
ENERGY EFFICIENCY POLICY IN THE VOLGOGRAD REGION: PROGRESS AND PRIORITY GROWTH AREAS

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Purpose: comparative analysis of the progress parameters of energy efficiency (EE) policy in the Volgograd region, taking into account the peculiarities of the region's energy-economic development; identification of growth areas for energy efficiency management in the region. *Discussion:* evaluation of effectiveness and identification of priority growth areas for energy efficiency policy in the region can be carried out through the use of statistical methods and comparative analysis based on Rosstat (Russian State Statistics Service) data and State reports on energy saving and energy efficiency improvement in the Russian Federation. *Results:* the effectiveness of energy efficiency policy in the Volgograd region is characterized by the above-average level in such areas, as improving the management system; financial incentives and funding; measures of support. The sphere of technological regulation is at the below-average level. Priority areas for improving the EE policy in the Volgograd region are primarily administrative measures that do not require additional funding. These measures involve the inclusion of energy efficiency indicators in every sector development program in the region; the development of an action plan for energy saving sphere for 2018–2025; the introduction of regional requirements for energy efficiency in construction sector; drawing up an annual regional report on energy saving and energy efficiency in the region.

Keywords: regional policy of energy saving and energy efficiency improvement in the Russian Federation, progress of energy efficiency policy in the Russian regions, energy saving and energy efficiency improvement in the regions of the Russian Federation.

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Introduction

Energy efficiency (EE) is known as the optimal use of fuel and energy resources at the achieved level of technological development and relevant

environmental imperatives [1, p. 20]. The increase in energy efficiency is expressed in the reduction of energy intensity of production. Insufficient EE of production processes leads to the increase in unit costs of production and to impaired competitiveness of the final product. Comprehensive theoretical and empirical research on the socio-economic effects of reduced energy intensity of the economy substantiate the following fact – EE increase is a driver of economic development and improvement of population well-being (2, 3, 4, 5, 6, 7 et al.).

The key role of increasing energy efficiency in ensuring competitiveness and sustainable economic growth of territories got reflection in the special term 'energy-economic development', which means «ensuring expanded reproduction, gradual positive qualitative and structural changes in the economy and territory's competitiveness, based on the increase in the efficiency of using energy resources as the most important production factor» [2, p. 18].

The state policy of energy efficiency represents the state's activity on managing the energy-economic development of territories. Since 2015, in October the Ministry of Energy of the Russian Federation posts annually the State report on energy saving and energy efficiency improvement in the Russian Federation for the previous year on its official website. Information support, regulatory framework and key directions of state policy are being systematically improved. Therefore, the analysis of energy saving and energy efficiency improvement in the regions of the Russian Federation is a relevant research subject.

The present paper deals with the features of the energy-economic development of the Volgograd region, analyzes the efficiency of energy efficiency policies in the Volgograd region as compared to other regions of the Russian Federation. We outline the priority areas for improving energy efficiency policy in the region. The research is substantiated with the methods of statistics and comparative analysis, the data of Rosstat and State reports.

1. Features of the Energy-Economic Development of the Volgograd Region

The Volgograd region is one of the most economically developed regions in the South of Russia. Diversified industry is combined with multi-sector agriculture. The prevailing industries include generation and distribution of electricity, ferrous and non-ferrous metallurgy; metalworking and engineering; oil and gas extraction; crude refining; chemical and petrochemical production; production of construction materials, as well as textile, woodworking and food industries.

The GRP structure is one of the key factors that influence the patterns of energy consumption and the type of energy-economic development of the region [2, pp. 92-106; 9, pp. 53-71; 10]. The GRP structure of the Volgograd region is close to the average structure of all subjects of the Russian Federation, but it stands out as having the largest share of energy-intensive heavy industry (see Table 1) as compared to other Southern regions of Russia, located in the Southern Federal District (SFD) and North-Caucasian Federal District (NCFD).

The largest share of industry in the GRP structure, as well as a high

degree of fixed assets depreciation, determine the maximum relative level of energy intensity of the region that has been preserved for the last one and a half decades. Fig. 1 shows that, regardless of advances in energy efficiency policy, as far as electricity consumption is concerned, the Volgograd Region has been the most energy-intensive region among the subjects of SFD and NCFD of the Russian Federation.

Table 1

Sector structure of gross value added in the Southern regions of Russia by GRP aggregative sectors (2014, in %)

Sector Regions	Agrarian- bioresource	Raw-material	Industrial	Trade-financial	Budget- dependent
Astrakhan Region	6,9	21,5	20,0	33,9	17,7
Volgograd Region	10,4	4,6	40,0	31,4	13,6
City of Sevastopol	5,4	0,0	12,1	40,2	42,3
Kabardino-Balkar Republic	16,2	0,1	27,3	30,4	26,0
Karachay-Cherkess Republic	19,2	1,5	29,7	22,2	27,4
Krasnodar Krai	10,3	0,6	29,5	46,6	13,0
Republic of Adygea	14,0	0,7	26,2	36,3	22,8
Republic of Dagestan	14,1	0,4	26,3	42,5	16,7
Republic of Ingushetia	6,4	1,7	24,0	29,5	38,4
Republic of Kalmykia	31,4	1,4	14,2	25,7	27,3
Republic of Crimea	22,0	3,1	16,9	30,9	27,1
Republic of North Ossetia-Alania	15,6	0,3	22,4	32,1	29,6
Rostov Region	12,3	0,9	30,2	41,0	15,6
Stavropol Krai	15,1	0,7	24,8	37,7	21,7
Chechen Republic	7,2	1,7	20,0	32,6	38,5

Source: [2, Attachment B]. Agrarian-bioresource sector: agriculture, hunting and forestry; fishery, fish farming. Raw-material sector: extraction of mineral resources. Industrial sector: processing industries; generation and distribution of electricity, gas and water; building industry. Trade-financial sector: wholesale and retail trade; repair of motor vehicles, motorcycles, household products and personal items; financial activity; transactions with real estate, renting; provision of municipal, social and personal services; hotels and restaurants; transport and communications; activity of households. Budget-dependent sector: public administration and military security; social insurance; education; health care and the provision of social services.

2. Effectiveness of energy efficiency policy in the Volgograd Region as compared to other Russian regions

The State reports on energy saving and energy efficiency improvement in the Russian Federation, the following key areas of the relevant public policy are determined: management system; technological regulation; financial incentives and funding; measures of support.

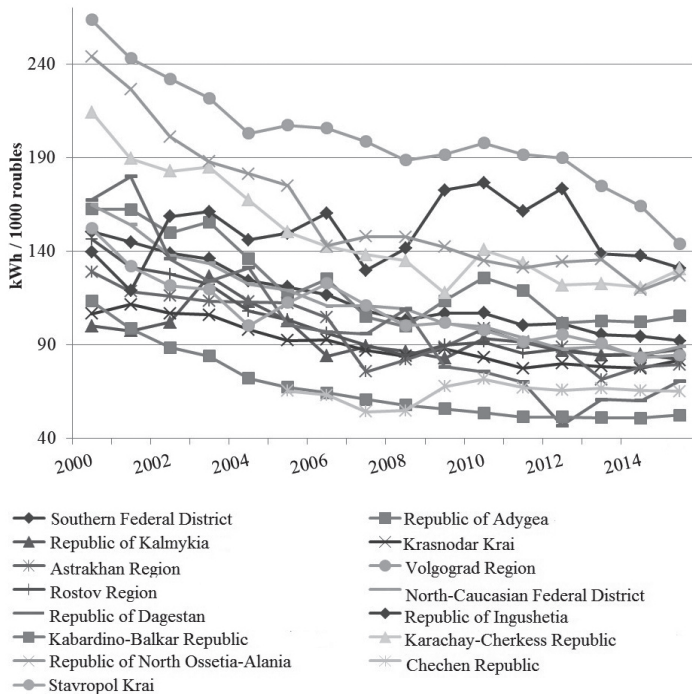


Fig. 1. Dynamics of GRP electricity intensity in the Southern regions of Russia (Southern Federal District and North-Caucasian Federal District) for 2000-2015, at the constant prices as of 2000. Compiled in [2, p. 136] on the basis of Rosstat data without regard to the Republic of Crimea and the city of Sevastopol, included in the SFD in 2016

1. Management system in the context of energy saving and energy efficiency improvement. The corresponding measures include, firstly, the inclusion of measurable indicators of energy efficiency into federal and regional state programs of sector development (agriculture, transport, housing and utilities sector); secondly, the development of action plans, known as 'roadmaps', aimed at improving energy saving and energy efficiency in the medium term at the federal and regional levels.

Inclusion of energy efficiency indicators into sectoral state programs of the subjects of the Russian Federation, in contrast to the practice in which all EE indicators are concentrated in one program for EE improvement, allows determining measurable target indicators, as well as personifying the responsibility for achieving them.

Today, each region of the Russian Federation has at least one program of sector development, which contains at least one indicator of EE. Russia-wide, 63% of the total number of regional sector development programs include such indicators. In the Volgograd region, 57% of the programs are provided with the required indicators, and this percentage is higher than the average for the Southern Federal District (42%), but lower than the Russian average. Thus, the further work in this direction is required to ensure 100% of sectoral programs

with the indicators of energy saving and energy efficiency improvement.

Besides, the Volgograd region is to develop and approve a draft roadmap of activities on energy saving and energy efficiency improvement for the period from 2018 to 2025. In 2017 the Council of Legislators of the Russian Federation gave recommendation to the authorities of the Russian regions on developing similar plans, and up to date 29 out of 85 Russian regions had already completed this work, which is yet to be performed by the Volgograd region.

2. Technological regulation includes, firstly, outlining the energy efficiency requirements for equipment and fixed assets, especially in the sphere of construction and total building renovation in the budget sector and in the housing and utilities sector; secondly, banning the use of inefficient equipment; thirdly, the development of typical solutions for total building renovation aimed at increasing energy efficiency in the process of their subsequent operation.

The fact is that the housing and utilities sector and the budget sector are the most distressed areas of the economy in terms of surplus energy consumption. At present, apartment buildings consume 52% of thermal energy and 30% of electricity out of the total volume of production of these energy resources in the Russian Federation. The volume of surplus energy consumption in the housing and utilities sector makes 1/5 of the total energy-saving potential in the entire Russian economy.

Despite the fact that in 2011 the Russian Government gave order to the Russian Ministry of Construction to work out and implement requirements for the energy efficiency of buildings, this issue has not yet been resolved at the federal level. The regions are supposed to deal with it independently, and in 58% of the total number of the subjects of the Russian Federation such regional standards have been established. The Volgograd region joined 42% of the Russian regions, which so far have not managed to solve this issue independently.

3. Financial incentives and funding. The given areas require developing and incorporating EE requirements into the programs of co-financing or subsidizing economic development; promoting a broader dissemination of the practice of concluding energy service contracts. It is known that in 2016 energy service contracts were concluded in 49 regions of the Russian Federation, including the Volgograd region. Despite the fact that, in general, from 2015 to 2016, the total volume of financing the activities on energy saving and energy efficiency improvement decreased by 27% in the Russian Federation, these activities in the Volgograd region were sufficiently funded, including the funds raised on the basis of energy-service contracts (Table 2).

As shown in Table 2, the Volgograd region managed to raise significant funds for activities in the sphere of energy saving and energy efficiency improvement. Volumes of these funds in the Volgograd region are close to those allocated in other economically developed regions of the Southern Federal District and are comparable with the volumes of EE activities funding in Moscow.

Table 2

Volumes of financing the policy of energy saving and energy efficiency improvement in the Volgograd region as compared to other regions of the Southern Federal District and Moscow

Subject of the Russian Federation / Financing	2015		2016	
	Budget funds	Extra-budget funds	Budget funds	Extra-budget funds
	Roubles			
Moscow	230 203	18 354 194	289 990	6 043 733
Astrakhan Region	62 071	8 563	76 784	94 428
Volgograd Region	285 903	3 069 643	770 787	4 237 497
Krasnodar Krai	11 056	6 878	6 780	299 212
Rostov Region	101 551	3 281 946	64 885	3 782 500

Source: State report on energy saving and energy efficiency improvement in the Russian Federation for 2016

4. Measures of support are aimed at promoting energy saving and providing information to ensure the implementation of energy saving policy and energy efficiency improvement.

The promotion of energy saving consists in holding theme-oriented events. In 2017, the Ministry of Energy of the Russian Federation held several major events – All-Russian Festival of Energy Saving «Brighter Together!», supported by 80 subjects of the Russian Federation; All-Russian contest of implemented projects in the field of energy saving and energy efficiency improvement ENES-2017, which united 400 participants; All-Russian media competition «MediaTEK», as well as other regional and interregional events. According to estimations, participation of the Volgograd region in these events made 70%.

Information support for energy saving and energy efficiency policy consists in the introduction of energy declarations in the budget sector and in drawing up a regional report on energy saving and energy efficiency improvement.

Energy declarations are of high priority for information support for the policy of energy saving and energy efficiency improvement. They contain data on the consumption of fuel and energy resources, as well as the information about energy efficiency of operated buildings. Energy declarations are filled in by state and municipal institutions of the region and are published in the electronic state information system (GIS) «Energy Efficiency». Despite the fact that in 2014–2016 this procedure was not mandatory, according to the results of 2016, 82% of the total number of subjects of the Russian Federation accomplished this work. In the Volgograd region, the share of the total number of state and municipal institutions that filled in the energy declaration for 2016 amounted to 84%, that exceeds the average Russia-wide indicator of 77%.

The regional report on energy saving and energy efficiency improvement also represents an important tool for supporting the policy in the given sphere at the regional level. On December 14, 2017 the State Duma of the Russian Federation in the first reading adopted the Federal Law, elaborated by the Ministry

of Energy and providing the requirement to draw up an annual regional report on energy saving and energy efficiency improvement by the subjects of the Russian Federation by analogy with a report, prepared at the federal level. In 2016, 32 regions prepared similar reports on an initiative basis. However, this work has yet to be completed in the Volgograd region.

Priority directions for the improvement of energy efficiency policy include, first of all, the administrative measures that do not require raising substantial additional funds. These measures involve the inclusion of energy efficiency indicators in sectoral programs for regional development; development and implementation of energy consumption standards for the construction and total building renovation; promotion of energy saving and energy efficiency improvement; filling and publication of energy declarations in the GIS; drawing up an annual regional report on energy saving and energy efficiency in the region; development of roadmaps of activities in the field of energy saving and energy efficiency improvement for the period from 2018 to 2025.

3. Conclusion

The Volgograd region has been the most energy-intensive region among the territories of the South of Russia, that is conditioned by a significant share of industry in the GRP structure and a high degree of fixed assets depreciation.

The effectiveness of the EE policy in the Volgograd region and the priority growth areas are characterized as follows (according to the data for 2016). As far as the improvement of the EE management system is concerned, the region is characterized by the above-average level within the SFD scale, and the below-average level Russia-wide. It is necessary to supply 100% of regional sector development programs with the indicators of energy saving and energy efficiency improvement; to work out and approve the draft «roadmap» of activities in the sphere of energy saving and energy efficiency improvement for the period from 2018 to 2025. The sphere of technological regulation is at the below-average level, and it is also necessary to develop and implement regional requirements for the energy efficiency of buildings and constructions. Financial incentives and funding, as well as support measures, are characterized by the above-average levels. However, it is advisable to achieve a 100% indicator of filling in energy declarations by state and municipal institutions and publishing them in the GIS «Energy Efficiency». It is also necessary to introduce the practice of making regional reports on energy saving and energy in the Volgograd region.

Thus, the priority areas for improving the energy efficiency policy in the Volgograd region include administrative measures that characterize the management of the energy-economic development of the territory and do not require additional financing.

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ПОЛИТИКА ЭНЕРГОЭФФЕКТИВНОСТИ В ВОЛГОГРАДСКОЙ ОБЛАСТИ: АНАЛИЗ РЕЗУЛЬТАТИВНОСТИ И ПРИОРИТЕТНЫЕ НАПРАВЛЕНИЯ РАЗВИТИЯ

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Цель: проведение сравнительного анализа параметров результативности политики энергоэффективности в Волгоградской области с учетом особенностей энергоэкономического развития региона; выявление приоритетных направлений совершенствования управления энергоэффективностью в регионе. *Обсуждение:* оценка результативности и выявление приоритетных направлений политики энергоэффективности в регионе могут быть получены с применением методов статистики и компаративного анализа на основе данных Росстата и государственных докладов о состоянии энергосбережения и повышения энергетической эффективности в РФ. *Результаты:* результативность политики в Волгоградской области имеет уровни выше среднего в таких направлениях, как: совершенствование системы управления; финансовые стимулы и обеспечение финансирования; поддерживающие механизмы. В сфере технологического регулирования – уровень ниже среднего. Приоритетные направления совершенствования политики в Волгоградской области – это административные меры, не требующие привлечения дополнительного финансирования. К ним относятся: включение показателей энергоэффективности в 100% отраслевых программ развития региона; разработка плана мероприятий в сфере энергосбережения на 2018-2025 годы; внедрение региональных требований к энергоэффективности в строительстве; подготовка ежегодного регионального доклада о состоянии энергосбережения и повышения энергоэффективности региона.

Ключевые слова: региональная политика энергосбережения и повышения энергетической эффективности в РФ, результативность политики энергоэффективности в российских регионах, совершенствование политики энергосбережения и повышения энергетической эффективности в регионах РФ.

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