
ALTERNATIVE ACCOUNTING APPROACH FOR ELECTRICITY COMPENSATIONS TO INDUSTRIAL ENTERPRISES

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Abstract: The growing prices of the main production resources have led to a common European policy in support of economic subjects. The established mechanisms also concern the electricity consumed by non-domestic end users. The industrial sector in Bulgaria is energy-intensive and the accounting for the electricity costs and the compensations for their high prices has become increasingly relevant because of the direct influence on the cost price and sale price of the provided services and the produced goods. The development of an alternative accounting approach for the compensations to industrial enterprises facilitates making operative, strategic, and tactical decisions concerning their activity.

Key words: management accounting, costs, alternative approach, electricity, industrial enterprises.

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Introduction

In this research paper, the research **object** is the programme for compensation of non-domestic end users of electricity, whereas the research **subject** is its alternative accounting approach. The main **aim** of the paper

is the development of an accounting model with a view of the upcoming cost price calculation of the produced goods and provided services. We propose differentiating separate accounts, by which we will achieve reliable information security which complies with the specific characteristics of the accounted object.

The article makes a critical analysis of the existing literature, and more specifically the normative acts related to the compensations for high electricity prices in Bulgaria and the accounting standards relevant to the discussed topic. These documents refer to the Common European Framework for State Aid due to the negative impact of high prices on energy sources both for the European and the Bulgarian economy. On the basis of the review of the accounting standards which regulate compensations and the proposed accounting model for compensations, the Ministry of Finance have developed an alternative accounting approach which is to be applied in industrial enterprises. The article also presents a simulation model which contains sample data for the compensation of non-domestic end users, which facilitates the clarity of its accounting. This allows performing a comparative analysis of the electricity costs in the approach developed by the Ministry of Finance and the current alternative approach.

Argument

The economic restrictions caused by COVID -19 have led to a disproportionate economic development in various parts of the world. For this reason, a number of major production resources have been redirected from Europe to Asia, which has led to lack of and a serious rise of the electricity price and the “blue fuel”. As part of the EU and the economic markets, this has reflected Bulgaria as well. The extremely high prices of those resources for the Bulgarian economic subjects suppose a support by the state. This paper discusses only the aid provided for electricity.

1. Analysis of the normative acts regulating the compensation to non-domestic end users of electricity

Council of Ministers Decision No. 739, which approves a programme for compensation to non-domestic end users of electricity regulates providing aid to 630,000 economic subjects. The programme aims to compensate non-

domestic end users due to the high price of electricity which shall secure economic growth in the country. The proposed compensation period is 2 months from 1 October to 30 November 2021; the financial framework is BGN 450 million which will be transferred to the state budget from the profit of Kozloduy NPP EAD (Council of Ministers D. N.-d., 2021). The fluctuation in the price of electricity does not comprise only Bulgaria, but also other economies on the Balkans and the European Union. The price of Bulgarian electricity on the free market is lower than that in the EU. Non-domestic end users shall meet the requirements of Paragraph 1, item 27d and 33a of the additional provisions of the Energy Act. According to item 27d “End user” is a customer who purchases electricity or natural gas for personal consumption, whereas according to item 33a “Non-domestic customer” is a customer who purchases electricity or heat energy whose heat carrier is hot water or steam for heating, air conditioning, hot water supply and technological needs or natural gas for non-domestic purposes. (State Gazette, 2003).

The fluctuation of electricity prices, even after the period of two months, continues, which necessitates extending and changing its measure with Council of Ministers Decision No. 771 for amending the programme for compensation of non-domestic end users of electricity adopted with Council of Ministers Decision No. 739. It is clearly regulated that compensations will be granted to electricity suppliers, as the basis for this is the contracts signed with the Ministry of Energy. The aid is fixed at BGN 110 /MWh VAT excluded. The programme is to be extended due to the expected stabilization of electricity prices in the month of April 2022. Thus, the provided mechanism compensates non-domestic end users in another aspect because they are not obliged to submit proof of the consumed energy in order to expect future payments (Council of Ministers, 2021). Both of those decisions of the Council of Ministers are based on the Common European Union Policy for State Aid due to the rising electricity prices.

The programme is extended with Council of Ministers Decision No. 885/16 December 2021 and Decree No. 476 of 30 December 2021 which approve additional expenses under the budget of the Ministry of Energy for 2021. Those documents provide a further BGN 410 million under the programme due to the rising electricity prices on the free market (State Gazette, Issue 1, 2022).

Ministry of Finance Decree No. 3 of 29 December 2021 regulates the surcharge of consumed energy for non-domestic users. It shall be made clear

that the aid is aimed at those users who do not consume electricity on the free market. The aid is received when it is charged in an invoice under the entry “public service obligations” (Ministry of Finance, 2021).

Regarding the organization of the accounting for compensations for the high prices of electricity from the point of view of the Value Added Tax Act, it shall be clarified that the following shall be considered as a state aid, not as financing. The additional regulations of the Act, paragraph 1, item 15 state: “Subsidies and financing directly related to the supply” are the subsidies and financing whose granting is directly bound with the price of the provided goods and services. Subsidies and financing directly related to supply shall not be considered such when they are intended solely for: a) covering losses; b) financing expenses, including those for the acquisition or liquidation of assets.” (State Gazette, Issue 63, 2008). The compensation programme regulates covering the electricity costs which fall under sub-item b) financing expenses and this determines that the sum of BGN 110 /MWh not be treated for tax purposes.

According to the Corporate Income Tax Act (CITA), in particular article 25, it is regulated that the income (expenses) and the profit (loss), when they have been approved for the current accounting year, do not transform the financial result for the current and the following year (State Gazette, Issue 105 of 22 December 2006, 2006). Therefore, the financial result of the non-domestic end users is not transformed for 2021 and for 2022 with the sum for compensation for electricity expenses.

2. Review of the Applicable Accounting Standards in Accounting for the Compensation for Electricity Consumption by End Users

In accounting for the programme for compensation to non-domestic end users of electricity, the following accounting standards are applied: National Accounting Standard 20 *Accounting for Government Grants and Disclosure of Government Assistance* and International Accounting Standard 20 *Accounting for Government Grants and Disclosure of Government Assistance*. The national accounting standards view the compensation programme as a government grant, due to the circumstance that it is an assistance which is driven by the argument that “benefits granted through influencing the general economic conditions in the country are not treated as government grants” (State

Gazette, Issue 86, 2007). In this respect, it is taken into consideration that the compensation to non-domestic end users of electricity affects the economic conditions throughout the country. Government grants are: “providing funds by the government to certain enterprises as compensation for its conforming in the past or in the future to certain conditions relevant to the enterprise’s current activity” (State Gazette, Issue 86, 2007). The programme meets the requirements of accounting as a government grant. As far as the international accounting standards are concerned, the accounting for this Programme does not fall in the range because “the current standard does not discuss: a) special problems occurring during the accounting for grants provided by the government in financial statements reflecting the effects of the changes in the prices or relevant to any additional information of similar nature;” (Regulation (EC) No. 70/2009, 2009) The programme is directed towards compensations for price fluctuations of electricity on the free market, which is contrary to the abovementioned argument in IAS 20.

In accounting for the expenses in industrial enterprises, they shall establish an adequate organization which shall conform to the legislation, the accounting standards, and the specific characteristics of the sector in which the specific activity is performed. According to Maria Pavlova, “Expenses are the basis on which the successful economic activity of the enterprises is built. When they are correctly planned, their return is maximal and is related to a minimal period of time. Expenses are the main driving force of production” (Pavlova, 2010, p. 31). For industrial enterprises “measuring the expenses is related to their reference to a certain calculation object/object of expenses and calculation unit” (Brezoeva & Musov, 2020, p. 7). The research claims show the significance of the expenses in the activity of industrial enterprises. As far as the organization of accounting for the expenses is concerned, this is a constant process for receiving timely, reliable, and adequate information.

The organization of accounting for the expenses is a subsystem which conforms to the same methodology (normative acts, accounting standards, specific regulations), because otherwise the information which is received might mislead the decisions makers (managers, directors, etc.). The Ministry of Finance Decree also refers to the Accountancy Act, article 15 item 2, namely, it provides opinions and methodological guidance on the application of this act and the National Accounting Standards.

3. Value dimensions of compensations. Accounting model provided by the Ministry of Finance – drawbacks and opportunities

The compensation intended for non-domestic consumers is BGN 110 per MWh, as the sum does not include VAT for the period from 1 October 2021 to 30 November 2021. For the month of December, the last intended compensation is BGN 129 per MWh VAT excluded. VAT tax liabilities cannot be deducted and are owed to the supplier at the invoice payment. The amount of BGN 110 per MWh for the two months and BGN 129 per MWh for December and until March 2022 is formed on the basis of calculation as the sum of the compensation is 75%, exceeding the base price of BGN 185.59 per MWh. The “day-ahead” segment is used, but the compensation does not exceed 30% of the actual price of electricity on the energy market (Stanchev, 2021). In January, a decision is made to remove the requirement of those 30%, as the compensation limit is set to BGN 250 (Stara Zagova Chamber of Commerce and Industry, 2022).

Council of Ministers Decision of 12 May 2022 states that the compensation for the month of May is 80% of the amount exceeding BGN 200 per MWh.

Calculating the compensation can be visualized in the following way. For the month of May, the average price of electricity on the free market is BGN 526.37 per MWh (*this is a sample price*), first, we calculate the difference between the average and the base price – $BGN\ 526.37 - BGN\ 200 = BGN\ 326.37$. Second, we determine the amount of the compensation $BGN\ 326.37 * 80\% = BGN\ 261.10$.

Council of Ministers Decision at the end of June regulates the value of the compensation from 1 July until the end of the calendar year. It imposes a limit on the price which is paid by non-domestic end users of electricity – BGN 250 per MWh. Everything over this value is considered compensation for the high prices of electricity.

It is possible to make a comparative analysis among the presented models for calculating the compensation under the programme for compensating non-domestic end users for the high prices of electricity. We use the sample price provided above BGN 526.37 per MWh:

- For the months of October and November – average price BGN 526.37 and compensation of BGN 110, VAT excluded show that non-domestic end users pay BGN 416.37 per MWh;

- For the month of December – average price BGN 526.37 and compensation BGN 129, VAT excluded show that the sum for electricity is BGN 397.37;

- For the months of January, February, March, and April – average price BGN 526.37 and compensation $BGN\ 526.37 - 185.59 = BGN\ 340.78 * 75\% = BGN\ 255.59$ as the compensation has been limited to BGN 250. The sum for electricity is formed by subtracting BGN 250 from BGN 526.37 which equals BGN 276.37 per MWh.

- For the months of May and June – average price BGN 526.37 and compensation $BGN\ 526.37 - 200 = BGN\ 326.37 * 80\% = BGN\ 261.10$. The formed end sum is $BGN\ 526.37 - 261.10 = BGN\ 265.27$ per MWh.

- From 1 July until the end of the calendar year – average price BGN 526.37 and compensation $BGN\ 526.37 - 250 = BGN\ 276.37$. The formed end sum is $BGN\ 526.37 - 276.37 = BGN\ 250$ per MWh.

The presented data indicates an increase of the compensation by the government and a constant decrease of the price of electricity.

The accounting model presented in the Council of Ministers Decree provides guidance on the organization and technology of accounting for the expenses for electricity. We shall make it clear that this research paper places the emphasis on the accounting for non-domestic end users. In order to encompass the various enterprises, we shall provide an expanded model and/or model for allocating the expenses and creating analytical information. The accounting model, which is recommended in the Decree is as follows:

1. Upon receiving the invoice

Debit account Electricity expenses	Σ	
Debit account VAT for purchases		Σ
Credit account Suppliers		Σ
2. Upon paying the invoice with the deducted compensation sum

Debit account Suppliers	Σ	
Credit account Monies	Σ	
3. Upon charging the electricity compensation

Debit account Funding under programme	Σ	
Credit account Income from funding		Σ
4. Upon settling the payments to suppliers on invoice

Debit account Suppliers	Σ	
Credit account Funding under programme		Σ

We can point out certain drawbacks of the accounting approach for compensations; they are related primarily to the accounting for the expenses and the cost price calculation:

- Economic subject account for the electricity expenses in a same name account and the value of the whole invoice is accounted under the debit account; compensation is not deducted;

- The presented accounting model does not provide adequate information which allows the analysis of the structure of the expenses and their influence on the whole activity of the economic subject, which has an impact on short-term, medium-term, and long-term strategies and plans.

The presented arguments are significant due to the unstable economic environment and the constant changes in the access regulation on the territory of the separate countries. The orientation towards compensating the business is a crucial factor for the normalization of the economic life in the country, the European Union, and the world.

The differentiated drawbacks and the arguments presented for them point out to the existence of a problem in the calculation of the actually made expenses towards forming the cost price of the services and the produced goods. The model presented by the Ministry of Finance accounts for the whole amount of expenses for electricity on the accounts, but in truth, non-domestic end users, and in particular, industrial enterprises will not pay this amount. This, respectively, leads to an increase of the cost price of the manufactured products, which leads to a further rise of the sale price of the provided services and produced goods and extension of the inflation processes. As a major argument, this determines the development of an alternative accounting approach for the electricity expenses.

4. Alternative accounting approach for compensations to non-domestic end users – organization and technology of the accounting activity

For industrial enterprises, the accounting model for the expenses for electricity provided by the Ministry of Finance is rather incomplete. We observe settlement of the entries of cash flows and income and costs in the Income statement/statement of comprehensive income in compliance with *NAS 20 Accounting for Government Grants and Disclosure of Government*

Assistance. For the purposes of calculating the cost price of products and services, we shall differentiate the expenses referring to their production. It is of utmost significance to deduct the compensation for the price of electricity from the invoiced value initially entered in the accounts for accounting for the expenses. This could facilitate determining the actual cost price of the manufactured products because in the accounting model provided by the Ministry of Finance, the electricity price is entered in “expenses” without deducting the amount for compensation per MWh. It is obvious that the industry in our country is energy-intensive and the analyses based on truthful information are significant for making quick operative decisions.

The organization of accounting for the expenses “on the activity concerns synthetic and analytical accounting. It depends on the Accountancy Act and the interpretations of the applicable accounting standards as well as on the information needs of the enterprises for providing accounting information” (Durin & Durina, 2013, p. 179). The organization of the accounting for the expenses requires a clear differentiation between synthetic and analytical accounting and creation of information flows for individual units, if there are such, on the basis of which the specific characteristics of the industrial activity are formed. This means that the application of accounts accounted for the expenses, synthetic or analytical, shall be researched in detail, because we shall take into consideration the specific aspects of the industrial activity.

For this purpose, we shall adopt an alternative accounting approach for the compensation for consumed electricity at the enterprises in the industrial sector. It places the emphasis on the possibility for deducting the compensation amount in accounting the invoice, which will enable the correct calculation of the actual cost price of the manufactured products and services.

In this case, the organization of the accounting process necessitates first, differentiating the accounts so that the various aspects of the programme for compensation of enterprises are accounted correctly. As far as industrial enterprises are concerned, there has to be a clear differentiation of the accounts accounted for the electricity expenses in the various activities – main and ancillary activity, organization and management, distribution activity, commercial activity, etc. The challenge faced by enterprises is allocating the indirect general production expenses in the existence of more than one activity in a specific unit, industrial workshop, department, etc. Accounting for the electricity for production activity is performed in the account Expenses for materials/Expenses for external services; we shall add to it a four-digit account

“Electricity Expenses”. To specify the accounting by activities, we shall add to it the following analytical accounts: account “Electricity expense in the main production activity”, “Electricity expenses in the ancillary activity”, etc. At the existence of more than one production and ancillary activity, additional accounts shall be opened.

Next, we shall plan to use a suspense account entitled “Calculation of financing under programmes”. The account is active from the point of view of the balance sheet; in structure and purpose it is a suspense account and additional analytical accounts can be added to it depending on the type of compensation. In this particular case, we discuss electricity compensation. This account serves to create information about the amount of government grant, which is also information about the amount which is deducted from the total electricity expenses which have been accounted.

The alternative accounting approach for compensation does not use accounts accounted for the income because in the account which reflects the consumed electricity, the compensation amount is accounted under the suspense account. In this case, we do not account an expense, which means that there is no need of acknowledging and accounting income (income from funding).

Allocating the indirect general production expenses for the purposes of financial accounting are regulated by NAS 2 *Valuation of Inventories* and IAS 2 *Valuation of Inventories*. The national standard regulates in item 6.5 the following: “General production costs are allocated among the main products on the basis of the relative ratio of the fair (sales) value of each product in the total fair (sales) value of production or on the basis of pre-developed coefficients” (State Gazette, issue 8, 2007). Item 14 of the International Accounting Standards states that “When the costs of conversion of each product are not separately identifiable, they are allocated between the products on a rational and consistent basis. The allocation may be based, for example, on the relative sales value of each product either at the stage in the production process when the products become separately identifiable, or at the completion of production.” (REGULATION (EC) No. 1126/2008, 2008). Both accounting standards state that the basis for allocating the general production costs is the relative sales value of the products. For the purposes of management accounting, it is possible to use other bases for the allocation of general production costs (machine hours, man hours, area, etc.).

The example uses sample electricity prices and compensation amounts. For the average electricity price, we have used again the value presented previously in the article – BGN 526.37 VAT excluded, and the calculated compensation of BGN 276.37 VAT excluded (BGN 526.37 – 276.37 = BGN 250). The electricity consumption is MWh.

First, we shall calculate the compensation amount and it shall be deducted from the total amount of the electricity invoice. The total amount for electricity is 12 MWh * 526.37 = BGN 6,316.44, then the compensation amount is 12 MWh * BGN 276.37 = BGN 3,316.44. Finally, we determine the amount after deducting the compensation BGN 6,316.44 – BGN 3,316.44 = BGN 3,000¹.

The accounting model based on the alternative approach is as follows:

1. Upon reception of the invoice:
 - Debit account Electricity expenses BGN 3,000
 - analytical account Electricity expenses in the main production activity
 - analytical account Electricity expenses in ancillary activity
 -
 - Debit account Calculation of financing under programmes BGN 3,316.44
 - Debit account VAT for purchases BGN 1263.29
 - Credit account Suppliers BGN 7579.73
2. Upon payment of the invoice with deducted amount of the amounts payable to the supplier:
 - Debit account Suppliers BGN 4,263.29
 - Credit account Checking account BGN 4,263.29
3. Upon settling the amounts payable to the supplier on the invoice:
 - Debit account Suppliers BGN 3,316.44
 - Credit account Calculation of financing under programmes BGN 3,316.44
4. Entering the expenses by allocation:
 - Debit account Expenses for the main activity Σ
 - analytical account for the production of product 1
 - analytical account for the production of product 2
 - Debit account Expenses for ancillary activity Σ

¹ The amount complies with the latest amendments in the programme for compensation to non-domestic end users, adopted by a decision of the Parliament.

Debit account Administrative expenses	Σ
.....	
Credit account Electricity expenses	BGN 3,000
analytical account Electricity expenses in the main production activity	
analytical account Electricity expenses in ancillary activity	
.....	

For the purposes of further calculating the cost price in the last economic operation, we have differentiated separate analytical accounts for the manufacturing of each product. Thus, we can achieve differentiation of the electricity expenses.

The advantages of such an alternative approach visualized by the presented model, can be described as follows:

- First – clear differentiation of the electricity expenses and deducting the government grant, which allows the calculation of the actual cost price of the manufactured products and the provided services;
- Second – differentiating a suspense account which contains information about the compensations under the programme suitable for further analyses in the industrial enterprise;
- Third – there is a sufficient amount of information necessary for making operative, tactical, and strategic decisions of various time horizons.

We shall make a review of the European compensation practices and more specifically, the guidance which the European Union proposes for tackling the high prices of electricity. The EU member states can implement the following options:

- provide time limited compensation measures and direct support to energy-poor end-users including groups at risk, e.g., through vouchers or by covering parts of the energy bill, financed inter alia from the ETS revenues;
- put in place and/or maintain safeguards to avoid disconnections from the energy grid or defer payments temporarily;
- exchange best practices and coordinate measures through the Commission Energy poverty and vulnerable consumers coordination group;
- reduce taxation rates for vulnerable populations, in a time limited and targeted way;
- consider shifting the financing of renewable support schemes away from levies to sources outside the electricity bill;

- Take measures reducing energy costs for all energy end-users;
- Provide aid to companies or industries to weather the crisis, in full compliance with the state aid framework, while using, as appropriate, the scope for flexibility provided for in the framework and encouraging transition away from fossil fuels;
- Facilitate a wider access to renewables power purchase agreements beyond large business, including SMEs, for instance by aggregating end-user demand in compliance with competition rules; (European Commission, Tackling rising energy prices: a toolbox for action and support, 2021).

In the European Union, there is a trend of developing measures for further periods, which are directed towards compensating under the following options – interference on the electricity market including financial compensation to the consumers and interference on the electricity market on a wholesale level: determining prices in combination with financial compensations to manufacturers.

- The first option is related to the retail side of electricity and is based on three approaches: direct support to consumers through vouchers, tax reliefs or through the “model supplier of aggregated services.” Providing vouchers and tax reliefs are used as a direct interference in the price of electricity, which aims at reducing the value of the voucher or the value of the tax. The third approach aims at achieving a decrease of the price by selecting an enterprise which purchases electricity on the free market and offers it to certain consumers at prices below the current market prices.

- The second option discusses three approaches – the first approach is based on compensation on the price which the producers of energy from fossil fuels pay for their fuel. This facilitates compensating the price of the fuel itself, but it also protects producers from the rising prices of production resources, which could lead to lower electricity prices. The second approach is directed towards imposing upper limit on the electricity price, as the degree is predetermined. The last approach is related to limiting the return for electricity producers which is considered a tax measure (European Commission, eur-lex.europa.eu/, 2022).

Conclusion

In this article, we have made an attempt to propose an alternative approach to the one indicated in the Ministry of Finance Decree in accounting for the expenses for electricity and accounting for the compensations by the government and their expending. We have presented an accounting model which places the emphasis on the deduction of the compensation from the total amount of the expenses towards calculating the actual cost price of production and the provided services by industrial enterprises. This gives an opportunity to analyze various indicators with actual expenses which shall help in making managerial decisions.

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