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## Tax Incentives for Energy Efficient Investments in the Context of Neo-Industrial Paradigm in Russia

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**Abstract:**

*The study contents an analysis of existing preferences in Russian Federation, aimed at incentives for investments in energy efficiency industry. Among them there are exemption from property tax of highly energy efficient facilities, accelerated depreciation and investment tax credit. We have revealed the reasons for reduction of their demand on the part of taxpayers.*

*It is suggested to improve tax incentives for energy efficient investments in order to focus on achievement of the objectives of neoindustrialization of Russian economy. We have proven the necessity to increase energy efficiency of manufacturing industry within the implementation of the policy of new industrialization according to the principles of labour saving, lack of people, disposability, recycling of the resources, post-oil energy, human reproduction and a healthy environment. However, the expansion of industrial manufacturing and the achievement of living standards of developed countries require a significant increase in energy consumption. Therefore, the priority of tax incentives should be not a reduction of quantitative indicators of energy saving but energy efficiency due to the growth of quality indicators. So energy-output ratio of the economy should be decreased not because reduction of the amount of consumed fuel and energy resources, but because of growth in gross domestic product. Moreover, economic growth rates should be higher than the growth rates of energy consumption.*

*To implement this in the medium term we suggest monitoring and improvement of the existing preferences. In particular: to avoid duplication of privileges and preferences, to change specific ones to more general ones simpler in use and administrating; to fully delegate the authorities for establishment of privileges and preferences on the regional tax to the subjects of the Russian Federation; to intensify the use of credit against tax, including investment credits against tax.*

**Key Words:** *Tax, incentive, investments, energy efficiency, neoindustrialization, preferences, burden*

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## **1. Introduction**

### **1.1 Introduce the Problem**

Increase of energy efficiency and energy saving are important on a global scale. And the reason lies in not only limited resources, but also in increasing negative impact of emissions on the environment and climate. National economies are interested in preservation of natural potential for future generations, reduction of production costs by decreasing the share of consumed energy and fuel resources and increasing the manufacturing with high added value. This can be realized in two main ways. Firstly, through changing the fuel balance by using less "dirty" technologies and alternative energy sources. Secondly, through wide implementation of energy-saving technologies and water/wastewater treatment facilities. Implementation of these measures is associated with high costs. However, business in modern Russia lacks both own funds and borrowing assets due to high interest rates. In addition, it does not have enough stimulations in market economy to expand costs when there are cheaper ways to get results. The government must provide its citizens with public benefits and it has necessary financial resources for that. Therefore, it must take on costs of the energy efficiency of the economy, including tax expenses.

Developed countries solve these problems by increasing the tax burden for the production and consumption of energy and fuel resources, implementing environmental taxes and stimulating energy production from renewable sources of energy. In countries with developing economies a greater share of the industry is occupied by high-energy demanding spheres. Rise of taxes and cost of energy to the world level may have a limiting effect on economic growth. Model of resource-based economy and de-industrialization of the Russian economy on the background of financial crisis significantly complicates the task of construction of an effective mechanism of tax incentive for energy efficient investments, and as a result, for environmental efficiency. Neoindustrialization requires implementation of major projects and improvement of power loading in a number of sectors of the economy with the aim of increase of share of import-substituting industries with high added value.

### **1.2 Explore Importance of the Problem**

The importance of the study of tax incentive for energy saving and increase of energy efficiency within a neo-industrial paradigm is conditioned by a need to study both its theoretical base and practical recommendations. The need for, on the one hand, increase of industry capacities, and, on the other hand, for compliance with the Kyoto protocol and reducing of harmful emissions into the atmosphere, requires special attention of the government to the formation of tax policy in this area. Currently, the existing tax legislation in Russia has only three preferences aimed at the investments in facilities exclusively with high energy efficiency. Only fuel resources are listed as excisable, which has no significant limiting effect on demand and consumption of objects with high energy efficiency. Negative impact on the environment are charged with fees of non-tax nature. It does not bear any fiscal or

regulatory role due to unessential size and a number of disadvantages concerning calculation pattern and payment (Koroleva & Maskaeva, 2014). In 2015, the tax maneuver was implemented. It is aimed at increasing of cost of fuel and energy resources in the national market by increasing environmental taxes and reducing export duties. This measure will reduce the profitability of main customers in heavy industrial manufacturing. But it does not stimulate technological upgrades in order to save resources of the mining industry itself.

In the Russian Federation it is necessary to form a complex system of tax measures aimed at improving the energy efficiency of industrial manufacturing, allowing to have a double effect. Ecological one – by reducing harmful emissions into the atmosphere, economical one – by increasing the rates of economic growth based on resource saving. The practical effect of the study is to identify problems of the use of existing tax preferences and development of recommendations for their improvement in order to stimulate transition from raw materials export model to a neo-industrial model. A number of proposals for improving the existing tax preferences can be helpful in the short-term period. They will help simplify tax legislation and expand the use of preferences within the subjects of the Russian Federation with high levels of energy-output ratio of gross regional product.

### 1.3 Background

Specific features of new industrial society and the role of government in it were studied from the middle of the 20th century: Galbraith (1967). Fundamental scientific attitudes of neo-industrial paradigm were developed in the works of Russian economists of the classical school of economic theory: Gubanov (2012), Ryazanov (2011), Daskovskiy & Kiselev (2013). Many researchers emphasize on the need of transition from raw materials export model to new industrialization in Russia: Bodrunov (2012), Lenchuk (2013) and others. However, the mechanism of transition still is not specified enough and requires combined efforts of scientists of different directions, including tax experts.

Scientific literature suggests several options for improvement of tax policy in Russia in the context of the objectives of the new industrialization: Novitskiy (2013), Nekipelov, Ivanter & Glazyev (2013), Kashin & Abramov (2014). Despite different approaches, they all point at the need for reduction of tax burden on investment, innovation and high-tech activity. A number of studies are devoted exclusively to problems of tax incentive for investments and innovations: Dmitrieva (2008), Ivanova et al. (2009), Kuzmenko & Barinov (2011) and others. However, the tax incentive for investments in energy saving and energy efficiency in their works do not receive enough attention. In Russian literature there is only a small volume of articles on the topic of practical application of existing taxes and preferences: Ratner & Dira (2010), Khavanova (2013), Ginzburg (2014). The most detailed analysis of the impact on Russian economy of taxes on carbon emissions while reducing labor taxes was made by: Orlov, Grethe & McDonald (2013).

Abroad the practice of tax incentive for industrial modernization based on the energy saving principles is applied for long enough. In the United States at the federal level and in the states government has implemented numerous incentives for energy-efficient facilities and renewable energy sources (Garciano, 2014). In the works of Nadel & Elliott (2012) the authors present an analysis of effectiveness of privileges in the United States since 1978. In 2014 Nadel proposed reforms to the US tax policy in six areas in order to stimulate rational use of energy: clarification of terms of depreciation for their rapprochement with the average lifetime of the equipment; reform of existing tax incentives for facilities with high energy efficiency; help to capital investments in manufacturing; establishment of prices for emissions (taxes on pollution). Scientists also studied costs and benefits of tax relieves for renewable energy sources (Bolinger, 2014). Other scientists assessed the effects of alternative variants of increase of tax burden on the cost of energy for people or businesses in the short or in the long terms (Miguel & Manzano, 2011); as well efficiency of tax shift from labor taxation and capital taxation to pollution and high consumption of fuel and energy resources taxation (Hoerner, 2000). An important aspect of the problem is the choice of priorities for tax incentive in order to improve energy efficiency of the industrial manufacturing. Developing countries usually put economic growth in the first place. Currently, a number of studies highlight the importance of national policy aimed at ensuring of a sustainable balance of social welfare, environmental restoration and economic growth (Scheel & Vazquez, 2011).

In European countries the problem of energy efficiency is mostly viewed through the lens of environmental effects. Thus, the first priority is not the decrease of consumed energy resources in order to improve economic efficiency, but the reduction of harmful emissions into the atmosphere. Therefore, in the scientific literature there are studies of environmental taxation: Andersen (2010), Cansino et al. (2010), Ekins & Speck (May 2011), Nagy (2013), and others. It is worth noting that there are studies that doubt the effectiveness of tax incentives in the energy policy (Spassova & Garelo, 2010).

Thus, this topic is quite extensive. It has a high relevance for both developed and developing countries. Development of a system of tax incentive for investments in energy efficiency and energy saving in the industrial manufacturing requires a complex and in-depth research taking into account Russian conditions.

#### 1.4 Hypotheses and their Influence on the Research

It is necessary to revise the economic basis of the government tax policy in general and for resource saving and energy efficiency in particular. This is what a neo-industrial paradigm should be. The objective of this study is to prove the priorities and perspectives of reforming of tax incentives for energy efficiency investments in the industrial manufacturing in accordance with the requirements of neo-industrial paradigm. The study is aimed at the specification of complex tax measures necessary for Russia's transition to neo-industrial economy model. To achieve the objective the following tasks are set:

- to assess relevance and adequacy for objectives of new industrialization of existing tax preferences for objects with high energy efficiency and to develop suggestions for improvement of them for medium term;
- to justify the need for setting objectives for improvement of industrial energy efficiency within the policy of new industrialization and the relevance of their solution with the help of tax instruments;
- to determine the range of tax instruments aimed at the incentive of investments in energy efficiency industry in the long term period that can be applied in Russian within the current model of tax federalism, and a set of restrictions imposed by the current economic conditions and living standards.

## **2. Method**

### **2.1 Theoretical and Methodological Basis of Research**

The theoretical basis of research is the new Keynesian economics. It is assumed that according to the theory of rational expectations economic agents act rationally, but subjectively, they are familiar with the market mechanisms and are able to predict the response of supply and demand as a result of price changes. However, prices are not flexible, and cannot instantly adapt to changing economic conditions, and should be regulated by the government. As a consequence, an increase of money supply (or, equivalently, reduction of the interest rate) does increase productivity and low unemployment level in the short term. On the basis of basic concepts the study shows the need for discretionary stimulating of tax policy during financial crisis in Russia.

Priorities for tax incentive are determined by the article on the basis of the principles of neo-industrial paradigm. Under new industrialization we historically mean a typical process of development of the manufacturing forces, which takes place after the completion of the first stage of industrialization – electrification. It is the second stage of industrialization, automation and computerization of productive facilities. Social economic objective of new industrialization is to create a system of automated machines operating in accordance with a set of principles. In particular, with the principles of labor-saving; vertical integration; cross-industry value-added production chains, arranged in accordance with the law of vertical integration; "just in time"; lack of human activity; disposability; recycling of resources; post-oil energy; unity of scientific and technical progress and the progress of the economic system; consensus of planning; human reproduction and healthy environment (Gubanov, 2014). De-industrialization of modern Russia's economy is expressed not only in quantitative reduction of industrial production, but also in a large share of worn-out fixed assets, low labor productivity and low salaries in real economy.

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A method of scientific idealization (abstraction) was used in the development of complex of energy effective tax incentives. It is the substitution of the real empirical event by the idealized scheme, diverted from real shortages.

The study is based on the use of the following key principles: the principle of information richness; the principle of practical feasibility of the study and simulation results; the principle of objectivity of the study; the principle of continuity.

## 2.2 Information Basis and Methods of Experimental Part of the Study

Information about dynamics of government tax expenses for support of taxpayers that make modernization of manufacturing by investing in energy-efficient equipment, received from statistical reports of the Federal Tax Service of the Russian Federation. However, a small time period of tax preferences for energy efficient projects in Russia (3-5 years) did not give an opportunity to use methods of economic mathematics to assess their effect on energy efficiency of economy and ecological condition. Conclusions about the system of tax incentive for energy efficiency are made based on analysis of dynamics of absolute and relative indicators of government tax expenses.

To identify the problems of tax incentives for investments in energy efficiency in manufacturing industry we used the results of a survey of taxpayers “The effectiveness of mechanisms of government support: snap poll of companies-members of the Russian Union of Industrialists and Entrepreneurs”. The survey mainly involved companies from electronic industry, machine building, food processing, aircraft and engine manufacturing, light industry, wood processing, pulp and paper production (Russian Union of Industrialists and Entrepreneurs, 2013).

To study the motives of companies in investment activity we used the results of sample surveys of investment activity of the companies, which are made annually by the Federal State Statistics Service of the Russian Federation.

All absolute indicators in the study have been calculated at the average annual nominal exchange rate of the USD against RUB of the Central Bank of the Russian Federation, formed in the period in which these indicators characterized.

To establish causal relationships in the analysis of digital material and proof of development of prospects of tax incentives for investments in energy efficiency we used scientific methods of study (analysis and synthesis, induction, analogy, comparison).

## 3. Results and Discussion

Energy efficiency and energy saving in the Russian Federation are regarded as priority areas of science, technology and engineering development. For formation of an effective system, stimulating and supporting energy efficiency, providing a reduction in energy-output ratio of gross domestic product of the Russian

Federation, government is planning from 2013 to 2020 to spend about 1.63 billion USD of budgetary provisions from the federal budget (subprogram "Energy saving and energy efficiency" of the government program of the Russian Federation "Energy efficiency and energy development", approved by RF Government Decree of April 15, 2014 No. 321). Along with an increase in budget funding there is a task to stimulate the attraction of extra-budgetary investments in the implementation of measures (projects) in the field of energy saving and energy efficiency, for solution of which since 2009 the government has been using the instruments of tax policy.

In the Tax Code of the Russian Federation there are three tax instruments aimed at stimulation of energy saving and energy efficiency:

- 1) tax exemption for newly commissioned property of companies with high energy efficiency;
- 2) the right to use an increased tax rate in the calculation of depreciation of companies property with high energy efficiency (not exceeding 2);
- 3) investment tax credit – ITC.

The privilege of property tax was included in the Tax Code of the Russian Federation in 2011. It is the only one of all the above mentioned that allows companies to reduce the tax burden, and not to redistribute it in time. But this, according to the indicators presented in Table 1, significantly increases attractiveness of the privileges for taxpayers.

**Table 1.** Dynamics of indicators of granted privileges for property tax in the Russian Federation

Indicator	2011	2012	2013
The ratio of the amounts of all privileges in respect of energy-efficient facilities in the total amount of privileges granted, %	0,003	0,27	0,95
The number of taxpayers applying tax privileges to newly commissioned facilities:			
- with high energy efficiency on the list of the Russian Federation Government	0	79	108
- having the high energy efficiency class	6	75	91
The ratio of taxpayers who use privileges in respect of energy-efficient facilities in the total number of taxpayers using privileges, %	0,005	0,16	0,27

During 2011-2013, there was very constructive dynamics. The number of taxpayers using tax privileges and not received tax amounts in connection with their provision decreased. That led to an increase in the calculated amount of the property tax to be paid to the budget, despite the significant reduction in the number of taxpayers.

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Cancellation of a number of privileges for property tax, established at the federal level has led to reduction of the value of the budget tax expenses.

As shown in Table 1, there is a bit different dynamics of privileges for newly commissioned facilities with high energy efficiency. Despite the increase in the number of taxpayers who use the privilege, its amount in 2013 in comparison with 2012 significantly decreased. Does this mean a reduction in investments in energy efficiency of industrial production? Certainly, the economic slowdown in 2013 had an impact on the volume of investments in fixed assets. Thus, the volume of investments in machinery, equipment and vehicles in Russia in 2013 decreased by 1.7 billion USD compared to 2012. However, the main reason for stopping the practice of this privilege is not the deterioration of macroeconomic conditions, but in the introduction in 2013 of the tax innovations aimed at the transition to the taxation of real estate. In particular, movable property of the companies was excluded from the objects of taxation. In order to exclude cases of tax evasion the list of non-taxable movable property was shortened on January 1, 2015. The exception is now applies to all assets included in the first or second depreciation group according to the Classification of fixed assets (p. 8 p. 4 of Art. 374 of the Tax Code of the Russian Federation). In other words, for fixed assets with a usable life expectancy, respectively, from one year to three years. Movable property with a usable life expectancy of more than 3 years is excluded from property tax in accordance with p. 25 of Art. 381 of the Tax Code of the Russian Federation. Exceptions are items registered on January 1, 2013 or later, as a result of: the reorganization or liquidation of legal entities; transfer, including the acquisition of property between persons recognized interdependent.

Movable property is all property (items) that are not related to real estate (p. 2 of the Art. 130 of the Civil Code of the Russian Federation). To real estate belong all lands, subsoil, and all that is firmly connected to the ground... (p. 1 Art. 130 of the Civil Code of the Russian Federation). Thus, machinery, equipment and vehicles are movable property and are not subject to taxation if their usable life expectancy is not over 3 years, or excluded from tax if the usable life expectancy is over 3 years, regardless of the level or class of energy efficiency. This exemption, on the one hand, has offset the stimulating effect of preference for the implementation of energy-efficient facilities. On the other hand, it solved the most significant controversy in the property tax: until 2013 the more taxpayer invested in modernization of production, the higher was tax amount. Excluding of personal property from taxation is a powerful incentive for the expansion of the active part of fixed assets of industrial companies. The replacement of capital-effective labor-intensive production is not effective by itself. Energy saving at the same time, in our opinion, is a secondary task, the achievement of which will be done 'by default'. With the rational strategically oriented management replacing of labor-intensive production by the capital-intensive in the company should lead to resource saving in all forms (laborsaving, energy saving, etc.).

The use of a special coefficient, not higher than 2, during the depreciation of objects with high energy efficiency is possible since 2010. Preference stimulates re-equipment of companies by accelerating the return of funds invested in energy-efficient equipment. The overall tax burden is not reduced, but only postponed to later periods. Since 2011 the amount of accumulated depreciation for this norm of the Tax Code of the Russian Federation is reduced (Table 2).

**Table 2.** Dynamics of indicators of the amount of accumulated depreciation, when applied to the basic depreciation rate of the special coefficient in the Russian Federation (data for 9 months)

Indicator	2010	2011	2012	2013	2014*
Accrued depreciation, when applied to the basic rate of the special coefficient (not higher than 2 in respect of depreciable fixed assets relating to energy efficient), thousand USD	18636	46750	35991	32968	15861
The growth rate to the previous year, %	-	249,0	78,8	95,6	61,6
The share of accrued depreciation on the objects with high energy efficiency in the total amount of accumulated depreciation using the coefficients, %	0,41	0,47	0,2	0,13	0,11

Thus, against the background of the total amount of accrued depreciation using special coefficients (2 and 3), the value of this indicator for objects with high energy efficiency is reduced. In 2014, only 23 taxpayers used the preferences throughout Russia. Only 16 used the coefficient in relation to fixed assets to facilities with high energy efficiency, in accordance with the list established by the Government of the Russian Federation. The list of objects with no classes of energy efficiency was approved with some delay according to the inclusion of the preferences to the Tax Code of the Russian Federation (RF Government Decree of April 16, 2012 No. 308) and immediately was criticized by the taxpayers. Currently, the Ministry of Industry of the Russian Federation is working to improve this legal act. The Committee of the Russian Union of Industrialists and Entrepreneurs on energy policy and energy efficiency, the Expert Council for the mechanized production of oil, the largest

taxpayers of extractive industry, make their own suggestions and wishes as to amendment of the list and methods of listing the objects and technologies as energy efficient (Ginsburg, 2014).

Certainly, technical and methodological shortcomings reduce the effectiveness of preferences. However, they are not unique and, as polls of taxpayers show, the key reasons for lack of their demand. So one of the reasons not to use preferences for facilities with high energy efficiency is the right of the taxpayer to choose between the coefficients of not more than 2 or not more than 3. Coefficient 3 is applied to depreciable fixed assets that are the subject of a financial lease (leasing agreement) or used only for scientific and technological activities, or for activities related to the extraction of raw hydrocarbons in the new offshore field of raw hydrocarbons. If the taxpayer's financial policy permits an increase in depreciation expenses in the current tax period and depreciated facilities with high energy efficiency, for example, that were leased, he would prefer to use the preference with a higher ratio (no more than 3).

Survey conducted by the Russian Union of Industrialists and Entrepreneurs in 2013 among representatives of Russian business on the topic of efficiency of the government support showed that 93.3% of respondents believe this preference to be ineffective. 43.2% of respondents did not use special depreciation rate in relation to energy efficient facilities due to lack of such assets in the companies. 15.9% – because of the lack of information about the privileges (the Russian Union of Industrialists and Entrepreneurs, 2013).

Similar reasons the respondents used to explain them not using the investment tax credit. It is provided within the investments in the creation of objects with the highest energy efficiency class in accordance with the list approved by the Russian Government. 41.8% of respondents did not have facilities covered by the ITC. 16.4% – had no information about it. ITC, in spite of its long-term existence in the Russian legislation on taxes and fees, remains the least popular preference (Table 3).

**Table 3.** The dynamics of the amounts of investment tax credits provided for taxpayers, thousand USD

Indicator	2010	2011	2012	2013	2014
The sum of ITC in Russia, incl.:	3246	9951	9721	10818	4943
profits tax going to the federal budget	-	-	-	3058	3561
of regional taxes	3246	9951	9721	7760	1212
on local taxes	-	-	-	-	170

During the studied period according to the Federal Tax Service of the Russian Federation only three subjects of the Russian Federation provided ITC: Republic of

Komi, Khanty-Mansiisk autonomous district – Yugra, and Belgorod region. So, OJSC Mondi SLPK in the Komi Republic remained the country's only recipient of ITC for several years. For the period from 01.01.2011 to 01.07.2014 as to rescheduling the payment of taxes in the form of investment tax credit the Federal Tax Service of Russian Federation for the Khanty-Mansiisk autonomous district – Yugra was contacted by only 2 taxpayers, and only one of them was granted ITC on tax on the profit of organizations payable to the federal budget. Belgorod region provided the ITC on local taxes for the first time.

The Tax Code of the Russian Federation provides 6 reasons for an investment tax credit, two of which are associated with investments in energy efficiency. Thus, there are alternatives, in this case, 4 reasons, that are not connected to the energy efficiency. For example, in 20 regions of the Russian Federation, zones of territorial development can be created and their residents could apply for ITC without additional conditions as to the volume or directions of investments.

Information about the grounds for ITC is not provided by the Federal Tax Service of the Russian Federation for the public access. However, according to the information from other information sources of the few open-access list of organizations that received ITC, there are examples of the use of preferences for projects on increasing of energy efficient production. So TNK-Nyagan (Khanty-Mansiisk autonomous district – Yugra) got the right not to pay 50% of income tax, in the part paid to the federal budget in the period January 2013 – December 2017 inclusive upon condition of investment into energy-efficient equipment. This will allow the company to spend additional more than 3 million USD per year on purchase of energy-efficient equipment.

A significant barrier to the use of ITC is the absence of actually working procedures for the decision making to grant ITC and schemes of cooperation of regional and tax authorities in the subjects of the Russian Federation.

Thus, the existing tax incentives for investments in energy saving have low demand from the business for the following reasons.

Firstly, the availability of interchangeable preferences (grounds for preferences receiving) similar in nature, but larger in size (scale).

Secondly, organizational and methodological shortcomings in the legal acts regulating the right of taxpayer to use privileges.

Thirdly, low tax literacy of the taxpayers. This is proven by surveys on non-use of tax preferences due to lack of information. Although the information presented in sufficient manner in the legislation on taxes and fees, and on the Internet and within services of the Federal Tax Service and its territorial divisions.

Fourth, the lack of funds for investments in energy saving and energy efficiency. It actually means the absence of objects, allowing the using of tax privileges and preferences.

The latter reason originates from tax relations, but in our view is the main one. Sample surveys of investment activity of the companies, which are held annually by the Federal State Statistics Service as of 10 October this year, revealed the main factors limiting it. In 2013, out of 10.3 thousand of companies operating in mining, manufacturing, production and distribution of electricity, gas and water in the 80 subjects of the Russian Federation, 59% said that the lack of their own funds is the limiting factor for them. Tax privileges and preferences release own taxpayers' funds, which allows us to state that they have a high potential to stimulate investment activity. 27% of respondents also consider high percentage of commercial loans and investment risks to be limiting factors. Even without the official results of the survey based on data for 2014, it is safe to assume that in a devaluation of the ruble, gone for 'free floating' in the fall of 2014, and the tight monetary policy conducted by the Central Bank of the Russian Federation, these factors become even more important. As well as the next factor on the share of answers – the uncertainty of the economic situation in the country (26%). (Federal State Statistics Service of the Russian Federation, 2014).

However, under these conditions, the improvement of tax incentive for energy saving in particular, and even investing activities as a whole without changing the conceptual approach to the formation and implementation of tax policy is not a cure for the stagnation, recession and de-industrialization of the economy. There is a need for a shift from supportive taxation to stimulating on the basis of neo-industrial paradigm development. Its foundations were formed in 2000 in the works of Gubanov and supporters of his conception (Gubanov, 2014). And we offer to form the choice of priorities and instruments of tax incentive in the context of challenges of new industrialization and in accordance with its postulates.

Energy saving in its purest form is not a priority for neoindustrialization. From the perspective of neoindustrial prospects fundamental target priority is laborsaving. Energy efficiency is also an indirect result, in the full sense of the word it is only an epiphenomenon of laborsaving (Gubanov, 2012). Laborsaving is realized through increase of level of automation and computerization of work. Rational owner, making the re-equipment of the manufacturing, should consider energy efficiency of the equipment and other fixed assets as one of the selection criteria. But we should not forget about the budgetary limitations of the buyer. It is possible that he considers it rational to purchase less energy-efficient facilities, with a lower cost, but in larger quantities. Consequently, the task of the government is to encourage the taxpayer for such a rational choice that would satisfy both the private and public interests.

The main target of economic development in accordance with the neo-industrial paradigm is to improve the quality of life. Industrialization, even on a new level not a goal in and of itself. On the contrary, neoinustrialization in Russia, according to the authors and supporters of the concept, should overcome the phenomenon of 'growth without development' that took place in the 2000s in the Russian economy. According to this, the principle of human reproduction and healthy environment is crucial for the formation of economic policy. Improving the energy efficiency of the economy will contribute to a healthier environment.

The principle of post-oil energy in neo-industrial paradigm is directly related to the objectives of energy efficiency by transition to renewable energy sources (RES), the so-called green energy. For the Russian raw material economy, the focus of developed countries on the increase of the consumption of renewable energy carries the risk of losses due to the reduction of the demand for energy resources in the world markets. And this forces to look for new ways of development in industrial and in energy sector. For small and distant from urban agglomerations areas, projects for renewable energy are essential and beneficial. The potential for their development is huge, especially in wind power. And if large-scale projects in the field of renewable energy due to their high costs require public-private partnerships, medium and small require tax preferences, allowing direct funds transfer for their implementation.

Principles of lack of human activity, non-waste and recycling point to the need for resource saving, including energy saving in terms of neoinustrialization. Exhaustibility of resources, and natural disasters associated with their depletion threaten to breach well-being of future generations. Concern for the fate of the children is a powerful motive for limitation an overflow of savings into investments. Compliance with these principles will reduce the cost of goods as a result of exclusion of waste from their cost, improving the environmental situation.

However, the implementation of large-scale tasks of new industrialization may require increased energy consumption in some subjects of the Russian Federation. Significant differences of the regions in terms of social and economic development, geographical location, territory, climate, cause uneven energy-output ratio of GRP, power loading, the structure of energy consumption. Interregional indicators checks for 'specific energy consumption per person' – 'energy density of GRP' suggest that at least in fifteen regions with specific consumption of fuel and energy resources from 1 to 3 tons per person we should think not about energy efficiency in the economy, but about the elimination of energy backwardness, increasing of the power loading (Gasho, 2014). Focus of territorial authorities and entities exclusively on the reduction of energy consumption is fraught not only with a stagnation but also with a widening gap between the regions having high energy saturation and developed energy infrastructure, which can optionally be redirected to new manufacturing. Jevons paradox should be remembered: the technological progress that increases the efficiency of resource use may increase (rather than decrease) its consumption. That

is particularly evident in developing and fast-growing economies. Of course, achievement of higher quality of life in Russia requires an increase in power consumption by families with low and middle incomes. The government should at the same time stimulate lean consumption. Therefore, the tasks, which are set, now – for example, for national and local authorities for the annual quantitative reduction in resources consumption, and the growth of computerization and automation of work – look at least antagonistic.

Thus, neoindustrialization of the Russian economy requires increased energy consumption. The priority for tax incentive should be not the energy saving with the reduction of quantitative indicators, but the increase of energy efficiency due to the growth of quality indicators. So energy-output ratio of economy should not decrease by reducing the amount of consumed fuel and energy resources (the numerator of the indicator), and due to growth in gross domestic product (the denominator of the indicator). And economic growth rates should outpace the rates of energy consumption. Tax incentive, as proved by the experience of foreign countries for this purposes can be used with high efficiency. For this, we propose in the mid-term to conduct monitoring and improvement of existing preferences.

At first, you need to avoid duplication of privileges and preferences. For this purpose, upon the results of monitoring you should exclude specific ones for more general, simpler the use and administration. So special coefficient is not greater than 2 may be extended to the depreciation of the newly commissioned (not used) objects of the active part of fixed assets (technological equipment) of the taxpayers conducting its business in the real economy (with an indication of the codes of economic activities), accompanied by a high degree of depreciation of fixed assets, regardless of their degree of energy effectiveness and sources of acquisition (own or borrowed), with a condition of strictly targeted use of accumulated depreciation fund for reinvestment. Restriction of shortfall in budget profits can be achieved by establishing a list of depreciation groups in relation to which the coefficient is not used, and the time interval of preference use. In other words, to refocus preference from incentive of the purchasing of certain categories of equipment to the incentive of the modernization and technological upgrading in certain activities in the real economy. Also to review other grounds for the use of higher coefficients that would reduce the shortfall in budget profits.

Modern tax policy of the Russian Federation declares the need for monitoring and cancellation of inefficient tax privileges. However, a number of ministries and agencies in the crisis are making proposals for their expansion. Since the Federal Law of July 21, 2014 No. 219-FZ special factor not higher than 2 from January 1, 2019 but not earlier than the first day of the next period for tax on the profit of organizations can be applied to depreciable fixed assets relating to the main technological equipment used in the case of the use of the best available technology, according to the approved by the Russian Government list of basic technological equipment. In February 2015 the Ministry of Industry and Trade of the Russian

Federation provided additional set of tax incentives for industrial companies, in which they proposed the right to use accelerated depreciation on the three grounds: in relation to high-tech equipment, in relation to Russian equipment, and with the coefficients deflator and the formation of a reserve with the mandatory reinvestment. In our opinion, there are numerous reasons for the use of accelerated depreciation which would complicate the tax legislation, and will require additional expenses for the preparation of special lists and the development of new technologies for preferences control. Accelerated depreciation of fixed assets, as we know, can be done with the nonlinear method of depreciation. However, it is rarely used. Absence of demand for new measures can neutralize the effect of their planned implementation.

Secondly, it is necessary to fully delegate the authority to establish privileges and preferences on the regional tax to the level of subjects of the Russian Federation. It is impossible to take into account regional specifics when establishing tax privileges from the federal center. It actualizes the cancellation of existing privileges for property tax in respect of energy-efficient facilities at the federal level with the provision of freedom of its implementation to subjects of the Russian Federation. Specifics of the territory and the needs of its economy should define the priorities for tax incentive. These may be reduction of losses and non-productive outlays in the various sectors of the regional economy; economic growth through the productions with low energy-output ratio, services, small business, tourism etc.; development of new energy-efficient machinery and the active development of renewable energy in the region.

Thirdly, it is necessary to activate the use of privileges in the form of tax credits, including investment tax credits. Even a cursory inspection of the list of objects with high energy efficiency, investments in which are the grounds for ITC, shows their orientation mainly on the oil, coal, gas and iron ore mining as well as the implementation of new technologies for preparation and processing of raw materials for non-ferrous metallurgy, chemical industry, heavy engineering, alternative power, oil and gas transportation through pipelines. This makes sense, given that for these types of activities there is high consumption of fuel and energy resources per worker in the economy. So, in 2012 in Russia the average figure was 13.0 tons of reference fuel; mining - 62.9 tons of reference fuel; production and distribution of electricity, gas and water - 30.1 tons of reference fuel; for manufacturing industry - 29.0 tons of reference fuel. The lowest value of the index was in construction – 2.2 and agriculture – 2.9 tons of reference fuel. The situation is similar for the consumption of electricity. Therefore offers of taxpayers on listing the agricultural and road-building equipment, industry specific machines, equipment and technology, in our opinion, are too early. Activities with low power loading of labor need the increase of labor automation, and, consequently, energy consumption. As polls show, even in high-energy areas the resources saving is not an absolute priority for investments. So according to the Federal State Statistics Service in 2013, 69% of the total number of companies operating in mining, manufacturing, production and distribution of

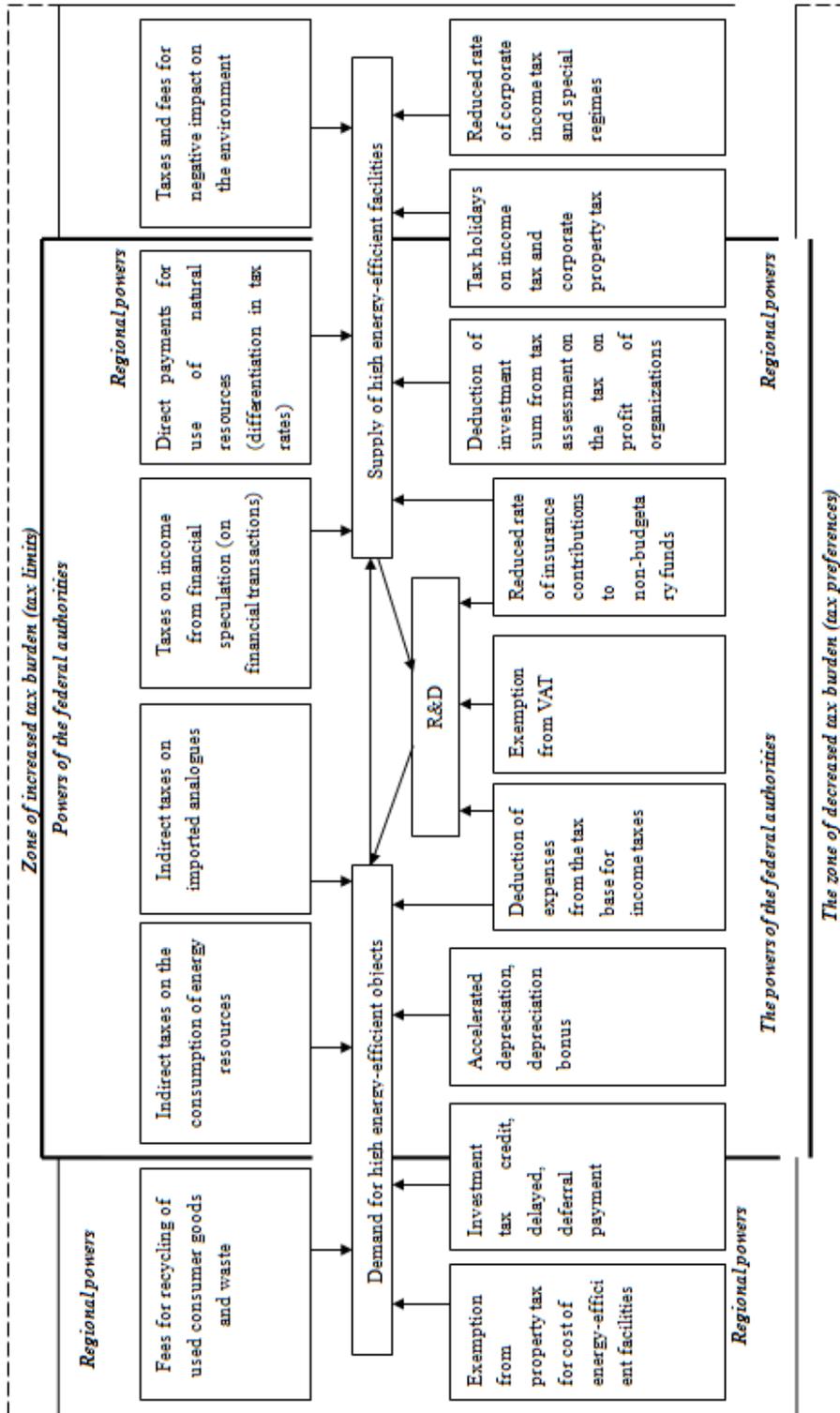
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electricity, gas and water, have invested in the replacement of depreciated machinery and equipment, 48% – in automation and mechanization of existing manufacturing process. And only 42% considered energy saving as the investment objectives. In our opinion, from this figures we can make at least two conclusions. First, for the majority of national industrial companies modernization and technical re-equipment are acute regardless of the increase or decrease in the energy costs. This is reasonable given high degree of depreciation of active part of fixed assets, as well as lower power loading per working in a number of economic activities. Second, many investors for the same reasons, may have implemented their projects anyway, even without the provision of privileges. For example, the results of the Danish program of tax deductions for energy saving projects shows that 45% of participants would acquire energy efficient equipment without the provision of privileges. (Report of the World Bank and the Center for Energy Efficiency, 2008).

In order to boost ITC reception by economic agents it is necessary to increase communication and strengthen cooperation between the authorities of regions with potential recipients. A rational solution to this problem would be joint work of the Federal Tax Service of the Russian Federation together with the Ministry of Economic Development, Ministry of Industry and Trade, the Ministry of Energy upon development of standard legal acts for the regions, procedures of decisions making on granting investment tax credits, the order of interaction of executive authorities of the Russian Federation and economic agents on the decision to grant investment tax credits; order of information interaction between executive authorities of subjects of the Russian Federation and territorial tax authorities.

When reforming the tax incentive for energy efficient investments in the medium term it is necessary to give preference to tax privileges, creating benefits claimed by taxpayers. They should comply with the principles of efficiency and balance of interests in taxation.

In the long term it is necessary to create a complex system of tax incentive for energy efficiency. On Fig. 1, we visualized the complex of tax instruments of influence on investments in energy efficiency. We propose to classify them according to three criteria. First, depending on the objects (demand, supply (production) for objects with high energy efficiency, R&D in the field) on which the instruments are aimed. Second, on the level of authority having the power to use the instrument. Third, on the direction of impact: tax restrictions imply an increase in the tax burden, and tax preferences, implying its decrease. This classification reflects the author's approach to the composition of complex system of tax incentives for energy efficient investments in the conditions of the Russian model of tax federalism and the need for a new industrialization of the economy.



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**Figure 1.** Recommended complex of tax instruments for influence on investments in energy efficient sector of the Russian Federation

A number of instruments are universal. For example, the tax on profits from financial speculation does not belong to energy sector. Its implementation is aimed at reorientation of investments from financial sector to industrial as high yield of some financial transactions causes an outflow of investments from the real economy. That limits the stimulating effect of other preferences. It is not necessary a separate tax. We might introduce higher rates under current taxes on individual and corporate income taxes.

Tax regulation of energy consumption by increasing of tax burden is quite active and effectively used in the EU. In the Russian Federation, the experience of the EU, in our opinion, is limited, above all, by low solvency of both individuals and companies. For example, studies show that an increase in the cost of resources in the utility bills (water, heat, electricity) may lead to an increase of non-payments crisis. The demand for energy has low elasticity by price (Bashmakov, I.A., 2007). A gradual increase in the price of energy elasticity goes to zero. A similar situation exists with companies of high-energy demanding spheres. Furthermore, for the implementation of, for example, recycling fees it is not enough to simply develop new procedures and organize their administration. It is necessary to have the development of recycling industry and waste disposal.

Tax incentives included in the zone of reduced tax burden, are divided according to their primary focus at demand stimulation, or supply, or R&D. Incentive for demand for energy-efficient facilities, both among private and corporate sectors should be a priority of tax policy. For this purpose is rational to use tax instruments to enable consumers to reduce the cost of their acquisition and the subsequent possession. Thus, for individuals it is necessary to make tax deductions for income on the amount spent on the purchase and installation of energy efficient equipment and subsequent emanation of company from the tax on personal property. For the corporate sector an investment tax credit should be a powerful incentive aimed at reducing the cost of the acquisition. Instruments of depreciation policy can reduce the cost of ownership and exemption from property tax.

To stimulate the formation of new industries in energy sector and engineering more extensive preferences are required. Such as tax holidays, irrevocable tax credits, reduced rates on corporate profits tax. These measures should be targeted at different groups of recipients, depending on the priority of the investment projects for development of Russian manufacturing industry. Tax holidays are now applied in the Russian Federation to residents of the "Skolkovo" Innovation Center and special economic zones. The action of this instrument, in our opinion, could be extended to large-scale projects of national importance in the areas of renewable energy, waste disposal, the domestic production of energy efficient equipment, new materials, etc., regardless of the status of a resident of any particular territory. Investment tax credits

or refundable tax credit may be a means of stimulation for smaller-scale projects in these areas. And the reduction of the rate of corporate profit tax, up to zero, could be an instrument for stimulation of projects that do not fall within the scope of other incentives, but being of importance for the regions.

Prospects for the implementation of these instruments are actively discussed by authorities of the Russian Federation. So, the Ministry of Industry and Trade of the Russian Federation in February 2015 proposed the introduction of ten-year tax holiday on income tax and property tax for new industrial enterprises ('greenfields') by setting lower tax rates. In addition, a 10% offset of capital investment into reduction of income tax (tax credit). The decision to grant the tax credit shall be delegated to regional authorities. According to the Ministry of Finance, the effect of these measures on the consolidated budget for the 20-year horizon will amount to 199 billion RUB or 4.8 billion USD (according to average annual nominal exchange rate of USD to RUB of the Central Bank of the Russian Federation).

Activation of interest of business to manufacture of energy-efficient facilities should lead to the demand growth for R&D in this area. Means to stimulate R&D are universal. They should be applied without exclusive connection to the field of energy efficiency. They are aimed at reducing of the cost of R&D at the expense of tax savings on insurance contributions and expenses recognition with a multiplying factor upon calculation of tax base. Exemption from VAT, in our opinion, is crucial in the areas with high added value, which include R&D.

One of the key conditions for the effectiveness of tax incentive is a really working procedure for review and periodic updates of lists of objects, investments into which give ground to use preferences.

Recommendations presented in the article require additional calculations, aimed at the assessment of the effect of implementation of each instrument individually and finding an optimal level of taxation. Also, a need for a systematic approach to tax incentive for investments and innovations should not be forgotten. Tax incentive for energy efficient investments is a compulsory element of this system but not the only one.

#### **4. Conclusion**

Thus, tax incentive for investments in resource saving and energy efficiency in Russia is formal and fragmentary. It does not help to change raw material economy model. Amendments to tax and fees legislation is driven by short-term interests of the tax budget, on the one hand, and by the biggest taxpayers of mining and the financial sector, on the other hand. Only three tax preferences are directly aimed at energy efficiency of the economy. These are the exemption from property tax for facilities with high energy efficiency, accelerated depreciation and investment tax credit. However, their demand from taxpayers has decreased for several reasons.

Firstly, the availability of interchangeable preferences (grounds for preferences) are similar in nature, but larger in size (scale). Second, the organizational and methodological shortcomings in the legal acts regulating the use of taxpayer's right for privileges. Third, low tax literacy of the taxpayers, manifesting in the inability to select and use relevant information. Fourth, the lack of funds for investments in energy saving and energy efficiency, which actually means the absence of objects allowing use of tax privileges and preferences.

It is necessary to improve the system of tax incentive for energy efficient investments with a focus on achievement of objectives of neoindustrialization of the Russian economy. The priority of tax incentives should be not a reduction of quantitative indicators of energy saving but energy efficiency due to the growth of quality indicators. So energy-output ratio of the economy should be decreased not by reduction of the amount of consumed fuel and energy resources (the numerator of the indicator), but by the growth in gross domestic product (the denominator). And economic growth rates should be higher than the growth rates of energy consumption.

In order to do this in the medium term it is necessary to monitor existing preferences, eliminate duplication of benefits and preferences, refuse specific preferences to more general, simpler in use and administration. Taking into account different levels of power loading of locally developed industries and energy supply of regions, the authority to set privileges and preferences of the regional tax should be fully delegated down to the level of the subjects of the Russian Federation. Excluding of shortcomings and gaps in the legislative environment and organizational mechanism shall allow use of investment tax credit. Upon establishment of new preferences it is necessary to give priority to tax privileges, creating benefits claimed by taxpayers. They should comply with the principles of efficiency and balance of taxation interests.

In the long term it is necessary to create a complex system of tax incentive for energy efficiency. In the article we suggested the complex of tax instruments of influence on energy efficient investments. We propose to classify them according to three criteria. First, depending on the objects (demand, supply (production) for objects with high energy efficiency, R&D in the field) on which the instruments are directed. Second, on the level of authority having the power to use the instrument. Third, on the direction of impact: tax restrictions implying an increase of tax burden, and tax preferences, implying its decrease.

In terms of new industrialization policy, requiring significant growth of energy consumption for industrial purposes and improvement of the quality of life, tax incentive for investments in energy saving and energy efficiency in the industrial manufacturing persist to be relevant. It should be complex and in the long-term promote double (both economic and environmental) effect.

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