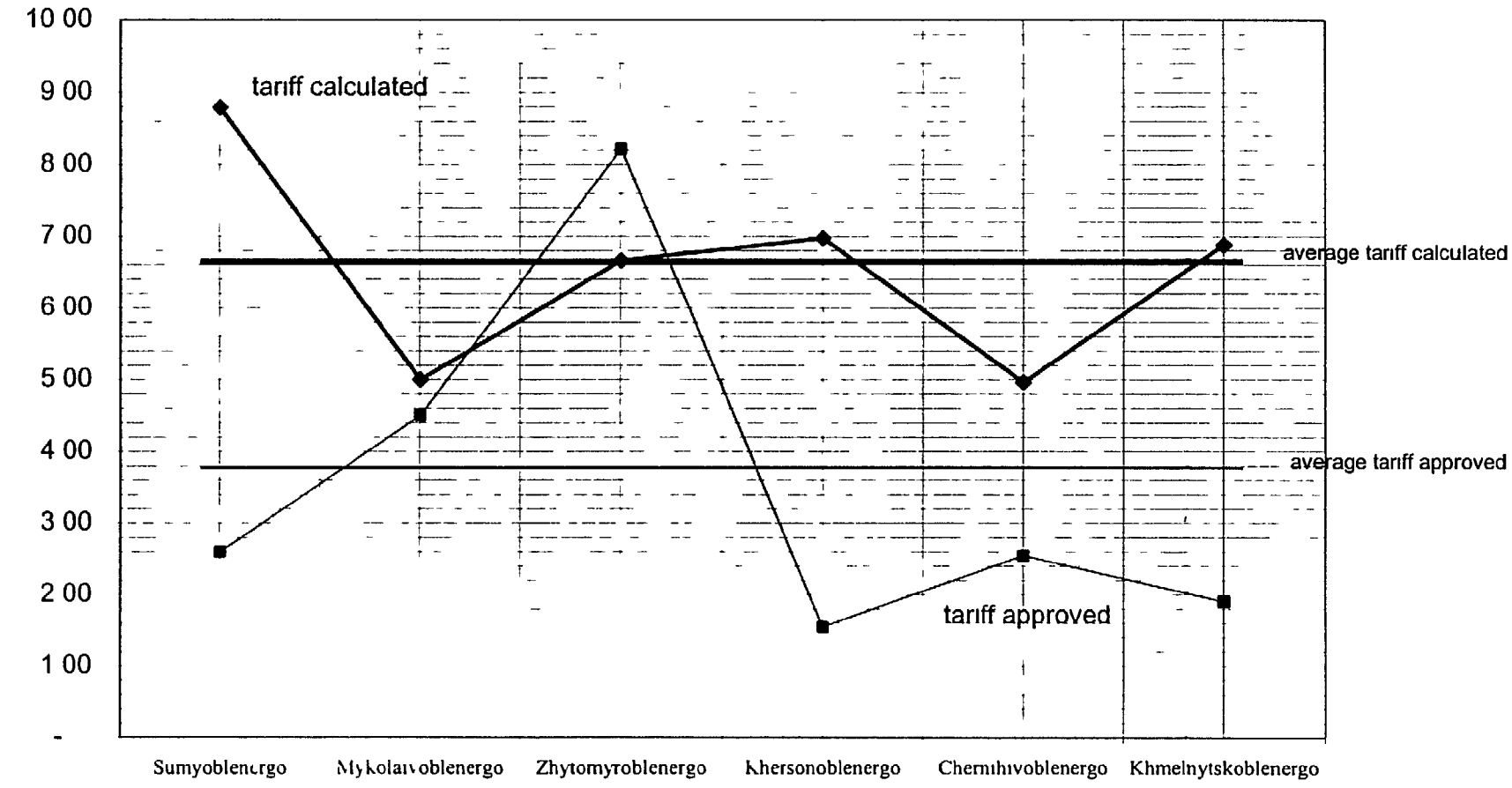
Tariff for Supply,
1st Group of Consumers

Chart 3-11



Tariff for Supply,
2nd Group of Consumers

Chart 3-12



Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for VOLYNOBLENERGO

Table 4 1

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	18	37	19
Profitability of electricity transmission for 2nd voltage class (calculated) %	24	51	27
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculeted) %	92	41	52
Transmission tariff for 1st voltage class (calculated) Hr/MWh	**2 08**	4 64	2.56
Transmission tariff for 1st voltage class (approved) Hr/MWh	**2 15**	5 04	2.89
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	**18 73**	22 22	3 48
Transmission tariff for 2nd voltage class (approved) Hr/MWh	**16.22**	18 87	2 65
Supply tariff for 1st group of consumers (calculated) Hr/MWh	1 39	1 09	0 30
Supply tariff for 1st group of consumers (approved) Hr/MWh	**0 41**	0 52	-0 11
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	6 97	5 45	1 52
Supply tariff for 2nd group of consumers (approved) Hr/MWh	**2 05**	2 61	-0 56

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for VOLYNOBLENERGO

Table 4 1b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 25	0 2[illegible]	0 25
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 04	0 04	0 04
Ratio of indirect costs to sum of direct and indirect costs	0 00	0 00	0 00
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 03	0 03	0 03
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 03	0 03	-0 03
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 49	0 45	0 50
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 11	0 11	0 08
Deviation between ratio of profit spent on production development plus capital expenses to profit and average	0 38	0 35	0 41
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 10	0 12	0 13
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 16	0 14	0 20
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 06	-0 02	-0 07

Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for VINNYTSIAOBLENERGO

Table 4 2

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	32	37	5
Profitability of electricity transmission for 2nd voltage class (calculated) %	31	51	21
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculeted) %	31	41	10
Transmission tariff for 1st voltage class (calculated) Hr/MWh	**5 09**	4 64	**0 44**
Transmission tariff for 1st voltage class (approved) Hr/MWh	**5 10**	5 04	0 06
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	**25 62**	22 22	3 40
Transmission tariff for 2nd voltage class (approved) Hr/MWh	**22 68**	18 87	3 81
Supply tariff for 1st group of consumers (calculated) Hr/MWh	1 38	1 09	0 29
Supply tariff for 1st group of consumers (approved) Hr/MWh	**0 90**	0 52	0 38
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	6 89	5 45	1 44
Supply tariff for 2nd group of consumers (approved) Hr/MWh	**4 50**	2 61	1 89

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for VINNYTSIAOBLENERGO

Table 4 2b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 23	0 23	0 23
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 02	0 02	0 02
Ratio of indirect costs to sum of direct and indirect costs	0 00	0 00	0 00
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 03	0 03	0 03
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 03	-0 03	-0 03
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 04	0 09	0 10
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 11	0 11	0 08
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	-0 07	-0 01	0 02
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 10	0 24	0 26
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 16	0 14	0 20
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 05	0 09	0 06

Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for TERNOPILOBLENERGO

Table 4-3

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	48	37	11
Profitability of electricity transmission for 2nd voltage class (calculated) /	52	51	1
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculeted) %	11	41	30
Transmission tariff for 1st voltage class (calculated) Hr/MWh	6 90	4 64	2.26
Transmission tariff for 1st voltage class (approved) Hr/MWh	5.22	5 04	0 18
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	26 96	22 22	4 74
Transmission tariff for 2nd voltage class (approved) Hr/MWh	18 62	18 87	-0 25
Supply tariff for 1st group of consumers (calculated) Hr/MWh	0 64	1 09	-0 45
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 38	0 52	-0 14
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	3 21	5 45	2 24
Supply tariff for 2nd group of consumers (approved) Hr/MWh	1 90	2 61	-0 71

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for TERNOPILOBLENERGO

Table 4 3b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 26	0 26	0 54
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 05	0 05	0 33
Ratio of indirect costs to sum of direct and indirect costs	0 00	0 00	0 00
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 03	0 03	0 03
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 03	-0 03	-0 03
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 43	0 44	0 00
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 11	0 11	0 08
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	0 32	0 33	-0 08
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 11	0 11	0 14
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 16	0 14	0 20
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	-0 05	-0 04	-0 06

Calculated Indicators (Profitability and Tariff) Averages of Indicators and Variances with Indicator Averages for CHERNIVTSIOBLENERGO

Table 4-4

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	22	37	15
Profitability of electricity transmission for 2nd voltage class (calculated) %	98	51	47
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	42	41	1
Transmission tariff for 1st voltage class (calculated) Hr/MWh	4 99	4 64	0 35
Transmission tariff for 1st voltage class (approved) Hr/MWh	5 00	5 04	-0 04
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	22 30	22 22	0 08
Transmission tariff for 2nd voltage class (approved) Hr/MWh	18 00	18 87	-0 87
Supply tariff for 1st group of consumers (calculated) Hr/MWh	0 65	1 09	-0 44
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 44	0 52	-0 08
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	3 28	5 45	2 19
Supply tariff for 2nd group of consumers (approved) Hr/MWh	2 19	2 61	-0 42

Ratio of Calculated Cost Components to Sum of Costs, and Ratio of Profit Components to Profit for CHERNIVTSIOBLENERGO

Table 4-4b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 21	0 22	0 44
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	0 00	0 01	0 23
Ratio of indirect costs to sum of direct and indirect costs	0 00	0 00	0 00
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 03	0 03	0 03
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	-0 03	-0 03	-0 03
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 05	0 56	0 00
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 11	0 11	0 08
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	-0 06	0 45	-0 08
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 28	0 06	0 10
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 16	0 14	0 20
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	0 12	-0 08	-0 10

Calculated Indicators (Profitability and Tariff), Averages of Indicators, and Variances with Indicator Averages for ZAKARPATTIAOBLENERGO

Table 4 5

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	29	37	-8
Profitability of electricity transmission for 2nd voltage class (calculated) %	29	51	22
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculated) %	18	41	22
Transmission tariff for 1st voltage class (calculated) Hr/MWh	**1 66**	4 64	2 98
Transmission tariff for 1st voltage class (approved) Hr/MWh	**5 65**	5 04	0 61
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	**19 47**	22 22	2 75
Transmission tariff for 2nd voltage class (approved) Hr/MWh	**23 13**	18 87	4 26
Supply tariff for 1st group of consumers (calculated) Hr/MWh	1 62	1 09	0 53
Supply tariff for 1st group of consumers (approved) Hr/MWh	**0 60**	0 52	0 08
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	8 09	5 45	2 64
Supply tariff for 2nd group of consumers (approved) Hr/MWh	**3 00**	2 61	0 39

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for ZAKARPATTIAOBLENERGO

Table 4 5b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 16	0 16	0 33
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	-0 05	0 0[illegible]	0 12
Ratio of indirect costs to sum of direct and indirect costs	0 06	0 06	0 06
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 03	0 03	0 03
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	0 02	0 02	0 03
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 34	0 34	0 09
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 11	0 11	0 08
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	0 23	0 2[illegible]	0 01
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 16	0 16	0 27
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 16	0 14	0 20
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	0 00	0 02	0 07

Calculated Indicators (Profitability and Tariff), Averages of Indicators and Variances with Indicator Averages for SEVASTOPOLMISKENERGO

Table 4-6a

	Value	Average for 1st Group of Companies	Deviation of average for 1st Group of Companies
Profitability of electricity transmission for 1st voltage class (calculated) %	73	37	36
Profitability of electricity transmission for 2nd voltage class (calculated) %	74	51	23
Profitability of electricity transmission for 1st and 2nd groups of consumers (calculeted) %	49	41	9
Transmission tariff for 1st voltage class (calculated) Hr/MWh	7 13	4 64	2 49
Transmission tariff for 1st voltage class (approved) Hr/MWh	7 13	5 04	2 09
Transmission tariff for 2nd voltage class (calculated) Hr/MWh	20 22	22 22	1 99
Transmission tariff for 2nd voltage class (approved) Hr/MWh	14 56	18 87	-4 31
Supply tariff for 1st group of consumers (calculated) Hr/MWh	0 86	1 09	-0 23
Supply tariff for 1st group of consumers (approved) Hr/MWh	0 40	0 52	-0 12
Supply tariff for 2nd group of consumers (calculated) Hr/MWh	4 28	5 45	1 17
Supply tariff for 2nd group of consumers (approved) Hr/MWh	2 00	2 61	-0 61

Ratio of Calculated Cost Components to Sum of Costs and Ratio of Profit Components to Profit for SEVASTOPOLMISKENERGO

Table 4-6b

	Electricity transmission on 1st voltage class	Electricity transmission on 2nd voltage class	Electricity supply for 1st and 2nd groups of consumers
Ratio of labour expenses to sum of direct and indirect costs	0 14	0 11	0 27
Average of ratios of labour expenses to sum of direct and indirect costs for 1st Group of Companies	0 21	0 21	0 21
Deviation between ratio of labour expenses to sum of direct and indirect costs and average	-0 07	0 07	0 06
Ratio of indirect costs to sum of direct and indirect costs	0 14	0 14	0 11
Average ratio of indirect costs to sum of direct and indirect costs for 1st Group of Companies	0 03	0 03	0 03
Deviation between ratio of indirect costs to sum of direct and indirect costs and average	0 11	0 11	0 08
Ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 37	0 37	0 26
Average ratio of profit spent on production development plus capital expenses to profits for 1st Group of Companies	0 11	0 11	0 08
Deviation between ratio of profit spent on production development plus capital expenses to profits and average	0 26	0 26	0 18
Ratio of profit spent on social infrastructure development and incentivisation to profits	0 19	0 19	0 28
Average ratio of profit spent on social infrastructure development and incentivisation to profit	0 16	0 14	0 20
Deviation between ratio of profit spent on social infrastructure development and incentivisation to profits and average	0 03	0 05	0 08

Costs of Electricity Transmission by Local Electric Networks at the 1st Voltage Class (thous Hr)

Table 4 1

	Volyn oblenergo	Vinnytsia oblenergo	Ternopil oblenergo	Chernivtsi oblenergo	Zakarpattia-oblenergo	Sevastopol miskenergo
Prime Costs						
material costs	232	800	461	550	667	581
labor costs	1088	2280	1517	1100	1223	412
payment for social measures	516	1083	720	580	573	196
depreciation	975	2011	1318	1423	2506	409
costs for repairs	930	1749	376	342	459	321
costs of electricity used for internel needs	63	398	0	200	214	95
costs for using networks of other transmission licenses	0	0	0	0	0	0
other costs	513	1564	1369	1053	1550	550
Total	4318	9885	0	5248	7192	2564
indirect costs	0	0		0	425	432
Total direct and indirect costs	4318	9885	5761	5248	7617	2996
Expenses from profit						
deductions development of production	100	49	947	95	179	578
deductions to investment	457	421	762	0	897	579
deductions to current costs	50	882	433	550	512	0
deductions to social development	42	690	206	191	253	359
deductions to incentives	72	493	217	301	253	234
other purposes	21	0	97	0	0	66
deductions to creation of investment fund	50	0	0	0	128	359
deductions to reserve (insurence) fund	0	0	0	0	0	0
dividens	0	0	0	0	0	0
profit tax	339	0	1248	647	0	932
deductions to central funds	0	633	86	0	0	0
Total expences from profit	1130	3169	3995	1784	3174	3107
Total expenses	**5448**	**14490**	**9756**	**7032**	**581174**	**6103**
Profitability of licensed activity (the ratio of aftertax profitability to the sum of direct and indirect costs)	0 18	0 32	0 48	0 22	0 42	0 73
Average profitability	0 39					
Deviation from average profitability	0 21	0 07	0 09	-0 17	0 03	0 34

Costs of Electricity Transmission by Local Electric Networks at the 2nd Voltage Class (thous Hr)

Table 4 2

	Volyn-oblenergo	Vinnytsia - oblenergo	Ternopil oblenergo	Chernivtsi oblenergo	Zakarpattia oblenergo	Sevastopol miskenergo
Prime Costs						
material costs	2897	2058	1214	452	1391	871
labor costs	5169	6140	3998	1650	2552	618
payment for social measures	2456	2874	1899	884	1197	294
depreciation	6825	6647	3471	2607	5230	612
costs for repairs	2192	4499	992	758	959	485
costs of electricity used for internel needs	302	1023	0	240	445	143
costs for using networks of other transmission licenses	0	0	0	0	0	0
other costs	393	3414	3602	855	3233	825
Total	20234	26654	15176	7446	15007	3848
indirect costs	2117	0		0	887	649
Total direct and indirect costs	22351	26654	15176	7446	15894	4497
Expenses from profit						
deductions development of production	363	127	2708	78	374	866
deductions to investment	2220	1083	2181	6328	1873	858
deductions to current costs	1192	2268	1234	450	1068	180
deductions to social development	247	1774	586	82	537	539
deductions to incentives	645	1267	617	198	537	350
other purposes	316	0	278	138	0	99
deductions to creation of investment fund	332	0	0	0	267	436
deductions to reserve (insurence) fund	0	0	0	0	0	0
dividens	0	0	0	0	0	0
profit tax	2278	0	3279	2856	1995	1426
deductions to central funds	0	1628	247	0	0	0
Total expences from profit	7593	8148	11131	10129	6651	4754
Total expenses	**29944**	**38216**	**26307**	**17575**	**22545**	**9251**
Profitability of licensed activity (the ratio of aftertax profitability to the sum of direct and indirect costs)	0 24	0 31	0 52	0 98	0 29	0 74
Average profitability	0 51					
Deviation from average profitability	0 27	-0 21	0 01	0 47	0 22	0 23

Costs of Electricity Supply (thous Hr)

Table 4 3

	Volyn oblenergo	Vinnytsia oblenergo	Ternopil oblenergo	Chernivtsi - oblenergo	Zakarpattia oblenergo	Sevastopol-miskenergo
Prime Costs						
material costs	140	390	160	53	631	76
labor costs	654	1148	1060	604	1495	224
payment for social measures	310	588	504	321	733	106
depreciation	586	1181	0	168	0	113
costs for repairs	559	852	0	60	299	94
costs of electricity used for internel needs	38	194	0	38	138	0
costs for using networks of other transmission licenses	0	0	0	0	0	0
other costs	301	679	244	144	1008	138
Total	2587	5031	1968	1388	4304	751
indirect costs	0	0	0	0	276	89
Total direct and indirect costs	2587	5031	1968	1388	4580	840
Expenses from profit						
deductions development of production	78	24	0	0	112	153
deductions to investment	270	205	0	0	0	0
deductions to current costs	39	430	33	172	320	0
deductions to social development	33	336	28	27	160	103
deductions to incentives	57	240	16	62	160	64
other purposes	16	0	78	322	0	7
deductions to creation of investment fund	0	0	0	0	80	85
deductions to reserve (insurence) fund	0	0	0	0	0	0
dividens	0	0	0	0	0	0
profit tax	211	661	92	351	357	177
deductions to central funds	0	308	59	0	0	0
Total expences from profit	2599	2205	306	934	1189	588
Total expenses	**5186**	**7235**	**2274**	**2322**	**5769**	**1428**
Profitability of licensed activity (the ratio of aftertax profitability to the sum of direct and indirect costs)	0 92	0 31	0 11	0 42	0 18	0 49
Average profitability	0 41					
Deviation from average profitability	0 52	0 10	-0 30	0 01	0 22	0 09

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Individual Tariff Components for Electricity Transmission by Local Electric Networks at the 1st Voltage Class (thous Hr)

Table 4-4

Tariff components	Volyn oblenergo	Vinnytsia oblenergo	Ternopil oblenergo	Chernivtsi oblenergo	Zakarpattia oblenergo	Sevastopol miskenergo	*average value*
Prime Costs							
material costs	0 09	0 28	0 33	0 39	0 35	0 68	0 35
labor costs	0 42	0 80	1 07	0 78	0 64	0 48	0 70
payment for social measures	0 20	0 38	0 51	0 41	0 30	0 23	0 34
depreciation	0 37	0 71	0 93	1 01	1 31	0 48	0 80
costs for repairs	0 36	0 61	0 27	0 24	0 24	0 38	0 35
costs of electricity used for internel needs	0 02	0 14		0 14	0 11	0 11	0 09
costs for using networks of other transmission licensees							
other costs	0 20	0 55	0 97	0 75	0 81	0 64	0 65
indirect costs					0 22	0 50	0 12
total direct and indirect costs	1 65	3 47	4 08	3 72	3 99	3 50	3 40
Expenses from profit							
deductions development of production	0 04	0 02	0 67	0 07	0 09	0 68	0 31
deductions to investment	0 17	0 15	0 54		0 47	0 68	0 37
deductions to current costs	0 02	0 31	0 31	0 39	0 27		0 20
deductions to social development	0 02	0 24	0 15	0 14	0 13	0 42	0 17
deductions to incentives	0 03	0 17	0 15	0 21	0 13	0 27	0 16
other purposes	0 01		0 07			0 08	0 03
deductions to creation of investment fund	0 02				0 07	0 42	0 10
deductions to reserve (insurence) fund							
dividens		-					
profit tax	0 13		0 88	0 46	0 50	1 09	0 61
deductions to contral funds		0 22	0 06				0 01
total expencos from profitt	0 43	3 97	2 83	1 27	1 66	3 63	1 96
Transmission tariff (calculated)	**2 08**	**5 09**	**6 90**	**4 99**	**1 66**	**7 13**	**4 55**
Transmission tariff (approved)	**2 15**	**5 10**	**5 22**	**5 00**	**5 85**	**7 13**	**5 03**
Ratio of calculeted transmission tariff to average value of the tariff for 4th Group of Companies	0 48	1 12	1 52	1 10	0 37	1 57	
Ratio of labour expenses to sum of direct and indirect costs	0 25	0 23	0 26	0 21	0 16	0 14	0 21
Variance between ratios of labour expenses to sum of direct and indirect costs for 4th Group of Companies	0 05	0 03	-0 06	0 004	0 04	0 07	
Ratio of indirect costs to sum of direct and indirect costs	0	0	0	0	0 06	0 14	0 04
Ratio of profit spent on production development plus capital expenditures to profit for	0 09	0 004	0 24	0 05	0 06	0 19	0 16
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 10	0 10	0 11	0 28	0 16	0 19	0 17

Individual Tariff Components for Electricity Transmission by Local Electric Networks at the 2nd Voltage Class (thous Hr)

Table 4 5

Tariff components	Volyn oblenergo	Vinnytsia oblenergo	Ternopil oblenergo	Chernivtsi oblenergo	Zakarpattia oblenergo	Sevastopol miskenergo	*average value*
Prime Costs							
material costs	0 78	1 39	1 25	0 86	1 49	1 91	1 28
labor costs	3 66	4 10	4 12	2 44	2 74	1 36	3 07
payment for social measures	1 74	1 92	1 96	1 30	1 28	0 65	1 47
depreciation	3 28	4 26	3 58	3 61	5 61	1 34	3 61
costs for repairs	3 13	3 03	1 02	0 99	1 03	1 06	1 71
costs of electricity used for internal needs	0 21	0 69		0 39	0 48	0 31	0 35
costs for using networks of other transmission licensees							
other costs	1 68	2 39	3 72	1 64	3 47	1 81	2 45
indirect costs			0 00		0 95	1 42	0 40
total direct and indirect costs	14 48	17 78	15 66	11 23	17 05	9 87	14 34
Expenses from profit							
deductions development of production	0 45	0 09	2 73	0 15	0 40	1 90	1 13
deductions to investment	1 47	0 73	2 20	6 04	2 01	1 89	2 72
deductions to current costs	0 22	1 53	1 25	0 86	1 15	0 24	0 74
deductions to social development	0 19	1 20	0 59	0 23	0 57	1 18	0 55
deductions to incentives	0 33	0 85	0 62	0 43	0 57	0 77	0 54
other purposes	0 09	-	0 28	0 13		0 22	0 14
deductions to creation of investment fund	0 22				0 29	1 05	0 31
deductions to reserve (insurence) fund							
dividens							
profit tax	1 28		3 39	3 23	2 14	3 11	2 63
deductions to central funds		1 10	0 25				0 05
total expences from profitt	4 25	8 65	11 30	11 07	7 13	10 35	8 82
Transmission tariff (calculated)	18 73	25 62	26 96	22 30	19 47	20 22	21 54
Transmission tariff (approved)	18 22	22 88	18 62	18 00	23 13	14 56	18 11
Ratio of calculated transmission tariff to average value of the tariff for 4th Group of Companies	0 87	1 19	1 25	1 04	0 90	0 94	
Ratio of labour expenses to sum of direct and indirect costs	0 25	0 23	0 26	0 22	0 16	0 14	0 21
Variance between ratios of labour expenses to sum of direct and indirect costs for 4th Group of Companies	0 04	0 02	0 05	0 003	0 05	0 08	
Ratio of indirect costs to sum of direct and indirect costs	0	0	0	0	0 06	0 14	0 03
Ratio of profit spent on production development plus capital expenditures to profit for	0 11	0 01	0 24	0 01	0 06	0 18	0 13
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 12	0 24	0 11	0 06	0 16	0 19	0 12

Individual Tariff Components for Electricity Supply for the 1st Group of Consumers (thous Hr)

Table 4-6

Tariff components	Volyn oblenergo	Vinnytsia oblenergo	Ternopil oblenergo	Chernivtsi oblenergo	Zakarpattia oblenergo	Sevastopol miskenergo	*average value*
Prime Costs							
material costs	0 06	0 07	0 05	0 01	0 18	0 05	0 07
labor costs	0 28	0 22	0 30	0 17	0 42	0 13	0 25
payment for social measures	0 13	0 11	0 14	0 09	0 21	0 06	0 12
depreciation	0 25	0 22		0 05		0 07	0 10
costs for repairs	0 24	0 16		0 02	0 08	0 06	0 09
costs of electricity used for internel needs	0 02	0 04		0 01	0 04		0 02
costs for using networks of other transmission licensees							
other costs	0 13	0 13	0 07	0 04	0 28	0 08	0 12
indirect costs					0 08	0 05	0 02
total direct and indirect costs	1 10	0 96	0 56	0 39	1 29	0 50	0 80
Expenses from profit							
deductions development of production	0 03	0 00			0 03	0 09	0 03
deductions to investment	0 11	0 04					0 03
deductions to current costs	0 02	0 08	0 01	0 05	0 09		0 04
deductions to social development	0 01	0 06	0 01	0 01	0 04	0 06	0 03
deductions to incentives	0 02	0 05	0	0 02	0 04	0 04	0 03
other purposes	0 01		0 02	0 09		0 00	0 02
deductions to creation of investment fund					0 02	0 05	0 01
deductions to reserve (insurenca) fund							
dividens							
profit tax	0 09	0 13	0 03	0 10	0 10	0 11	0 09
deductions to central funds		0 06	0 02				0 01
total expences from profitt	0 30	0 42	0 09	0 26	0 33	0 35	0 29
Supply tariff (calculated)	1 39	1 38	0 64	0 65	1 62	0 86	1 09
Supply tariff (approved)	**0 41**	**0 90**	**0 38**	**0 44**	**0 60**	**0 40**	**0 52**
Ratio of calculated supply tariff to average value of the tariff for 4th Group of Companies	1 28	1 26	0 59	0 60	1 18	0 79	
Ratio of labour expenses to sum of direct and indirect costs	0 25	0 23	0 54	0 44	0 33	0 27	0 32
Variance between ratios of labour expenses to sum of direct and indirect costs for 4th Group of Companies	0 08	0 09	0 22	0 118	0 01	0 05	
Ratio of indirect costs to sum of direct and indirect costs	0	0	0	0	0 06	0 11	0 03
Ratio of profit spent on production development plus capital expenditures to profit for	0 11	0 01	0	0	0 09	0 26	0 09
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 13	0 26	0 14	0 10	0 27	0 28	0 21

Individual Tariff Components for Electricity Supply for the 2nd Group of Consumers (thous Hr)

Table 4-7

Tariff components	Volyn oblenergo	Vinnytsia oblenergo	Ternopil oblenergo	Chernivtsi oblenergo	Zakarpattia-oblenergo	Sevastopol miskenergo	*average value*
Prime Costs							
material costs	0 30	0 37	0 23	0 07	0 89	0 23	0 35
labor costs	1 39	1 09	1 50	0 85	2 10	0 67	1 27
payment for social measures	0 66	0 56	0 71	0 45	1 03	0 32	0 62
depreciation	1 24	1 12		0 24		0 34	0 49
costs for repairs	1 18	0 81		0 08	0 42	0 28	0 46
costs of electricity used for internel needs	0 08	0 18		0 05	0 19		0 09
costs for using networks of other transmission licensees							
other costs	0 64	0 65	0 34	0 20	1 41	0 41	0 61
indirect costs					0 39	0 27	0 11
total direct and indirect costs	5 48	4 79	2 78	1 95	6 43	2 52	3 99
Expenses from profit							
deductions development of production	0 17	0 02			0 16	0 46	0 13
deductions to investment	0 57	0 20					0 13
deductions to current costs	0 08	0 41	0 05	0 24	0 45		0 20
deductions to social development	0 07	0 32	0 04	0 04	0 22	0 31	0 17
deductions to incentives	0 12	0 23	0 02	0 09	0 22	0 19	0 15
other purposes	0 03		0 11	0 45		0 02	0 10
deductions to creation of investment fund					0 11	0 25	0 06
deductions to reserve (insurence) fund							
dividens							
profit tax	0 45	0 63	0 13	0 49	0 50	0 53	0 45
deductions to central funds		0 29	0 08				0 06
total expences from profitt	1 49	2 10	0 43	1 31	1 67	1 76	1 46
Supply tariff (calculated)	6 97	6 89	3 21	3 26	8 09	1 28	5 45
Supply tariff (approved)	**2 05**	**4 50**	**1 90**	**2 19**	**3 00**	**2 00**	**2 61**
Ratio of calculeted supply tariff to average value of the tariff for 4th Group of Companies	1 28	1 26	0 59	0 60	1 48	0 79	
Ratio of labour expenses to sum of direct and indirect costs	0 25	0 23	0 54	0 44	0 33	0 27	0 32
Variance between ratios of labour expenses to sum of direct and indirect costs for 4th Group of Companies	0 06	0 09	0 22	0 118	0 01	0 05	
Ratio of indirect costs to sum of direct and indirect costs	0	0	0	0	0 06	0 11	0 03
Ratio of profit spent on production development plus capital expenditures to profit for	0 11	0 01	0	0	0 09	0 26	0 09
Ratio of profit spent on social infrastructure development and incentivisation to profit	0 13	0 26	0 14	0 10	0 27	0 28	0 21

Ratio of Individual Tariff Components for Electricity Transmission by Local Electric Networks to Average Tariff at the 1st Voltage Class

Table 4-8

Tariff Components	Volyn oblenergo	Vinnytsia oblenergo	Ternopil oblenergo	Chernivtsi oblenergo	Zakarpattia oblenergo	Sevastopol miskenergo
Prime Costs						
material costs	0 25	0 80	0 93	1 11	0 99	1 93
labor costs	0 59	1 15	1 54	1 12	0 92	0 69
payment for social measures	0 58	1 13	1 51	1 22	0 89	0 68
depreciation	0 46	0 88	1 16	1 26	1 64	0 60
costs for repairs	1 02	1 76	0 76	0 70	0 69	1 07
costs of electricity used for internel needs	0 27	1 59		1 61	1 27	1 26
costs for using networks of other transmission licenses	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
other costs	0 30	0 84	1 48	1 14	1 24	0 98
indirect costs					1 84	4 16
Total direct and indirect costs	0 48	1 02	1 20	1 09	1 17	1 03
Expenses from profit						
deductions development of production	0 12	0 06	2 17	0 22	0 30	2 19
deductions to investment	0 47	0 40	1 45		1 26	1 82
deductions to current costs	0 10	1 57	1 56	1 08	1 36	
deductions to social development	0 09	1 43	0 86	0 80	0 78	2 47
deductions to incentives	0 17	1 08	0 96	1 33	0 83	1 71
other purposes	0 26		2 23			2 51
deductions to creation of investment fund	0 19				0 66	4 15
deductions to reserve (insurence) fund	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
dividens	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
profit tax	0 21		1 44	0 75	0 81	1 78
deductions to central funds		18 23	5 00			
Total expences from profit	0 22	2 02	1 44	0 64	0 85	1 85

Ratio of Individual Tariff Components for Electricity Transmission by Local Electric Networks to Average Tariff at the 2nd Voltage Class

Table 4 9

Tariff Components	Volyn-oblenergo	Vinnytsia oblenergo	Ternopil oblenergo	Chernivtsi oblenergo	Zakarpattia oblenergo	Sevastopol - miskenergo
Prime Costs						
material costs	0 61	1 08	0 98	0 67	1 16	1 49
labor costs	1 19	1 33	1 34	0 79	0 89	0 44
payment for social measures	1 18	1 31	1 33	0 88	0 87	0 44
depreciation	0 91	1 18	0 99	1 00	1 55	0 37
costs for repairs	1 83	1 77	0 60	0 58	0 60	0 62
costs of electricity used for internel needs	0 61	1 99		1 12	1 38	0 90
costs for using networks of other transmission licenses	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
other costs	0 69	0 98	1 52	0 67	1 41	0 74
indirect costs			0		2 40	3 59
Total direct and indirect costs	1 01	1 24	1 09	0 78	1 19	0 69
Expenses from profit						
deductions development of production	0 40	0 08	2 12	0 13	0 36	1 69
deductions to investment	0 54	0 27	0 81	2 22	0 74	0 70
deductions to current costs	0 30	2 06	1 68	1 16	1 54	0 32
deductions to social development	0 34	2 16	1 07	0 41	1 04	2 14
deductions to incentives	0 60	1 57	1 15	0 78	1 05	1 41
other purposes	0 63		1 95	0 92		1 51
deductions to creation of investment fund	0 72				0 92	3 36
deductions to reserve (insurence) fund	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
dividens	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
profit tax	0 49		1 29	1 23	0 81	1 18
deductions to central funds		22 06	5 00			
Total expences from profit	0 48	0 98	1 28	1 25	0 81	1 17

Ratio of Individual Tariff Components for Electricity Supply by Local Electric Networks to Average Tariff for the 1st Group of Customers

Table 4-10

Tariff Components	Volyn-oblenergo	Vinnytsia oblenergo	Ternopil oblenergo	Chernivtsi - oblenergo	Zakarpattia oblenergo	Sevastopol - miskenergo
Prime Costs						
material costs	0 85	1 07	0 65	0 21	2 55	0 66
labor costs	1 09	0 86	1 18	0 67	1 66	0 53
payment for social measures	1 06	0 90	1 15	0 73	1 66	0 51
depreciation	2 53	2 29		0 48		0 69
costs for repairs	2 56	1 75		0 18	0 90	0 61
costs of electricity used for internel needs	0 94	2 16		0 63	2 27	
costs for using networks of other transmission licenses	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
other costs	1 05	1 06	0 57	0 33	2 32	0 68
indirect costs					3 55	2 45
Total direct and indirect costs	1 37	1 20	0 70	0 49	1 61	0 63
Expenses from profit						
deductions development of production	1 24	0 17			1 17	3 42
deductions to investment	4 47	1 53				
deductions to current costs	0 40	2 00	0 23	1 18	2 19	
deductions to social development	0 42	1 92	0 24	0 23	1 35	1 85
deductions to incentives	0 82	1 57	0 16	0 60	1 54	1 32
other purposes	0 32		1 07	4 40		0 20
deductions to creation of investment fund					1 83	4 17
deductions to reserve (insurence) fund	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
dividens	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
profit tax	0 98	1 39	0 28	1 08	1 10	1 16
deductions to central funds		4 67	1 33			
Total expences from profit	1 02	1 44	0 30	0 90	1 14	1 21

Ratio of Individual Tariff Components for Electricity Supply by Local Electric Networks to Average Tariff for the 2nd Group of Customers

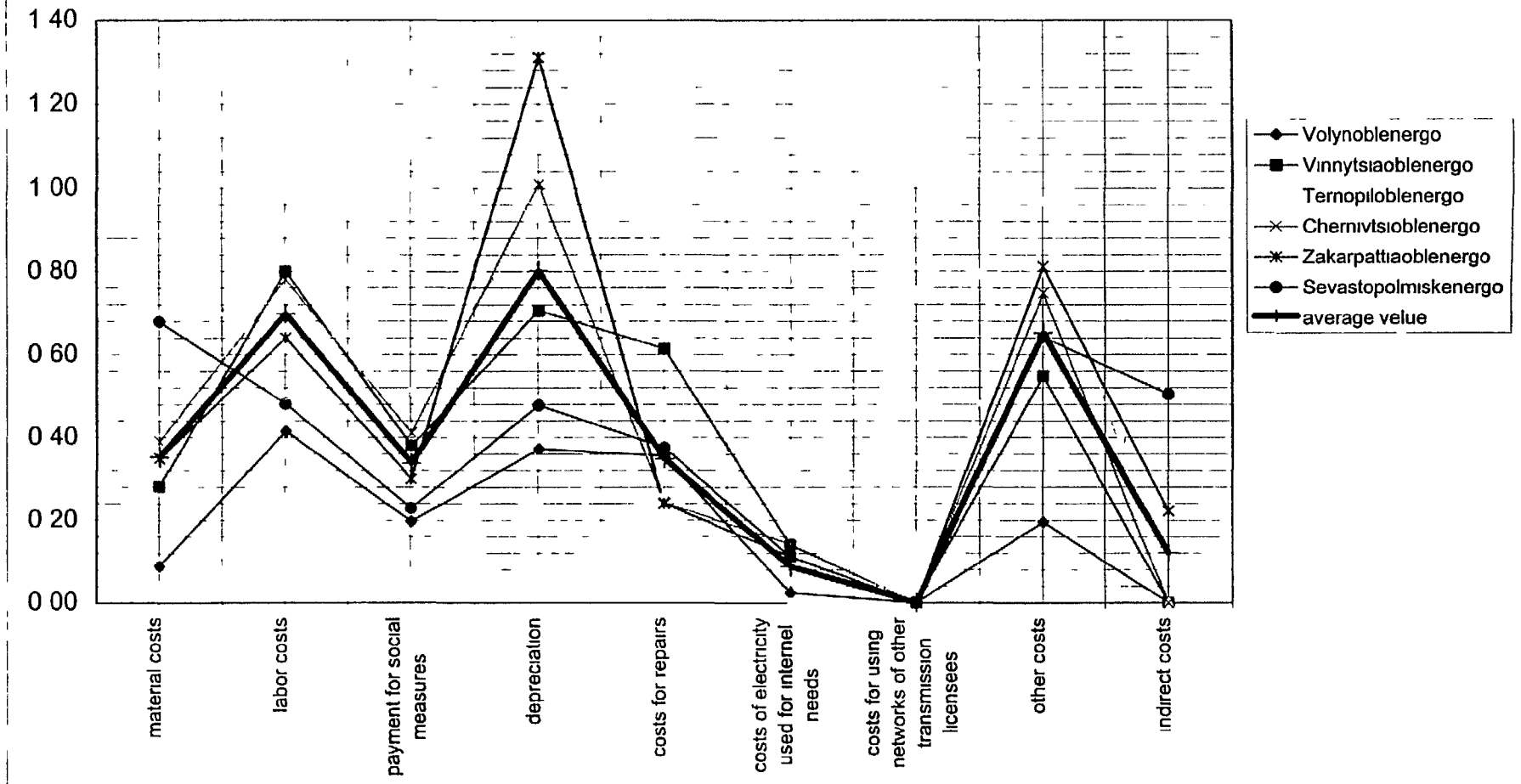
Table 4 11

Tariff Components	Volyn-oblenergo	Vinnytsia-oblenergo	Ternopil-oblenergo	Chernivtsi oblenergo	Zakarpattia oblenergo	Sevastopol-miskenergo
Prime Costs						
material costs	0 85	1 07	0 65	0 21	2 55	0 66
labor costs	1 09	0 86	1 18	0 67	1 66	0 53
payment for social measures	1 06	0 90	1 15	0 73	1 66	0 51
depreciation	2 53	2 29		0 48		0 69
costs for repairs	2 56	1 75		0 18	0 90	0 61
costs of electricity used for internel needs	0 94	2 16		0 63	2 27	
costs for using networks of other transmission licenses	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0	#DIV/0!
other costs	1 05	1 06	0 57	0 33	2 32	0 68
indirect costs					3 55	2 45
Total direct and indirect costs	1 37	1 20	0 70	0 49	1 61	0 63
Expenses from profit						
deductions development of production	1 24	0 17			1 17	3 42
deductions to investment	4 47	1 53				
deductions to current costs	0 40	2 00	0 23	1 18	2 1[illegible]	
deductions to social development	0 42	1 92	0 24	0 23	1 35	1 85
deductions to incentives	0 82	1 57	0 16	0 60	1 54	1 32
other purposes	0 32		1 07	4 40		0 20
deductions to creation of investment fund					1 83	4 17
deductions to reserve (insurence) fund	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
dividens	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
profit tax	0 98	1 39	0 78	1 08	1 10	1 16
deductions to central funds		4 67	1 33			
Total expences from profit	1 02	1 44	0 30	0 90	1 14	1 21

Tariff Structure for Electricity Transmission by Local Electric Networks, 1st Voltage Class

Prime Costs

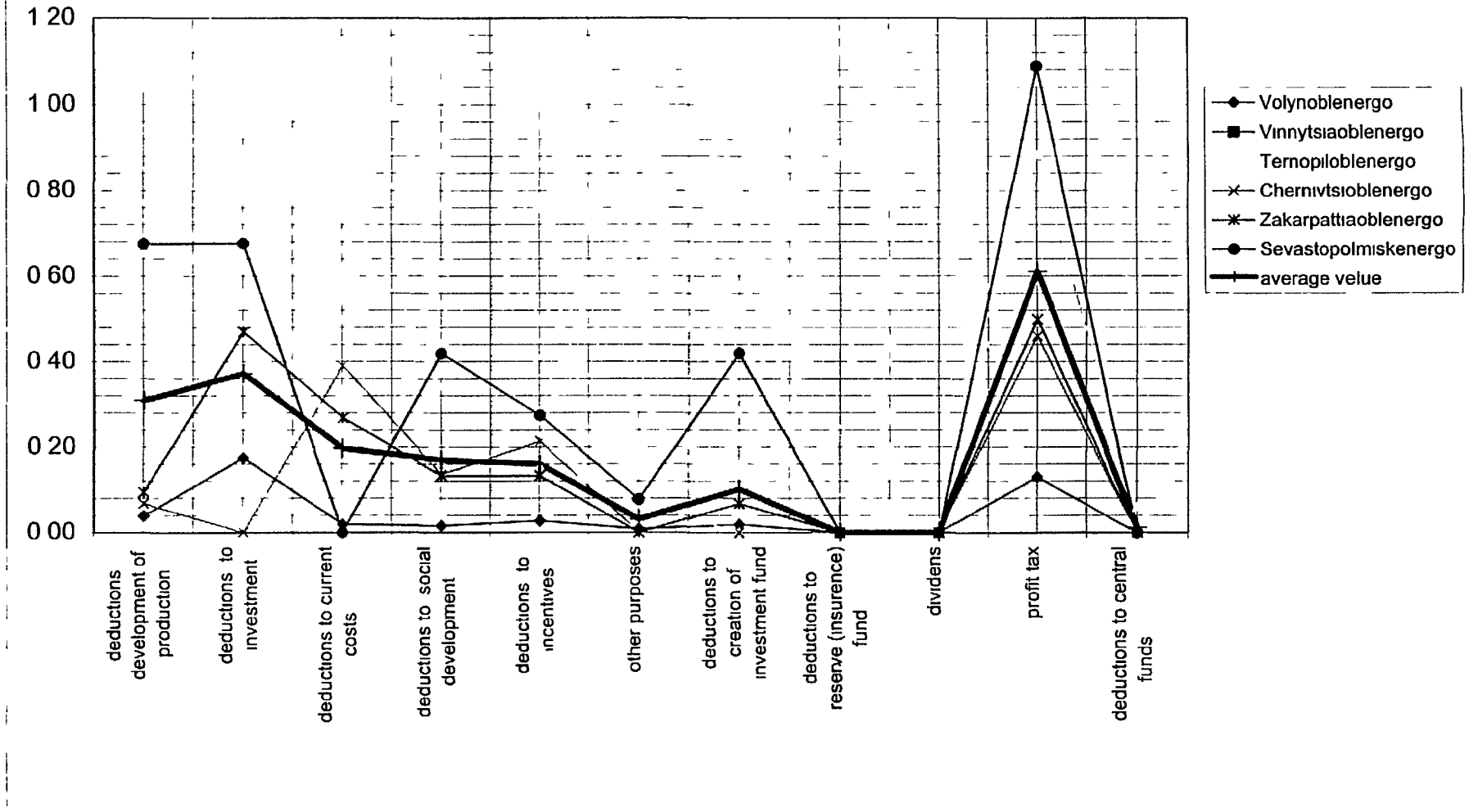
Chart 4-1



Tariff Structure for Electricity Tansmission by Local Electric Networks, 1st Voltage Class

Expenses from Profit

Chart 4-2



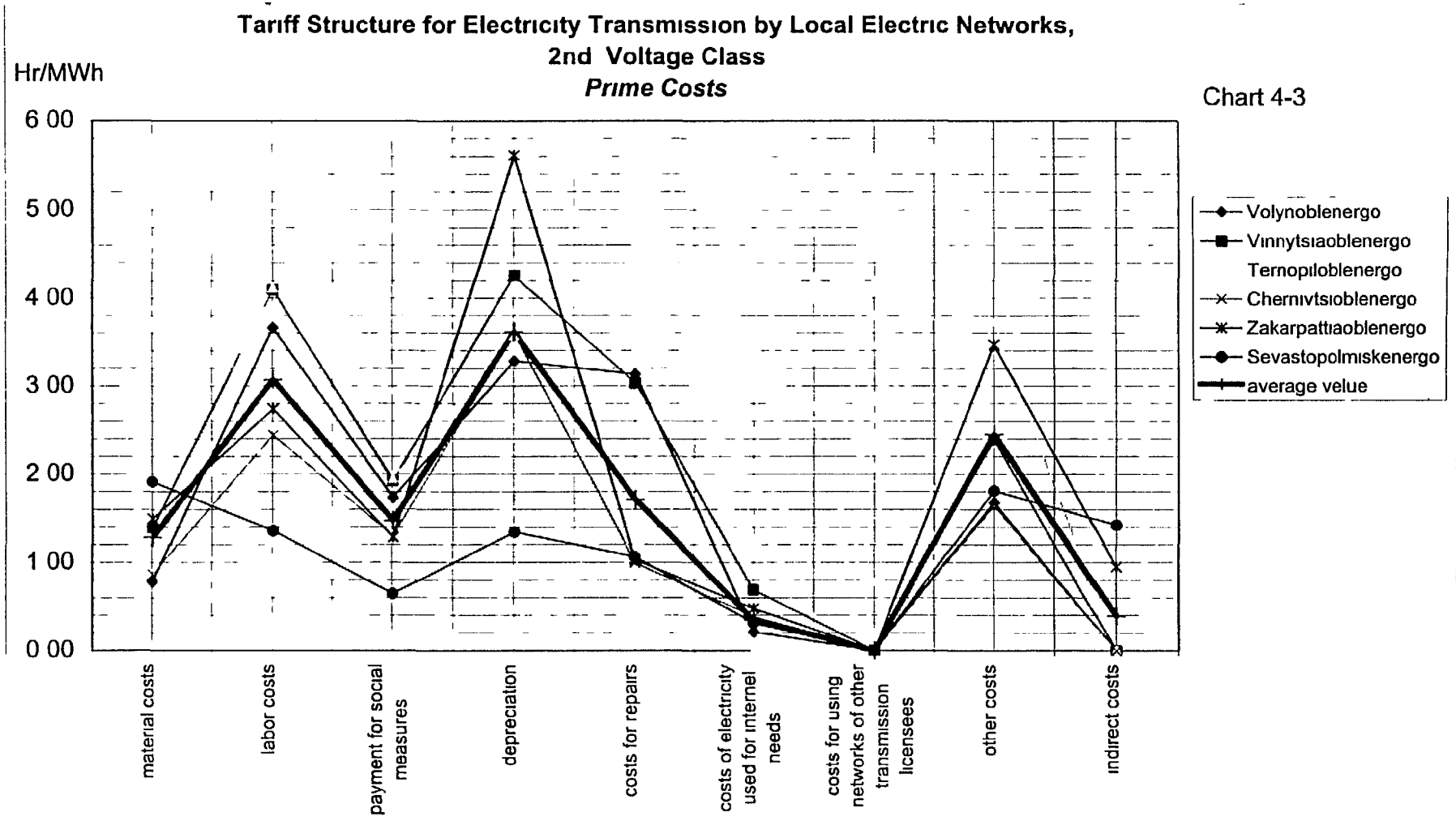
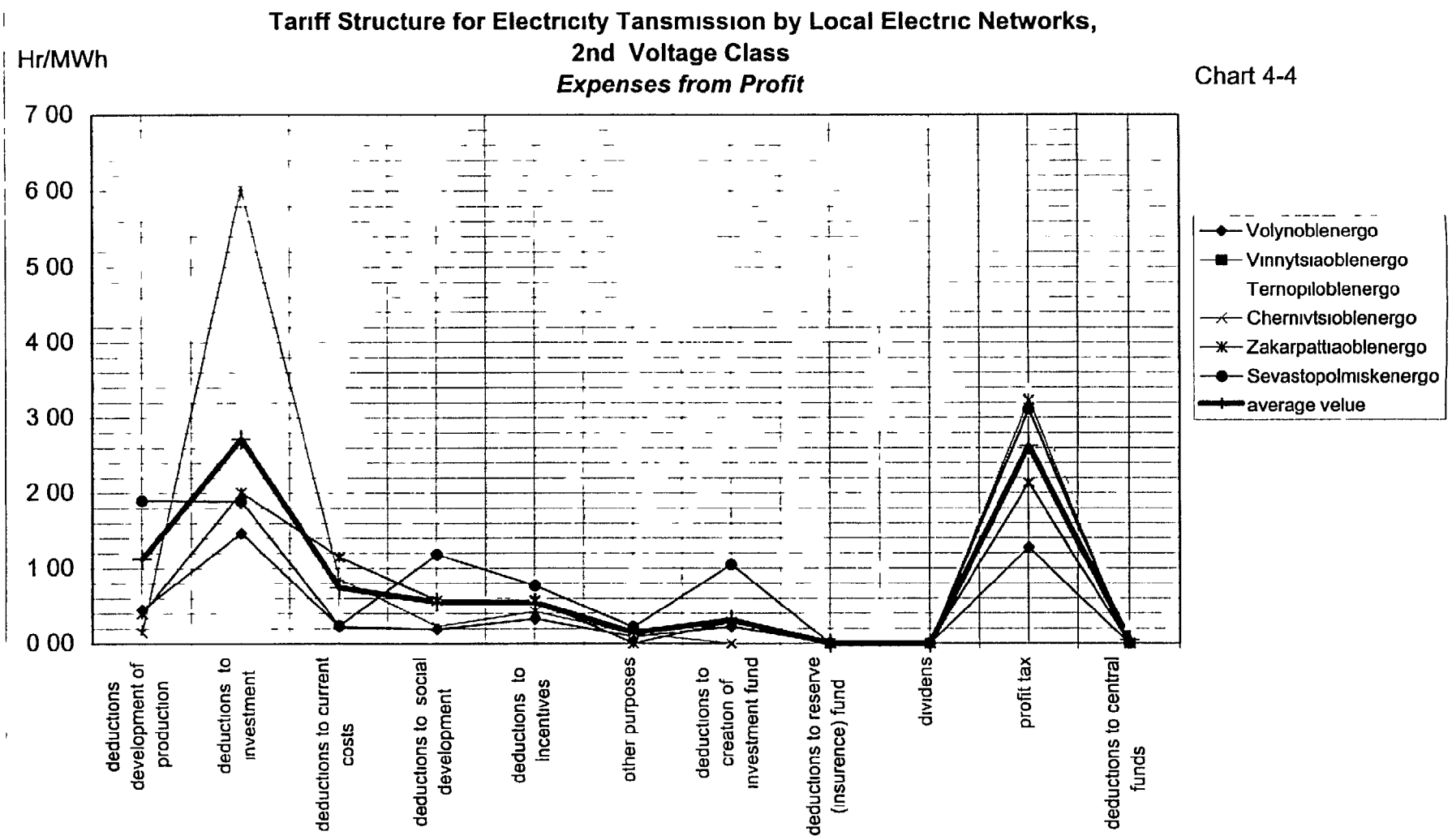

Tariff Structure for Electricity Transmission by Local Electric Networks,
2nd Voltage Class
Prime Costs
Hr/MWh
6 00
5 00
4 00
3 00
2 00
1 00
0 00
material costs
labor costs
payment for social measures
depreciation
costs for repairs
costs of electricity used for internel needs
costs for using networks of other transmission licensees
other costs
indirect costs
Volynoblenergo
Vinnytsiaoblenergo
Ternopiloblenergo
Chernivtsioblenergo
Zakarpattiaoblenergo
Sevastopolmiskenergo
average velue

Chart 4-3

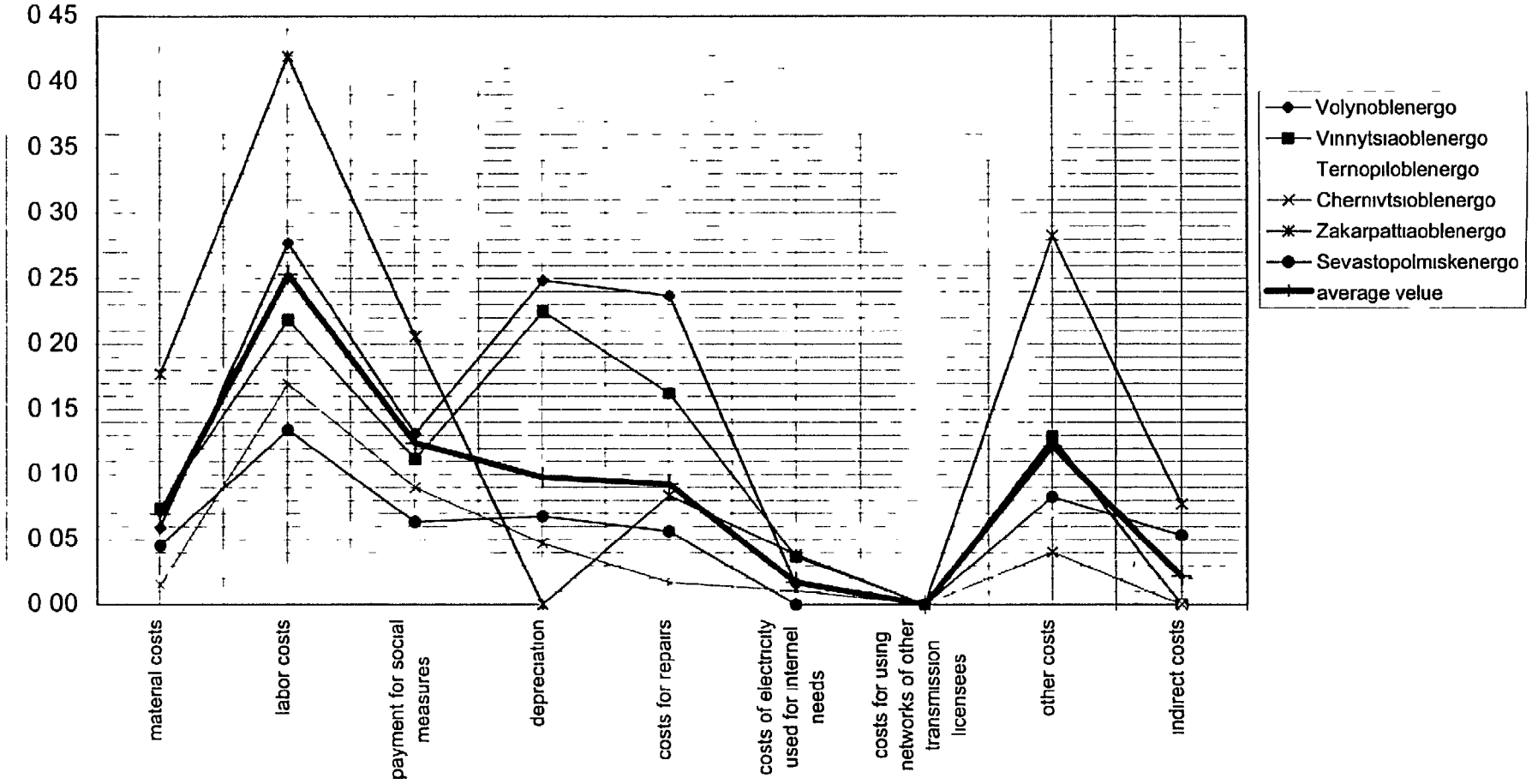
Chart 4-4


Tariff Structure for Electricity Tansmission by Local Electric Networks,
2nd Voltage Class
Expenses from Profit
Hr/MWh
7 00
6 00
5 00
4 00
3 00
2 00
1 00
0 00
deductions development of production
deductions to investment
deductions to current costs
deductions to social development
deductions to incentives
other purposes
deductions to creation of investment fund
deductions to reserve (insurence) fund
dividens
profit tax
deductions to central funds
Volynoblenergo
Vinnytsiaoblenergo
Ternopiloblenergo
Chernivtsioblenergo
Zakarpattiaoblenergo
Sevastopolmiskenergo
average velue

Tariff Structure for Electricity Transmission by Local Electric Networks, 1st Group of Consumers

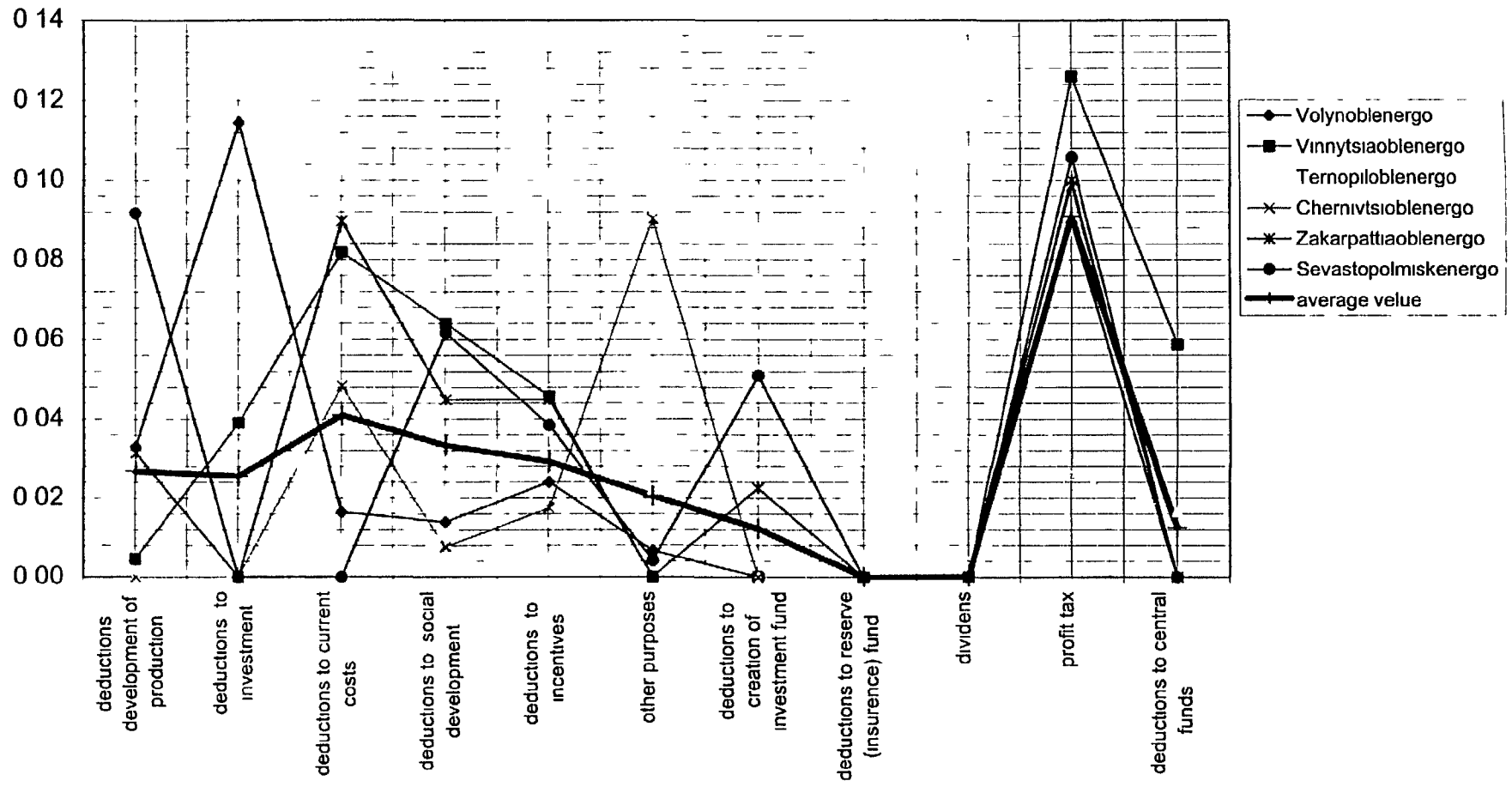
Prime Costs

Chart 4-5



Tariff Structure for Electricity Transmission by Local Electric Networks,
1st Group of Consumers
Prime Costs

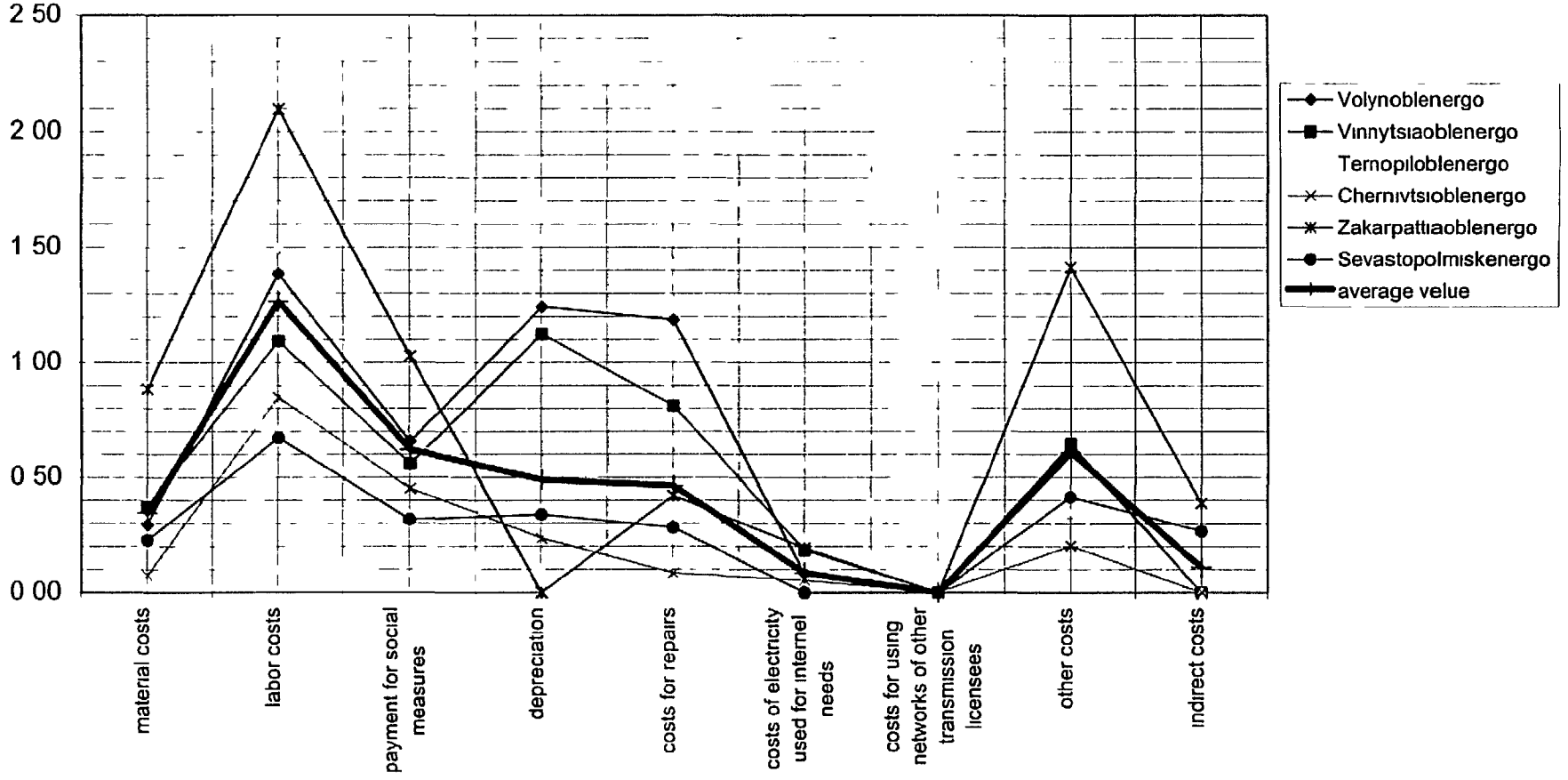
Chart 4-6



Tariff Structure for Electricity Transmission by Local Electric Networks, 1st Group of Consumers

Prime Costs

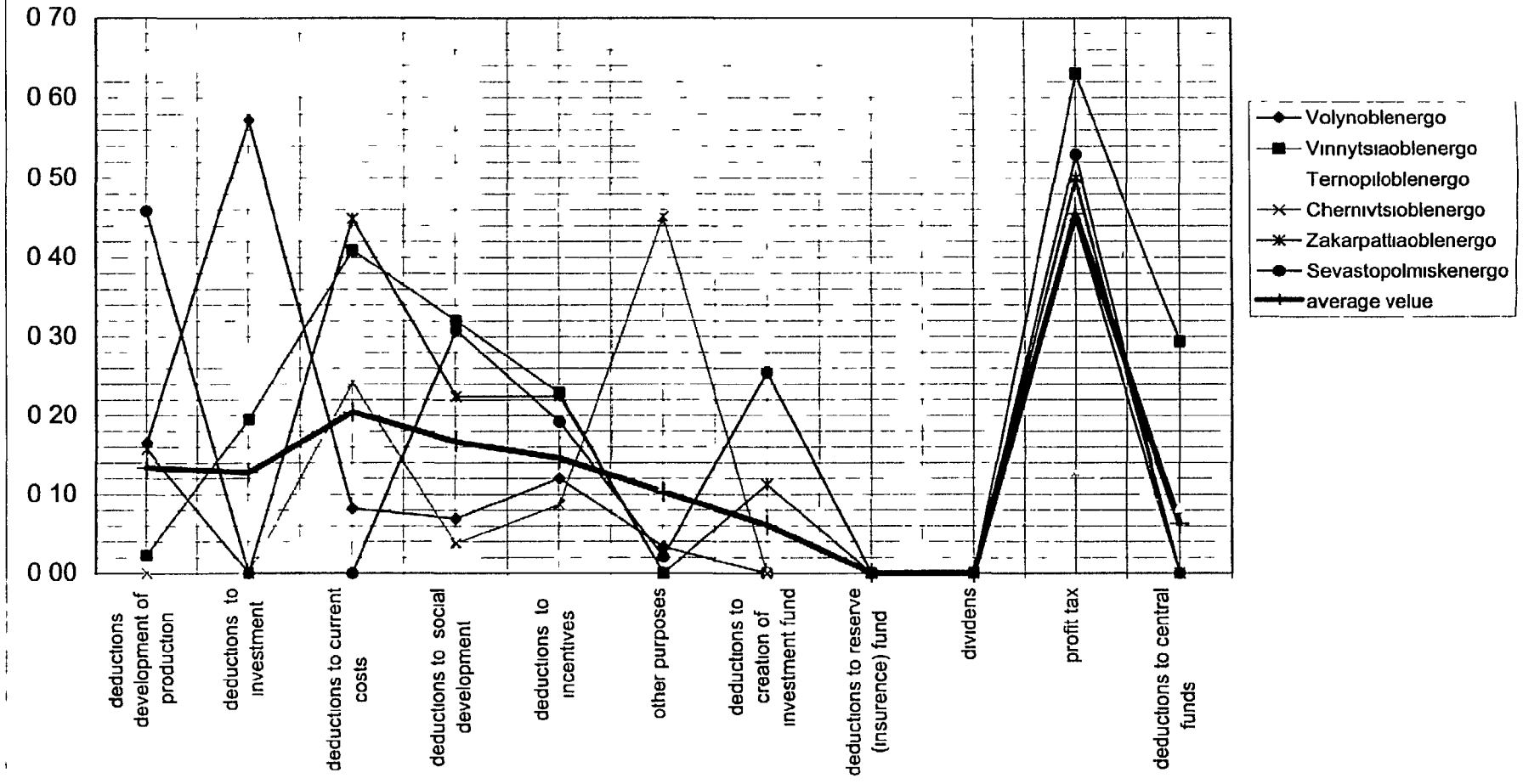
Chart 4-7



Tariff Structure for Electricity Tansmission by Local Electric Networks, 2nd Group of Consumers

Expenses from Profit

Chart 4-8



Tariff for Transmission,
1st Voltage Class

Chart 4-9

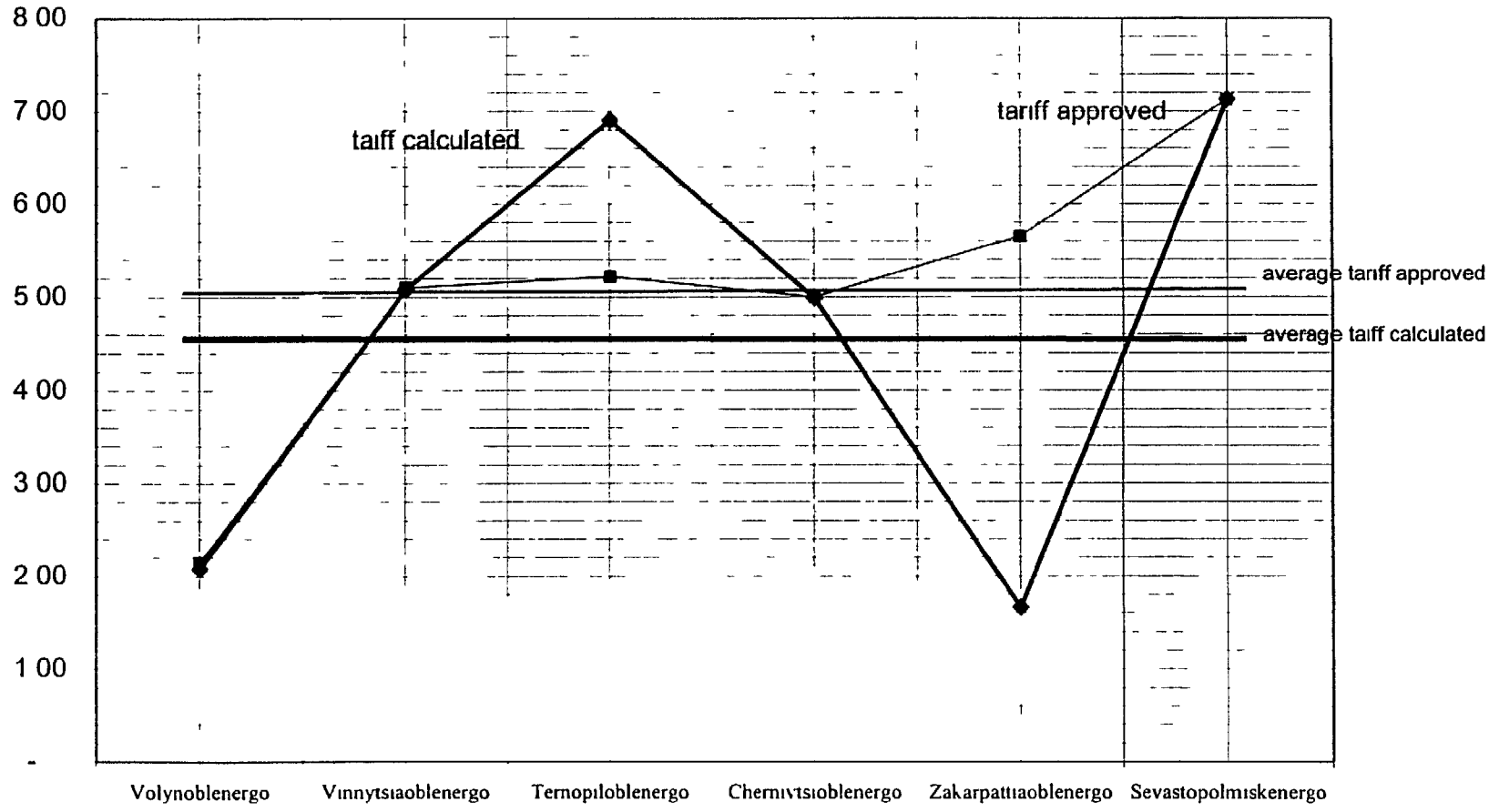


Chart 4-10

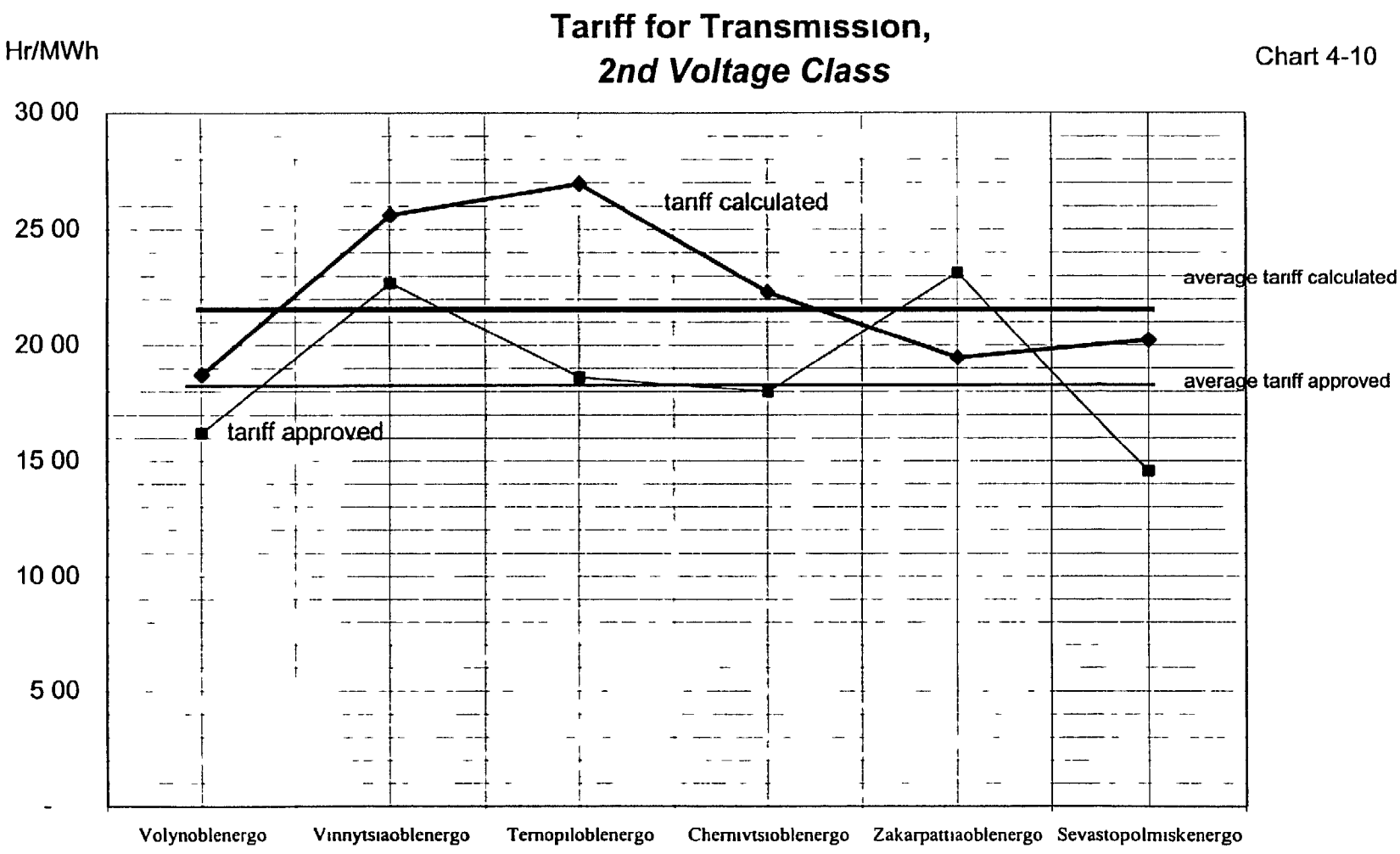
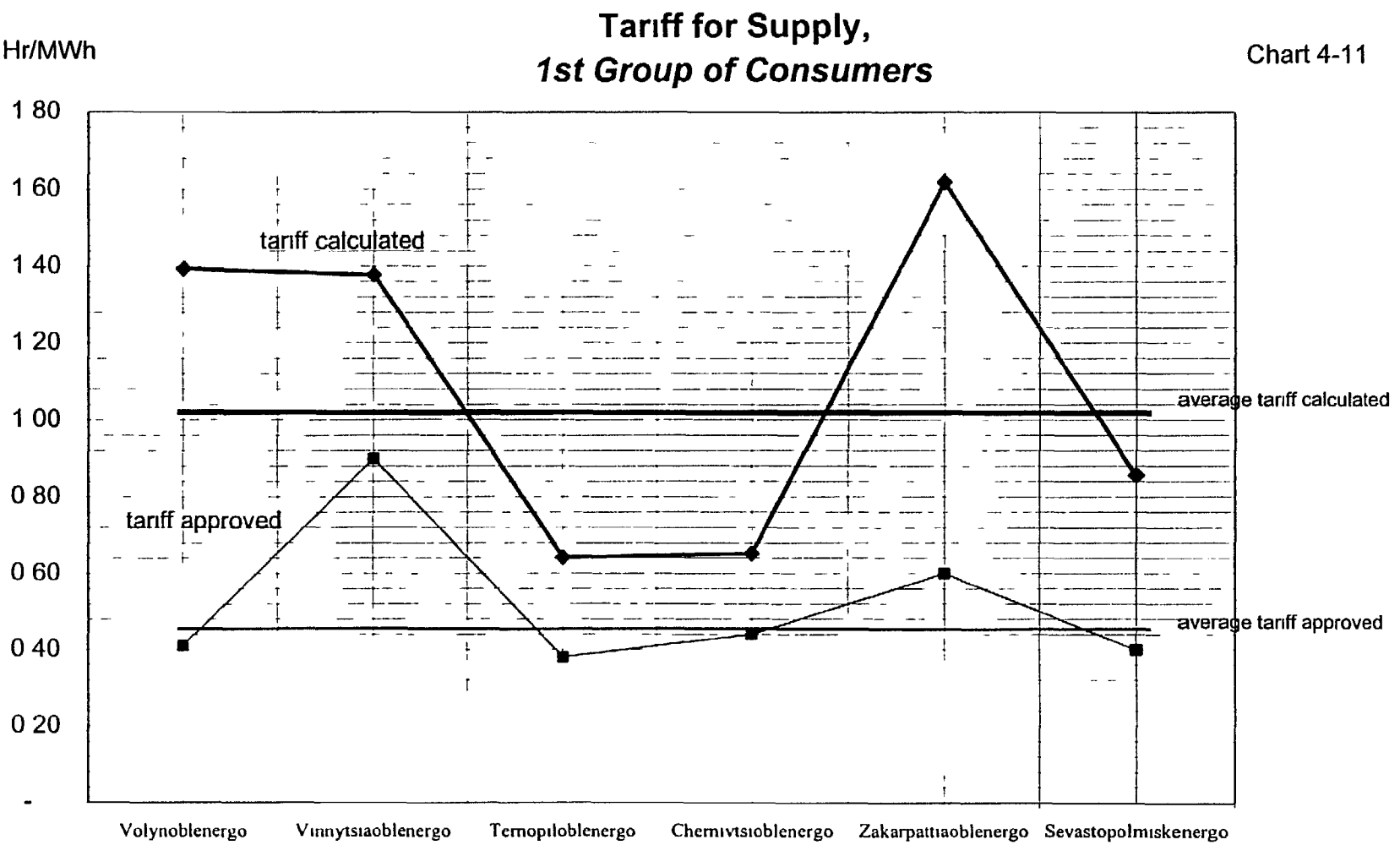
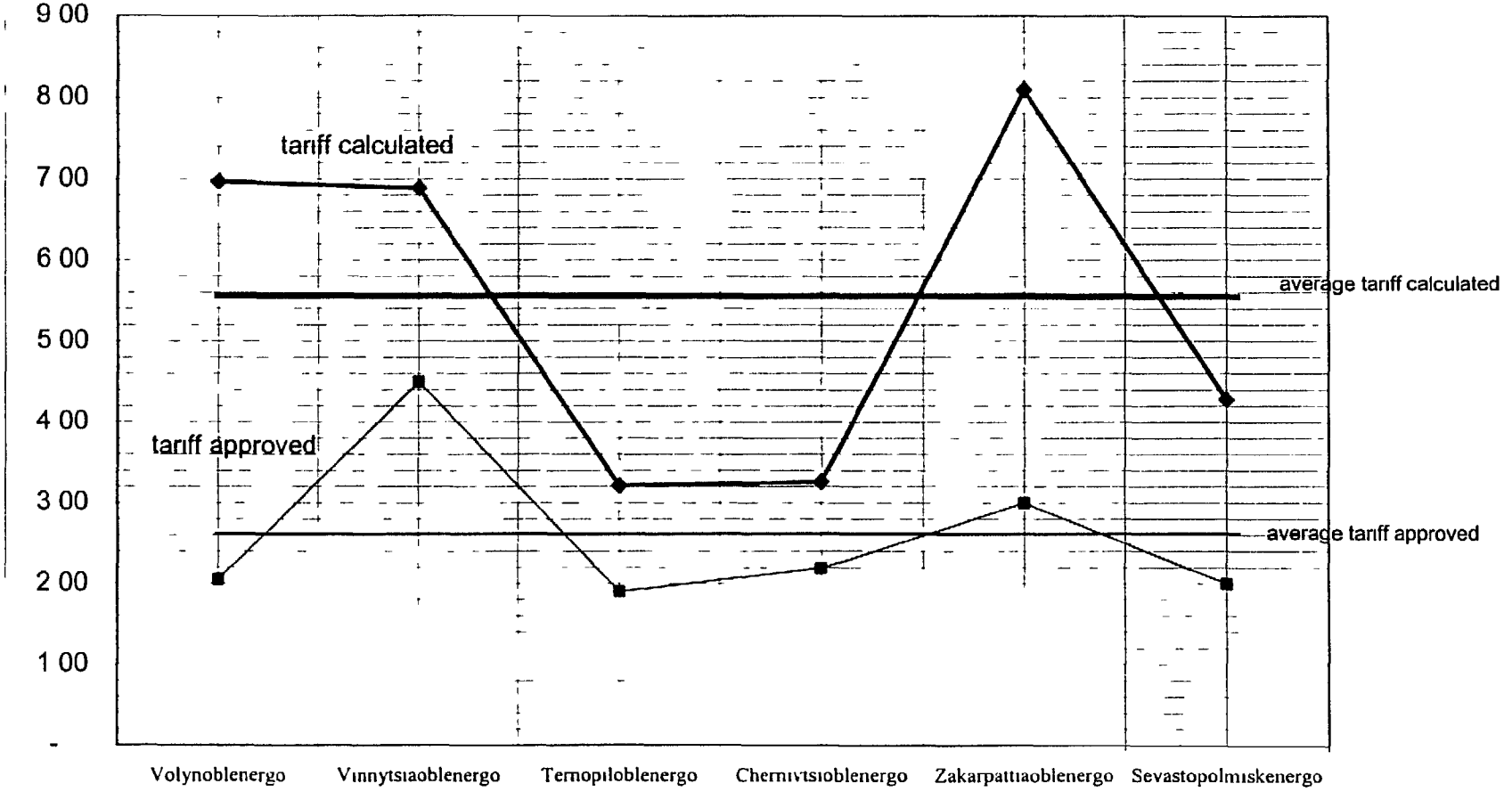

Tariff for Transmission,
2nd Voltage Class
Hr/MWh
30 00
25 00
20 00
15 00
10 00
5 00
-
tariff calculated
tariff approved
average tariff calculated
average tariff approved
Volynoblenergo
Vinnytsiaoblenergo
Ternopiloblenergo
Chernivtsioblenergo
Zakarpattiaoblenergo
Sevastopolmiskenergo

Chart 4-11


Tariff for Supply,
1st Group of Consumers
Hr/MWh
1 80
1 60
1 40
1 20
1 00
0 80
0 60
0 40
0 20
-
tariff calculated
tariff approved
average tariff calculated
average tariff approved
Volynoblenergo
Vinnytsiaoblenergo
Ternopiloblenergo
Chernivtsioblenergo
Zakarpattiaoblenergo
Sevastopolmiskenergo

Tariff for Supply,
2nd Group of Consumers

Chart 4-12



APPENDIX B

CHAPTER 4
INVESTOR PERSPECTIVE

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4.4 RISK AND RISK MANAGEMENT

All investors desire stability and a reasonable amount of certainty in any investment opportunity In a stable environment where the future is reasonably predictable, an investor can accurately assess an asset's potential viability, and therefore is able to determine the risks it faces The way in which investors view and manage these risks will largely dictate their investment decisions

4 4 1 Political Risk

Political risk includes issues such as the stability of the government, the prevalence of corruption, the amount of civil, military, or labor unrest, and the chance that the state will once again expropriate privatized firms Also, some political risks are particularly associated with energy projects, these include contract abrogation, regulatory risks, "creeping" expropriation, and the sanctity of the dispute resolution mechanisms Many investors surveyed said that the form of government (democratic, communist, dictatorship, etc) was not a major concern so long as that government was stable and had a clearly defined succession process However, many of the investors still purchased some form of political risk insurance to hedge against political uncertainties

Foreign investors can mitigate certain types of political risk by purchasing investment risk insurance from agencies such as the Overseas Private Investment Corporation (OPIC), the US Government's investment insurance agency, or from the Multilateral Investment Guarantee Agency (MIGA), the counterpart organization at the World Bank In addition, some private insurance firms also offer political and other investment risk insurance These groups offer insurance against political risks for certain methods of privatization it is normally available only for foreign direct investment (e g , strategic investors, joint ventures, debt-equity swaps) The definition of investment is broad, and can include equity, debt, management contracts, and contingent liabilities

IPOs are typically not insurable because political risk insurance benefits the owner and in an IPO the owner is frequently changing Employee ownership and vouchers have no foreign ownership

and do not qualify for political risk insurance, but they do offer some insurance on their own against expropriation when combined with foreign direct investment

Risk insurance, like any type of insurance, is an additional cost that investors must calculate when determining whether an investment meets their

4 4 2 Financial Risk

Financial risk covers a broad spectrum of issues, including potential payment guarantees, the country's macroeconomic stability, currency repatriation, exchange rate risks, and market risks

- *Payment guarantees* The guarantee of payment is a major financial risk concern for any investor These guarantees depend on the contract law of the country Investors who commented on this point said that they would require a legal structure that would allow contract disputes to be settled through international arbitration

- *Macroeconomic stability* The country's macroeconomic stability is important because potential investors need to determine whether conditions in a country will allow them to earn enough money to meet their minimum rate of return (i e , the rate of return below which the investor will not invest)

- *Profit repatriation* Most investors expressed major concerns over the ability to convert local money to hard currency and then to repatriate profits from an asset Power sector investments are inherently riskier in this respect than those in many other business sectors for two reasons First, while investors typically receive payments for electricity assets in local currency, they must often import fuel or efficient Western-designed equipment using hard currency If a country lacks adequate foreign currency reserves and earnings, this issue is problematic Some investors interested specifically in power generation said that a strong, stable domestic fuel market could mitigate this problem because it would alleviate the need to convert local currency in order to buy foreign coal, gas, or other fuels

  Currency repatriation can also be more difficult for power projects than for oil, gas or other energy projects because it is usually difficult to export power in order to earn hard currency In some CEE countries, independent power developers expressed some optimism that they may be able to export power in order to mitigate potential currency convertibility problems

- *Exchange rate risks* In addition to the ability to collect, convert, and repatriate earnings from the project, all of the investors interviewed expressed concerns over potential exchange rate risks (the risk that local currency earnings from an asset would depreciate

relative to the cost of items that may be imported, such as fuel) Those interviewed were more willing to invest if they believe that a local currency is stable

- *Market risks* In many countries power sector investors also face market risks related to where the authority for determining electricity tariffs lies and the way that tariffs are established In the power sector the key market issue is whether electricity tariff regulation is influenced by movements in politics or in the marketplace There is less market risk for investors in a system in which electricity tariffs are set according to market realities by an independent regulatory agency than in a system in which tariffs are set by a government ministry according to changing political sentiments in the country Investors will seek a system with tariffs levels that make power generation and/or distribution profitable and that will adjust to maintain a fair level of profitability for the investment over time Such a system gives the investment an added degree of financial certainty, a quality that all investors desire A government ministry will often be less likely to make necessary and timely adjustments in electricity tariff rates for fear of immediate political repercussions than an independent regulatory agency which is more removed from daily political pressures Several investors who were considering investments in the NIS cited this as a concern

  In addition to the issue of regulatory authority, there is also a market risk in "spot electricity markets," where prices are set by market forces rather than through long-term supply contracts between generators and customers Most independent power and many other generation construction and rehabilitation projects receive project financing based on pre-arranged long-term electricity supply contracts between the generator and a customer(s) However, in a spot market electricity prices are determined by demand and generators are dispatched based on a merit order system This spot market system increases an investment's uncertainty since a decline in demand or increased competition could reduce revenues to insufficient levels to meet project financing requirements All of the financial lenders interviewed for this study said that they are still adjusting to project finance for spot electricity markets However, several financial tools are now being developed to address this risk The ability to hedge (to operate in the electricity pool but to still make arrangements with certain customers for a price based on the future pool price) is one way to mitigate some of the risks inherent in a spot market Such a system, called "contracts for differences," has already developed in the UK electricity market A few investors said that they generally try to get a mix of contracts and spot market sales, preferably 70% contracts and 30% spot sales

- ***Environmental concerns*** These were listed by several investors as a major concern, particularly in CEE and the NIS where many of the power sector entities to be privatized are several decades old and have high levels of emissions and associated pollutants Investors stressed the importance of a consistent governmental environmental policy A

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power sector investment could quickly become unprofitable if the government strengthened its environmental policy after the investment was made

As in the case of political risk, OPIC, MIGA, and some private insurance companies offer insurance against certain financial risks such as exchange rate and repatriation obstacles

4 4 3 Technical Risk

Every power sector project has associated technical risks These risks vary by power industry sector as well as by individual power sector project Some technical risks include constraints on the transmission system that may favor certain generators or distribution networks over others, the ability of different plants within the generation system to be cycled for merit-based dispatched, the age and design of the enterprise's capital assets, and the emissions levels of generating plants For the strategic investors interviewed in the survey, technical risks do not provide an impossible hurdle, but they do affect the price that they are willing to pay for the asset

4 5 RISK AND RATE OF RETURN

In general, the principal mitigating factor for risk is the corresponding rate of return on the investment A risky investment will have to have a correspondingly high rate of return to attract investors away from other investment opportunities While the global pool of capital is large, the pool of potential investment opportunities is even larger This is especially true in developing countries with tremendous capital needs for infrastructure and other projects, but relative small domestic capital markets The global demand for capital creates competition for available capital among investment opportunities Every investor must consider the opportunity cost of investing in one project relative to another, or to putting their capital in securities or other financial instruments For an investment opportunity to be attractive, it must offer greater benefits to investors than other opportunities Therefore, if the investment is relatively riskier than other investments, it must compensate for this by providing a higher rate of return

The specific rate of return will vary by project, location, and a number of other important factors However, many of the investors surveyed for this study were able to indicate the general rates of return that they would require on power sector investments in different geographic regions

Country/Region	Rate of Return

United States	greater than 10%
United Kingdom	greater than 10%
Asia	greater than 14%
South America	greater than 16%
Central and Eastern Europe	greater than 18%
New Independent States	25 to 50%

However, several sources cautioned against taking the rates of return given by investors at face value In many regions investors are looking for investments with the returns shown above, but are often settling for projects with slightly lower returns

For power sector investment opportunities in CEE and the NIS, the rate of return expected by U S and U K investors was higher than that expected by continental European investors There are several reasons that the latter investors cite for this difference

Many continental European electric utilities are still largely state owned Because these firms are financially backed by the state, they are often willing to make riskier investments because they can take a longer view on the investment instead of having to be concerned about the short-term return to shareholders As one of these investors said, they will accept a lower return in investing in certain regions to suit the geographic interests of their business or the political interests of their government Many major Western European governments have made increased political and economic integration with CEE and the NIS a top political priority and have made investment decisions accordingly The countries in CEE and the western countries of the NIS also have political and economic aspirations towards Western Europe One investor said that this gives the latter countries some leverage over their eastern neighbors if payments are not made

4.6 INTEREST IN CENTRAL AND EASTERN EUROPE AND NIS MARKETS

While many strategic and other investors are not currently interested in investments in CEE and, in particular, the NIS, two groups among the investors interviewed see the opportunities in the region as fitting their investment profile The first group of strategic investors viewed their market niche as investments in existing utilities in need of considerable rehabilitation and managerial restructuring They see excellent potential returns on these assets after an intensive period of equipment rehabilitation and managerial reform Among these investors are the equipment suppliers and service companies, as well as the nationalized utilities that want to support their national industries

The second group that sees a niche market is the independent power developers seeking opportunities in small, specialized markets where they believe they have a better control of risks

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than if they had to work with the whole system They may work within a single industry under a barter agreement with a multinational company within the industry

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APPENDIX C

Moody's Country Risk Ratings

Sovereign Ceilings for Foreign-Currency Ratings

Current as of Jul 24 1998 06 01 EST

Rank	Country	Bonds and Notes		Bank Deposits	
		Long-Term	Short-Term[1]	Long-Term	Short-Term[1]
1	Aldemy	Aaa	P 1	Aaa	P-1
1	Austria	Aaa	P 1	Aaa	P-1
1	Bahamas	Aaa	P-1	Aaa	P-1
1	Belgium	Aaa	P-1	Aaa	P 1
1	Cayman Islands	Aaa	P-1	Aaa	P-1
1	Finland	Aaa	P-1	Aaa	P 1
1	France	Aaa	P-1	Aaa	P-1
1	Germany	Aaa	P-1	Aaa	P 1
1	Gibraltar	Aaa	P-1	Aaa	P 1
1	Guernsey	Aaa	P-1	Aaa	P 1
1	Ireland	Aaa	P-1	Aaa	P 1
1	Isle of Man	Aaa	P-1	Aaa	P 1
1	Italy	Aaa	P 1	Aaa	P 1
1	Jersey	Aaa	P 1	Aaa	P 1
1	Liechtenstein	Aaa	P 1	Aaa	P 1
1	Luxembourg	Aaa	P 1	Aaa	P 1
1	Monaco	Aaa	P 1	Aaa	P 1
1	Netherlands	Aaa	P-1	Aaa	P 1
1	Norway	Aaa	P-1	Aaa	P 1
1	Portugal	Aaa	P-1	Aaa	P 1
1	Sark	Aaa	P-1	Aaa	P 1
1	Spain	Aaa	P 1	Aaa	P 1
1	Switzerland	Aaa	P 1	Aaa	P 1
1	United Kingdom	Aaa	P 1	Aaa	P 1
1	United States	Aaa	P 1	Aaa	P 1
1	Japan	Aaa	P 1	Aaa *	P 1
27	Bermuda	Aa1	P 1	Aa1	P 1
27	Denmark	Aa1	P 1	Aa1	P 1
27	Singapore	Aa1	P-1	Aa1	P 1
27	New Zealand	Aa1	P-1	Aa1	P 1
31	Andorra	Aa2	P-1	Aa2	P 1
31	Australia	Aa2	P-1	Aa2	P 1
31	Canada	Aa2	P 1	Aa2	P 1
31	Banking Center	Aa2	P 1	Aa2	P 1
31	Sweden	Aa2	P 1	Aa2	P 1
36	Cayman Islands	Aa3	P 1	Aa3	
36	Iceland	Aa3	P 1	Aa3	P 1
36	San Marino	Aa3	P 1	Aa3	P 1
36	Taiwan	Aa3	P 1	Aa3	P 1
40	Cyprus	A2	P-1	A2	P-1
40	United Arab Emirates	A2	P-2	A2	P 2
42	Bahamas	A3	P 2	A3	P 2
42	Bahrain	A3	P-2	A3	P 2
42	China	A3	P 2	Baa2	P 3
42	Hong Kong	A3	P 2	A3	P 2

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Moody's Country Risk Ratings

Rank	Country	Bonds and Notes		Bank Deposits	
		Long-Term	Short-Term[1]	Long-Term	Short-Term[1]
42	Israel	A3	P 2	A3	P-2
42	Malta	A3	P-2	A3	P-2
42	Slovenia	A3	P-2	A3	P-2
49	Chile	Baa1	P-2	Baa1	P-2
49	Czech Republic	Baa1	P 2	Baa1	P-2
49	Estonia	Baa1	P-2	Baa1	P 2
49	Greece	Baa1	P-2	Baa1	P 2
49	Kuwait	Baa1	P-2	Baa1	P 2
49	Macau	Baa1	P-2	Baa1	P 2
49	Panama	Baa1	P-2	Baa2	P 2
56	Hungary	Baa2	P-2	Baa2	P 2
56	Latvia	Baa2	P 3	Baa3	P 3
56	Malaysia	Baa2	P 3	Baa3	P 3
56	Mauritius	Baa2	P 2	Baa2	P 2
56	Oman	Baa2	P 2	Baa2	P-2
56	Qatar	Baa2	P 2	Baa2	P-2
62	Colombia	Baa3		Ba1	NP
62	Croatia	Baa3	P 3	Ba1	NP
62	El Salvador	Baa3	P 3	Baa3	P 3
62	Poland	Baa3		Ba1	NP
62	Saudi Arabia	Baa3	P-3	Baa3	P 3
62	Tunisia	Baa3	-	Ba1	NP
62	Uruguay	Baa3	P 3	Baa3	P 3
62	South Africa	Baa3 *		Ba1**	NP
70	Bahrain	Ba1	NP	Ba2	NP
70	Barbados	Ba1	NP	Ba2	NP
70	Costa Rica	Ba1	NP	Ba2	NP
70	Egypt	Ba1	NP	Ba2	NP
70	Korea	Ba1	NP	Caa1	NP
70	Lithuania	Ba1	NP	Ba2	NP
70	Morocco	Ba1	NP	Ba2	NP
70	Philippines	Ba1	NP	Ba2	NP
70	Slovakia	Ba1	NP	Ba2	NP
70	Thailand	Ba1	NP	B1	NP
70	Trinidad & Tobago	Ba1	NP	Ba2	NP
81	Guatemala	Ba2	NP	Ba3	NP
81	India	Ba2	NP	Ba3	NP
81	Mexico	Ba2	NP	B1	NP
81	Argentina	Ba3	NP	B1	NP
81	Jamaica	Ba3	NP	B1	NP
81	Jordan	Ba3	NP	B1	NP
81	Kazakhstan	Ba3	NP	B1	NP
81	Peru	Ba3	NP	B1	NP
81	Romania	Ba3	NP	B1	NP
90	Bolivia	B1	NP	B2	NP
90	Brazil	B1	NP	B2	NP
90	Dominican Republic	B1	NP	B2	NP

Moody's Country Risk Ratings

Rank	Country	Bonds and Notes		Bank Deposits	
		Long-Term	Short-Term[1]	Long-Term	Short-Term[1]
90	Lebanon	B1	NP	B2	NP
90	Russia	B1	NP	B2	NP
90	Turkey	B1	NP	B2	NP
90	Venezuela	B1	NP	B2	NP
90	Vietnam	B1	NP	B3	NP
90	Ecuador	B1**	NP	B2**	NP
99	Bulgaria	B2	NP	B3	NP
99	Moldova	B2	NP	B3	NP
99	Nicaragua	B2	NP	B3	NP
99	Paraguay	B2	NP	B3	NP
99	Turkmenistan	B2	NP	B3	NP
99	Ukraine	B2	NP	B3	NP
105	Indonesia	B3	NP	Ca	NP
105	Pakistan	B3	NP	Caa3	NP

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Appendix D

DRAFT September 10, 1998

APPROVED
by the Order
of the National Electricity
Regulatory Commission
of Ukraine
of _____ No _____

Methodology for Calculation of Retail Price for Electricity Consumed, Tariff for Electricity Transmission by Local Networks and Tariff for Electricity Supply at Regulated Tariff

1 Introduction
2 Calculation of the retail price for electricity consumed
3 Calculation of the average electricity purchase price
4 Calculation of factors of normative technological electricity loss
5 The procedures for calculation, justification and approval of electricity transmission and supply tariffs
6 Calculation of the local network transmission tariffs
7 Special cases
8 Calculation of tariffs for electricity supply

1 Introduction

The methodology is developed according to the Law of Ukraine "On Electricity Sector", for the purpose of transition to calculation of retail tariffs for four voltage classes, as provided in the Conditions and Rules for Entrepreneurial Activity of Electricity Transmission by Local Networks and Conditions and Rules for Entrepreneurial Activity of Electricity Supply at Regulated Tariff

The Methodology sets procedures for calculation

- of retail tariffs for all categories of suppliers, and of electricity supply tariffs, by a licensee on electricity supply at regulated tariff,
- of electricity transmission tariffs, by a licensee on electricity transmission by local networks

Notations

Below the indices i and j designate the following

- i is a group of consumers,
- j is a voltage class

The proposed methodology is developed for 4 voltage classes

1 voltage class - 154-110 kV,
2 voltage class - 35-27 5 kV,
3 voltage class - 10-6 kV,
4 voltage class - 0 4 kV

Consumers are differentiated by voltage class depending on the voltage of buses from which they are supplied, and according to 'Procedures for Determining of Customer Classes According to Voltage Level', approved by NERC's Order No 1052 of 8/13/98

Notations	Units	Definitions
C^T	Hrn	Total costs of a regulated tariff supplier attributed to its activities related to electricity generation, local network transmission and supply
C^G	Hrn	Licensee's costs for electricity generation
C^L	Hrn	Licensee's costs for electricity transmission
C^S	Hrn	Licensee's costs for electricity supply at regulated tariff

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C_{Lj}	Hrn	Licensee's costs for electricity transmission at the voltage class (j)
C^{IN}	Hrn	Licensee's costs for electricity used for internal purposes
E^{W}	MWh	Amount of electricity purchased by a regulated tariff supply licensee at the Wholesale Electricity Market
E^{N}_{j}	MWh	Amount of electricity purchased by a regulated tariff supply licensee from a generator that does not sell electricity at the Wholesale Electricity Market and that came to the local transmission network at the voltage level (j)
E_{j}	MWh	Amount of electricity which is transmitted at the voltage class (j)
E_{sj}	MWh	Amount of electricity sales at the voltage class (j) (both consumed and transmitted to networks of other transmission licensees)
E_{cj}	MWh	Amount of useful electricity consumed by consumers connected to the voltage class (j)
E_{tj}	MWh	Amount of electricity transmitted beyond the borders of the licensed activity of the licensee to networks which belong to another transmission licensee
E_{tj}	MWh	Amount of electricity which is transformed from the higher voltage level to the lower voltage level
E_{gj}	MWh	Amount of electricity coming from generating sources directly to the j-th voltage class
E_{rj}	MWh	Amount of electricity received from networks of other licensees
E_{i}	MWh	Amount of electricity consumed by the (i)-th group of consumers
E_{IN}	MWh	Amount of electricity consumed by a transmission licensee for internal needs
LF_{j}	relative units	Normative factor of technological electricity loss for transmission at every voltage class (j) and at transformation from the voltage class (j-1) to the voltage class (j), that is agreed with the relevant Regional Dispatch Center and approved by NERC
R	Hrn	Reconciliation component

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T^L_j	Hrn/MWh	Tariff for electricity transmission by local electricity networks set to cover the costs of the transmission licensee for transmission to consumers of the relevant voltage class (j), approved by NERC
T^L_{ij}	Hrn/MWh	Tariffs for electricity transmission calculated by the relevant transmission licensees
T^S_i	Hrn/MWh	Tariff for electricity supply at regulated tariff set to cover the cost of electricity supply to consumers of the group (i), approved by NERC
P^r_{ij}	Hrn/MWh	Retail electricity price for consumers at the voltage class (j) and within the consumer group (i)
P^W	Hrn/MWh	Wholesale market price for the accounting period
P^A	Hrn/MWh	Average purchase price of electricity
P^N	Hrn/MWh	Price at which a licensee has purchased electricity from a generator that does not sell electricity to the Wholesale Market

2 *Calculation of the retail price for electricity consumed*

The retail price for electricity is calculated according to the following formula

$$P_{ij}^{r} = \frac{P^{A} \pm R}{(1-LF_1) * \quad * (1-LF_j\ )} + T_j^{L} + T_i^{S}, \tag{2 1}$$

where transmission and supply tariffs are the license tariffs that are the same for all customers of the same group and the same voltage class,

P^{A} is the hourly wholesale market price for consumers with hourly metering and payment for electricity, in this case the reconciliation does not apply, or it is the average weighted price for the relevant accounting period, Hrn/MWh,

P^{r}_{ij} is the retail price for consumers of the group i and the voltage class j, Hrn/MWh

The retail price for consumers of the 1 voltage class

$$P_{i1}^{r} = \frac{P^{A} \pm R}{1-LF_1} + T_1^{L} + T_i^{S}, \tag{2 2}$$

The retail price for consumers of the 2 voltage class

$$P_{i2}^{r} = \frac{P^{A} \pm R}{(1-LF_1)(1-LF_2\ )} + T_2^{L} + T_i^{S}, \tag{2 3}$$

The retail price for consumers of the 3 voltage class

$$P_{i3}^{r} = \frac{P^{A} \pm R}{(1-LF_1)(1-LF_2)(1-LF_3\ )} + T_3^{L} + T_i^{S}, \tag{2 4}$$

The retail price for consumers of the 4 voltage class

$$P_{ij}^{r} = \frac{P^{A} \pm R}{(1-LF_1)(1-LF_2)(1-LF_3)(1-LF_4)} + T_4^{L} + T_i^{S} \tag{2 5}$$

3 *Calculation of the average purchase price of electricity*

Average purchase price of electricity presents an average weighted price that takes into account the following prices

1) prices at which a regulated tariff supplier purchased electricity at the Wholesale Electricity Market during the relevant accounting period,

2) prices at which a regulated tariff supplier purchased electricity from generators that do not sell electricity to the Wholesale Electricity Market,

and the reconciliation component Electricity amounts entering into the formula for calculation of the average purchase price are adjusted in the case if electricity comes to the networks of the local transmission licensee at lower voltage levels

$$P^{A} = \frac{\sum\left(P^{W} * E^{W}\right) + \sum\left(P^{N} * E_{J}^{N}\right) \pm R}{\sum E^{W} + \sum \frac{E_{J}^{N}}{(1 - LF_{1}) * \quad * (1 - LF_{J})}} \qquad (3\ 1)$$

Reconciliation component **R** is used for taking into account the difference between actual and forecast data on the wholesale market price, prices at which electricity is purchased from generators that do not sell electricity to the Wholesale Market, amounts of electricity purchased and load profiles

Procedures and schedules for calculation of the average electricity price are set out in the 'Methodology of Formation and Introduction of Electricity Retail Tariff', approved by NERC on 7/17/1997

Calculation of the average electricity price for a micronet that receives electricity from two sources at different voltage classes

Calculation of the average purchase price (without the reconciliation component) for a micronet that receives electricity from several LECs or micronets at 3 and 4 voltage levels

$$P^{1} = \frac{\sum \frac{P_n^{0A}}{(1 - LF_3^{0n})} \times ER_3 + \sum \frac{P_n^{0A}}{(1 - LF_3^{0n}) \times (1 - LF_4^{0n})} \times ER_4}{\frac{ER_3}{1 - LF_3} + \frac{ER_4}{(1 - LF_3)(1 - LF_4)}} \qquad (3\ 2)$$

Here

P_n^{0A} is the average wholesale purchase price of the n-th oblenergo (at which the oblenergo buys electricity from the market or other sources),

P^{1} is the average purchase price for the micronet that enters into the formula (2 1) for calculation of the retail price,

ER_j is the amount of electricity which is received by the micronet at the voltage level j,

LF^{o}_j is the loss factor of the oblenergo for the voltage level j

4 *Calculation of factors of normative technological electricity loss*

Factors of technological electricity loss LF_j for the relevant j-th voltage class are calculated by a licensee on transmission by local electricity network as the sum of normative technological electricity losses divided by the sum of electricity transmitted at each voltage class for the relevant quarter according to the formula

$$LF_j = \frac{\sum \Delta E_j}{\sum E_j} \qquad (4\ 1)$$

where

$\Delta E_1 = \Delta E_{154} + \Delta E_{110}$	are normative technological losses at the 1 voltage class, MWh,
$E_1 = E_{154} + E_{110} - E_{154/110}$	is the amount of electricity that is transmitted at the 1 voltage class, MWh,
$\Delta E_2 = \Delta E_{35} + \Delta E_{27\ 5}$	are normative technological losses at the 2 voltage class, MWh,
$E_2 = E_{35} + E_{27\ 5}$	is the amount of electricity that is transmitted at the 2 voltage class, MWh,
$\Delta E_3 = \Delta E_{10} + \Delta E_6$	are normative technological losses at the 3 voltage class, MWh,
$E_3 = E_{10} + E_6 - E_{10/6}$	is the amount of electricity that is transmitted at the 3 voltage class, MWh,
$\Delta E_4 = \Delta E_{0\ 4}$	are normative technological losses at the 4 voltage class, MWh,
$E_4 = E_{0\ 4}$	is the amount of electricity that is transmitted at the 4 voltage class, MWh
$\sum$	is the sum of monthly values of normative technological electricity losses for determination of a quarter factor of normative technological electricity loss
$E_{154}, E_{110}, E_{35}, E_{27\ 5}, E_{10}, E_6, E_{0\ 4}$	are amounts of electricity transmitted at networks of the relevant voltage levels, MWh,
$\Delta E_{154}, \Delta E_{110}, \Delta E_{35}, \Delta E_{27\ 5}, \Delta E_{10}, \Delta E_6, \Delta E_{0\ 4}$	are normative technological electricity losses at the relevant voltage levels, MWh,
$E_{154/110}, E_{10/6}$	are amounts of electricity transformed by voltage level, MWh

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Normative factors of technological electricity losses for each voltage class are calculated taking into account technical characteristics of networks of all local transmission licensees whose networks are used for electricity transmission who also carries out the licensed activity of electricity supply at regulated tariff

Electricity consumed for internal purposes of substations should be taken into account in calculation of normative factors of technological electricity loss for transmission

The licensee at NERC's request shall submit a justification for increase of actual electricity losses above level of normative technological electricity losses

5 *The procedures for calculation, justification and approval of electricity transmission and supply tariffs*

Calculation, justification and approval of license tariffs for electricity transmission by local networks and for electricity supply at regulated tariff is performed according to the following procedure

- a licensee or an applicant that carries out activity of electricity transmission and/or electricity supply at regulated tariff, shall calculate tariffs and submit calculations (together with the necessary explanations and accounting documents) to the relevant local office of NERC and to NERC 30 calendar days before making them effective,
- within 15 days the licensee or the applicant shall justify every cost component at the local office of NERC,
- during the following 15 days the licensee or the applicant shall justify calculations at NERC taking into account changes, amendments and comments, suggested by the local office, and gets NERC's approval for the tariff

For the purpose of calculation of electricity transmission and supply tariffs total costs of the licensee related to generation, transmission and supply of electricity shall be divided into three components

- costs for electricity transmission,
- costs for electricity supply at regulated tariff,
- costs for electricity generation

Total costs are allocated among types of the licensed activity, and the following conditions are to be satisfied

$$C^T = C^G + C^L + C^S \tag{5 1}$$

(the total of costs attributed to the three licensed activities is equal to the sum of the costs allocated separately to generation, transmission and supply at regulated tariff),

$$C^L = C_{L1} + C_{L2} + C_{L3} + C_{L4} \tag{5 2}$$

(the total of costs attributed to electricity transmission by local networks is equal to the sum of the costs allocated separately to each of the four voltage classes,

$$C^S = C_{S1} + C_{S2} + C_{S3} + C_{S4} + C_{S4} + C_{S4} \tag{5 3}$$

(the total of costs attributed to electricity supply at regulated tariff is equal to the sum of the costs allocated separately to each of these consumer groups

Within each cost category there are costs that can be allocated directly among types of the licensed activity, voltage classes or consumer groups (direct costs) The costs that cannot be allocated directly (indirect costs) are allocated in the following way

- indirect costs are allocated among three types of the licensed activity in proportion to the direct costs,
- indirect costs are allocated between voltage classes in proportion to the direct costs,
- indirect costs are allocated between consumer groups in proportion to the number of consumers

The licensee (applicant) can adopt another reasonable allocation of costs among licensed activities, voltage classes and consumer groups, and provide to NERC a substantiated explanation of such cost allocation accompanied by the relevant documents

The data should be submitted for a base and for a projected period The duration of the base period should be equal to that of the projected period calculation of tariffs should be performed using the data for the projected period The data of the base period with the relevant inflation adjustment for the moment of tariff calculation, are to be used for comparison and control with justification of the changes in the projected data

Substantiation of the financing of capital investment, included into tariffs requires presentation of the following information

- development plans for electricity networks,
- annual plans for capital construction with information on the sources of financing,
- reports on completion of network development plans and on use of funds allocated for capital investment during preceding periods

Cost of electricity used for internal needs is calculated at effective or projected retail tariffs and included into the total cost of activity related to electricity generation transmission and supply, with allocation of this cost among these types of the licensed activity

Cost of using networks of other licensees is included into the total cost of electricity transmission by local network and calculated according to the formula

$$C_{ij} = \sum \left(E_{rj} * T_{ij}^{L} \right) \qquad (5\ 4)$$

6 *Calculation of local network transmission tariffs*

Electricity transmission tariff for consumers of the 1 voltage class is calculated according to the formula

$$T_1^L = \frac{C_{L1}}{E_1} \qquad (6\ 1)$$

Electricity transmission tariffs for consumers of the 2-4 voltage class are calculated according to the formulae

$$T_j^L = \frac{T_{j-1}^L}{1 - LF_j} + \frac{C_{Lj}}{E_j} \qquad (6\ 2)$$

Here j = 2, 3, 4

If a part of electricity is generated at a lower voltage level or delivered directly to a lower voltage level from the network of another transmission licensee then the electricity transmission tariff is calculated as follows

$$T_j^L = \frac{T_{j-1}^L}{1 - LF_j}\left(1 - \frac{E_{gj} + E_{rj}}{E_j}\right) + \frac{C_{Lj}}{E_j} \qquad (6\ 3)$$

When a part of electricity that is transmitted at the voltage level j is transformed to this level directly from the voltage level j-2, the cost of electricity transmission at the voltage class (j-1) is not transferred to this amount, and the formula (6 3) will look as follows

$$T_j^L = \frac{T_{j-2}^L}{(1 - LF_{j-1})(1 - LF_j)}\left(1 - \frac{E_{gj} + E_{rj}}{E_j}\right) + \frac{C_{Lj-1}}{(1 - LF_j)E_{j-1}}\left(1 - \frac{E_{gj} + E_{rj}}{E_j}\right)\left(1 - \frac{E_{j-2/j}}{E_j}\right) + \frac{C_{Lj}}{E_j} \qquad (6\ 4)$$

Here $E_{j\ 2/j}$ is the amount of electricity that is transformed to the voltage class (j) directly from the voltage class (j-2)

7 *Special cases*

7 1 *Calculation of retail tariffs for micronets*

This paragraph shows the example of calculation of the transmission tariffs for a micronet that receives all electricity from an oblenergo network and is not connected directly to the main and inter-state network, has no own generation and receives a part of its electricity at the 3 voltage level, and a part at the 4 voltage level All its customers are connected at the 4 voltage level

The total cost of transmission, including payments to the oblenergo for its transmission costs, will be

$$C_{\Sigma 4} = C_{R3} + C_{T3} + C_{R4} + C_{T4},$$

where

$$C_{Rj} = T^{0}_{jt} \times ER_j$$

is the amount to be paid to the LEC for transmission of electricity which is received by the micronet at the voltage level j,

ER_j is the amount of electricity which is received by the micronet at the voltage level t,

T^{0}_{jt} is the LEC's transmission tariff

C_{Tj} is the own cost of the micronet for electricity transmission at the voltage level t

Amount of electricity consumed by customers of the micronet (all electricity is consumed at the 4 voltage level) is equal to

$$EC_4 = ER_3 \times (1 - LF_3) + ER_4 \times (1 - LF_3) \times (1 - LF_4)$$

where

LF_j is the loss factor of the micronet at the voltage level j

Then the local transmission tariff for the third voltage class is calculated as follows

$$T_{3t} = \frac{T^{0}_{3t}}{1 - LF_3} + \frac{C_{T3}}{EC_3}, \qquad (7\ 1)$$

the local transmission tariff for the 4-th voltage class equals to

$$T_{4t} = \left(\frac{T^{0}_{3t}}{(1 - LF_4) \times (1 - LF_3)} + \frac{C_{T3}}{EC_3} \right) \times \frac{ER_3}{ER_3 \times (1 - LF_3) + ER_4} + \qquad (7\ 2)$$

$$+ \frac{T^{0}_{4t}}{(1 - LF_4)} \times \frac{ER_4}{ER_3 \times (1 - LF_3) + ER_4} + \frac{C_{T4}}{EC_4}$$

7 2 *Special transmission tariff and calculation of the retail price for consumers connected directly to a transformer from a higher voltage class (transformer belonging to LEC)*

'Procedures for Determining of Customer Classes According to Voltage Level', approved by NERC's OrderNo 1052 of 8/13/98, provide that all customers are grouped into classes according to the voltage level at the grid distribution points of electricity supplying systems

If large customers are connected directly to a transformer from a higher voltage class (transformer belonging to LEC) would belong to the lower voltage class if the current provisions are applied to them For these cases we recommend that such customers are included into the higher voltage class with the relevant adjustments to their transmission tariff and retail price

T^L_{j1} is the transmission tariff for the voltage class (j_1),

T^L_{j2} is the transmission tariff for the voltage class (j_2), $j_1 < j_2$

LFT is the factor of normative technological electricity loss at the transformer

TT_{j1} is a special transmission tariff for a consumer, connected to a higher voltage class directly through a transformer that belongs to LEC

$$TT_{j1} = \frac{T_{j1}}{1 - LFT} + \frac{C_{transformer}}{ECT} \qquad (7\ 3)$$

Here

$C_{transformer}$ is the cost incurred by the LEC with respect to the transformer during the relevant accounting period, or the part of the cost, attributed to the customer under consideration,

ECT is the amount of electricity consumed by the customer

For calculation of the LEC transmission tariff T^L_{j1} the amount of electricity that is consumed by the customer under consideration goes into calculation as electricity consumed at the voltage level (j) with adjustment for the loss at the transformer

$$ECT_1 = \frac{ECT}{1 - LFT} \qquad (7\ 4)$$

The retail price in this case is calculated as follows

$$P_{ij}^{r} = \frac{P^{A} \pm R}{(1 - LF_1) * \quad * (1 - LF_{j1})(1 - LFT)} + TT_{j1}^{L} + T_{i}^{S}, \quad (7\ 5)$$

where the average purchase price and LEC loss factors are the same as used in the formula (2 1) for all consumers

8 *Calculation of tariffs for electricity supply*

A tariff for electricity supply is calculated for consumers of the relevant group (i) according to the formula

$$T_i^S = \frac{C_{Si}}{E_{ci}} \qquad (8\ 1)$$

Electricity supply tariffs for large industrial consumers can be set lower than calculated according to the formula (8 1) with the aim of ensuring competitiveness of a LEC compared to electricity suppliers at non-regulated tariff Such discounts may be taken into account in the allocation of supply costs among all groups of consumers