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THE ASSESSMENT OF THE INFLUENCE OF ENERGY INDUSTRIES ON THE ECONOMIC DEVELOPMENT PROSPECTS AND THE SOCIAL ENVIRONMENT OF THE KALININGRAD REGION OF THE RUSSIAN FEDERATION

This article offers the results of research conducted in the Kaliningrad region in the framework of the "Development of Russian Energy Sector: Social and Environmental Consequences and Prospects" network project by the Centre for Advanced Studies and Education. The authors assess the structure of regional energy sector and its influence on the economy according to key parameters. The article analyses the social effect of energy sector on the basis of a survey conducted for Kaliningrad.

Key words: energy, region, power industry, oil extraction, socioeconomic situation, social climate.

The network project of the Centre for Advanced Studies and Education entitled "The development of Russian energy: social and environmental consequences and prospects" involved Russian regions with different contribution of energy industries to local economies. The Irkutsk and Rostov regions are home to the whole spectrum of energy industries from the extraction of raw hydrocarbons and black coal to large electricity generation complexes; oil and gas sector prevails in the Tomsk region, while power industry is crucial for the Saratov region. The Kaliningrad region is ranked energy deficient. The situation in the regional energy industries is being aggravated by the exclavity, the scarcity of local energy sources and the limited access to those of other Russian regions. The study identified the crucial factors of the influence of energy industry on social environment and economy. These are the structural features of the industry, its contribution to macroeconomic indicators, and the policies of energy companies on the territories of operation. The analysis of data obtained showed that, despite the differences in the influence of energy industry on the socioeconomic position of regions, all territories under consideration revealed common problems in the development of energy industries. These are the exhaustion of facilities and depletion of reserves, the lack of generation facilities, the high level of power losses, and the poor development of heat supply infrastructure. All mentioned problems, which affect the social environment, are also characteristic of the Kaliningrad region.

Research methodology

The Kaliningrad region is not clearly divided into districts according to their involvement into the energy industry, thus the analysis of the impact of energy on the situation regarding social environment encompassed the region in whole. Sociological research methods were extensively employed alongside the analysis of regional statistical data, documents of regional min-

istries and departments, and media sources. Expert interviews were held to estimate the influence of energy enterprises on the economic and social sphere of the region. The integrated methodology developed at Tomsk State University was employed in the framework of the project. At the same time, the methodology was adjusted to regional conditions. We interviewed representatives of regional executive authorities, mid-level managers and chief executives of energy companies, leading researchers in the field of regional policy and ecology, as well as members of the press and NGOs, and university teachers from higher education institutions training specialists in the field of energy. A total of 19 interviews were held in the framework of the project.

A sample survey among the population of the region was undertaken to assess the social climate. The sample group consisted of 400 people over the age of 18 permanently residing in the regional centre. The probability, age and gender representative sample was stratified by city districts. The survey was held in households of five city districts from January 23 to February 1, 2009. One member over the age of 18 was interviewed in each household. The target of the survey was to obtain the assessment characteristics of the socioeconomic situation in the region from the population and to define the attitude of Kaliningraders in the conditions of crisis to the developments in the regional economy and social environment.

Energy industry in the regional economy

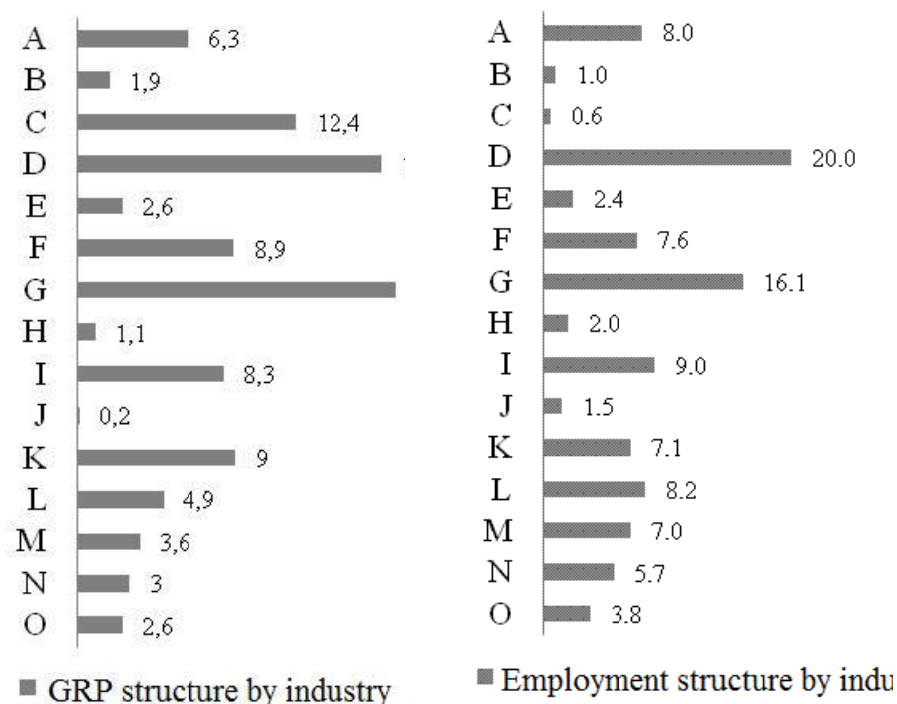
Energy is not included in the economic profile of the Kaliningrad region. As Figure 1 shows, wholesale and retail trades make the largest contribution to the GRP of the Kaliningrad region according to Kaliningradstat; motor maintenance, the repair of household appliances, clothes and shoes account for 18%, processing industries – for 17.2%. The energy companies account for approximately 15% (including the extracting industry, the power, gas, and water generation and distribution). At the same time, the tax returns (profit tax) from oil extraction are quite significant and account for 40% of the regional total.

The proportion of population employed in the industry in the region is rather modest (only 3% of the workforce). A considerable contribution to the regional budget against the background of the small number of employees indicates high labour productivity in the industry. It is especially characteristic of the extraction industry (12.4% of GRP and 0.6% of the workforce). In the power, gas, and water generation and distribution, the employment rate is higher (more than 11000 people (2.4% of the workforce); however, the share of the power industry in the value added production is insignificant (2.6%).

Today, the regional energy is comprised by oil extraction industry (insignificantly exceeding 1 mln tons per year) operated by OOO LUKOIL-Kaliningradmorneft, the generation complex, the backbone facility of which is OAO Kaliningrad CHPP-2 put into operation in 2006, a number of power distribution companies (the largest one is OAO Yantarenerg), and gas transportation infrastructure (the Vilnius-Kaliningrad gas pipeline).

Energy of North-West Russia: current situation and future prospects

The **power complex** of the region is aimed at internal market and underlies the development of other industries. The recently growing demand of regional economy and the perspective alterations in the electricity balance of the Baltic region states related to the closure of the Ignalina NPP in Lithuania in the beginning of 2010 posed an acute problem of power shortage. The region sees the solution to the problem of power industry development through the construction of new generation facilities. Energy independence from the neighbouring countries is a priority and a factor affecting the further socioeconomic development.



Legend:

- A — Industry, hunting and forestry;
- B — fishery and fish breeding;
- C — mineral extraction;
- D — processing industries;
- E — power, gas, and water generation and distribution;
- F — construction;
- G — wholesale and retail trade; motor maintenance, the repair of household appliances, clothes and shoes;
- H — hospitality;
- I — transport and communications;
- J — finances;
- K — real estate;
- L — public administration and national security; obligatory social welfare;

- M — education;
- N — healthcare and social services;
- O — other utility, social and personal services.

Fig 1. The structure of GRP and employment by industry in 2007, % [1; 2]

The first power unit of the Kaliningrad CHPP-2 was put into operation in 2006 to resolve the power shortage problem; the start-up of the second power unit is scheduled for 2010. Moreover, there is a plan to construct an NPP on the territory of the region. It will change the regional energy balance in whole, which may affect both the economy and the social environment. Today it is difficult to anticipate social and economic consequences of the operation of an NPP in the region, but one can suppose that it will lead to the increase in tax returns, the development of related industries, and the elimination of power shortage. It will result in more opportunities for the establishment of energy-intensive enterprises and the development of the region's export potential. At least, these targets are set by the regional government.

The insufficient number of generation facilities is not the only problem of the regional power industry. The exhaustion of distribution facilities limits the opportunities for production in certain district and creates a situation when the existent enterprises and the population of the region experience the lack of high-quality electricity. The achievement of the target to increase investment attractiveness, which is specified in strategic documents both for the region and its municipalities, is inhibited by this problem.

The contribution of **oil extraction** to regional development has been significant over the last years, but the modest scope of proven reserves (which can be extracted over 10 years) decreases the perspective importance of the industry. While the power industry and gas supply are crucial infrastructure industries, which depend on other fields of the regional economy and determine their development by implementing an important social function and providing the population with necessary goods, the oil extraction fulfils another function. The extracted oil does not account for the needs of local enterprises and is mainly exported. The role of oil extraction in the Kaliningrad region consists in tax returns and job creation. Over the last few years, the contribution of OOO LUKOIL-Kaliningradmorneft in profits tax returns has decreased but is still significant. According to a representative of the oils extracting company, the contribution was higher due to the law that stipulated that onshore oil extraction was not liable to customs duties. As a result, profits were higher and profits tax mostly went into the regional budget. According to experts, the company's contribution into profits tax returns is 40%.

A priority of the energy development in the Kaliningrad region is the **power industry**, which manifests itself in the production indicators of the "Mineral extraction" and "Power, gas, and water generation and distribution" industries. While the first index achieved 99.3% in 2008, which is below the North-western district average (102%), the second one slightly exceeds the district average (102.9% against 102.4%) [3].

Employment within the energy industry and the training of specialists

Over 3000 people are employed within the extraction industry, which accounts for 0.64% of the workforce. The number of employees within the "Power, gas, and water generation and distribution" industry reached 11200 people (2.36%) in 2007. Therefore, the total number of employees in the energy industry was only 3%.

The employment dynamics by industry, in which energy companies play an important role, is shown in Figure 2. Over the last three years, the employment in extracting enterprises has decreased by more than 40%, while it has not significantly changed in power, gas and water generating and distributing enterprises. LUKOIL-Kaliningradmorneft is the regional leader in terms of salary level despite the decrease in the number of employees; the employment with the company is considered prestigious.

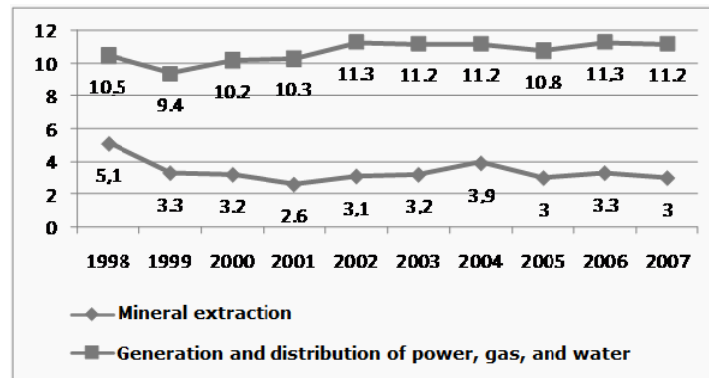


Fig. 2. The dynamics of employment in the energy sector by industries, 1000 people.

The development of generation facilities in the Kaliningrad region affects the labour market through attracting specialists from other regions to projected energy enterprises. So, during the construction and at the beginning of the operation of the Kaliningrad CHPP-2, which came online in 2006, the recruitment process involved attracting specialist from other regions of the Russian Federation and the CIS, since the region lacked qualified experts. 70% of the staff of the CHPP-2 are migrants from Moscow, the Pskov, Smolensk, Ivanovo, and Astrakhan regions, Belarus, and Kazakhstan. They have a significant labour potential. Their average education level is much higher than that of the local population. So, 76% of the labour migrants have higher education, 24% - secondary vocational education. The average age of the specialists is 36.5 years.

The training of energy specialists is provided predominantly by the following education institutions: Kaliningrad State Technical University, the

Baltic Fishing Fleet State Academy, Kaliningrad Technical College and Kaliningrad Marine College.

The crises did not significantly affect employment in the energy industries, unlike that within trade, manufacturing industries, and construction. According to an unemployment survey conducted in mid-2009, the unemployment rate in the energy industries was 4%.

The influence of energy industries on regional social environment

The influence of energy companies on the social environment cannot be unambiguously interpreted. On the one hand, these enterprises, efficiently operating, contribute to the social environment through *tax revenue and direct investment* (the construction of roads and transmission lines, heat supply, social infrastructure). On the other hand, *internal social policy* is a means of exerting influence on the staff of energy enterprises. A special type of the interaction between energy companies and regional social environment is *charity programmes targeted* at certain categories of the regional population and to the solution of certain social problems.

The priorities and models of the social policy of energy companies on the territory of the Kaliningrad region are shaped by their financial capacity as well as by the "political will" of the executives. In terms of finance capacity, the regional leaders are oil extracting companies (LUKOIL-Kaliningradmorneft, ROS&NEFT). The opportunities of regional power industry enterprises (OAO Yantarenergo, OAO Kaliningrad CHPP-2) are limited by the strict state regulation of tariffs.

In the Kaliningrad region, energy enterprises can be qualified as budget-forming. In terms of infrastructure, Yantarenergo and the Kaliningrad CHPP-2 substantially contribute to the socioeconomic development of the region and expand energy infrastructure. LUKOIL-Kaliningradmorneft also supports the establishment of regional infrastructure, which is essential for the operation of the company.

Internal social policy in the conditions of the Kaliningrad region includes extended social packages, corporate mortgage, vacations for employees and their families, etc. Energy companies attach most importance to the creation of healthy atmosphere among the staff, which contributes to the increase in labour efficiency and the optimisation of production process. Thus, social policy is aimed to create the most comfortable conditions for efficient work and favourable social environment in the region. The efficient social security system of energy companies attracts qualified specialists, helps manage staff turnover and is a basis for successful production.

The internal social policy and salary level makes the employment within the industry attractive for the population of the region. The qualified employees of the regional energy industries belong to the middle class. Their salaries are higher than the regional average (table 1). It is especially true for the extracting industry, the salaries within which exceeded twice the regional average in 2008 and were higher than in the power industry.

Table 1

Monthly gross salary of employees by industries, roubles [1]

Year	2004	2005	2006	2007	2008
Regional average	5559.6	6781.3	9720.3	12 750.3	15 419.3
Mineral extraction	14 723.2	17 452.7	22 445.6	26 964.7	30 571.8
Manufacturing industry	5404.1	6556.8	8887.2	11 656.2	13 255.5
Power, gas, and water generation and distribution	7205.7	9531.1	11 354.0	13 547.1	16 727.9

Moreover, the companies create favourable conditions for the employees, ensuring an attractive social package, supporting the facilities of social importance, and implementing housing programmes. Energy companies pay special attention to professional and advanced training due to the high responsibility of those employed within the industry.

Yantarengo provides targeted support to pensioners and retired veterans. Moreover, there is a retirement benefit scheme, which provides additional monthly payments alongside state retirement benefits. Energy companies place importance on support to research and education as well as charity. The children of the employees have an opportunity to spend summer in recreation camps.

Oil extracting companies also devote attention to internal policy. LUKOIL-Kaliningradmorneft makes regular salary adjustments and offers a social package including voluntary medical insurance, additional vocation pay, and payments pertaining to family affairs. The company maintains a sports centre for the employees.

Therefore, educated and active young residents of the Kaliningrad region aspire to work at local energy companies having in view a long-term career and financial welfare.

Targeted charity programmes are most actively ran by the companies closely linked with oil extraction and fuel trade, owing to their financial capacity. LUKOIL-Kaliningradmorneft has wide charity and sponsorship experience. Annually, the company allocates approximately 20 mln roubles to charity and financial assistance. The focus of attention of Kaliningrad oil companies is concentrated upon the regional cultural heritage: the Museum of the World Ocean, the Amber Museum, the regional concert hall, etc. LUKOIL-Kaliningradmorneft and the "LUKOIL charity fund" non-profit organisation invites bid for social and cultural projects aimed to support the initiatives of social organisation and the population aimed to solve major social problems. It is an open bid; perspective participants include regional non-profit organisations, public and municipal institutions, cultural centres and research organisations, municipal authorities, and mass media outlets.

Charity is also an element of the corporate policy of the ROS&NEFT company. Its main targets in the fields of charity and sponsorship are health-care, culture, education, and research institutions as well as religious organi-

sations. ROS&NEFT provided support to Kaliningrad State Technical University, German Theatre, the Baltic State Academy, the health department of the administration of the Kaliningrad region, and military units. The company contributes to programmes targeted at youth (the Association of youth and student organisations), participates in projects aimed at the development of Russian culture, the restoration of historical sites, and support a religious organisation – the Eparchial Convent, as well as the Kaliningrad branch of the "Russian Red Cross" Russia-wide social organisation, and the Kaliningrad branch of the "Russian Peace Foundation". Over several years, Yantarenergo has been the major sponsor of "Baltika" football club. In 2008, in the framework of charity programmes targeted at certain categories of population or aimed at the solution of certain social problems, the company held single events organising the holidays of the employees and their families.

Survey results

The survey conducted in the framework of the project in the Kaliningrad region suggested that the attitude of the regional population towards energy industries is predominantly affected by the overall socioeconomic situation. Most respondents did not recognise the situation regarding the energy industries as a factor influencing their social well-being. It is more likely the crisis situation in general that affected the answers of the respondents.

Major socioeconomic indicators of the standard of living of the population of the Kaliningrad region had positive dynamics prior to the crisis (before mid-2008) (table 2). In 2003-2007, the per capita monetary income increased threefold, the gross salary grew 2.6 times. As a result of the crisis, the actual adjusted monetary income has decreased by 5%. The proportion of population with substandard income has increased in comparison to 2007.

Table 2

Main indicators of the standard of living of the population of the Kaliningrad region [1]

Index	Year				
	2004	2005	2006	2007	2008
Per capita monetary income, roubles	4692	6460	8888	11399	12651
Actual adjusted income, % of the previous year value	109	122	127	116	95
Monthly gross salary, roubles	5560	6781	9720	12750	15419
Average value of gross monthly retirement benefits, roubles	2001	2496	2772	3586	4402
Cost of living (average per capita value), roubles	2641	3156	3556	3948	4786
The proportion of population with substandard income, % of the total number of population	26	20	14	12	14

Energy of North-West Russia: current situation and future prospects

Positive socioeconomic changes in the city since 2000 were mentioned by 37.8 % of the residents of Kaliningrad, who participated in the survey. Such improvements were mentioned by all age groups – by almost 50% of the 18-29 year old respondents, 43% of the 30-39 year old ones and one third of the 40-59 year old age group. One fourth of the respondents believe that the situation has exacerbated, the same percent do not see any changes. Negative assessments were given by only 3.3% of the respondents, most of whom are pensioners above 60 years old.

The improvement of social situation was also repeatedly emphasised by experts. A number of interviews indicate a substantial increase in the middle class population, which includes the employees of energy companies.

According to the survey, the crisis, which affected 77% of the respondents, mostly manifested itself in the decrease in salary. It was mentioned by 35% of the respondents. All groups of workforce referred to this circumstance. 14.2% of the respondents lost jobs at the end of January 2009. Dismissal predominantly affected young population aged 18-29 (18.8% of the age group mentioned the loss of job) and those aged 50-59 (17.3% of the age group were dismissed). 28.7% of the respondents are reconsidering the basket of consumer goods owing to the crisis. This intent was mostly mentioned by pensioners (44%), one fifth of the respondents were ready to cut expenses.

The positive aspects of the influence of energy companies on the life of the city were, first of all, connected by the respondents with job creation (54.3%); more than one fourth (27.8 %) believe that energy companies exert positive influence by increasing the city budget through tax returns, one fifth emphasise investment in the social sphere, 9% mentioned the creation of infrastructure, i.e. road, housing and amenity construction (table 3).

Table 3

Positive influence of energy companies on the life of the city, % of the respondents

What positive aspects of the influence of energy companies on the life of the city can you name?	Age, years					Total sample
	18—29	30—39	40—49	50—59	Above 60	
Budget increase due to tax returns	23.1	32.1	31.7	30.7	23.3	27.8
Investment in the social sphere (education, health-care, culture)	19.4	23.8	23.3	18.7	16.4	20.3
Support to income-deprived population	13.0	10.7	8.3	12.0	13.7	11.8
Job creation	58.3	54.8	63.3	53.3	41.1	54.3
Creation of infrastructure (road, housing and amenity)	12.0	7.1	13.3	6.7	5.5	9.0

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construction)						
Other (heating)	0.0	0.0	0.0	1.3	0.0	0.3
There are no positive aspects	1.9	1.2	6.7	2.7	0.0	2.3
No answer	28.7	31.0	18.3	30.7	47.9	31.5
<i>Total by values</i>	156.5	160.7	165.0	156.0	147.9	157.0
Total sample	100.0	100.0	100.0	100.0	100.0	100.0

2.3% of the respondents did not acknowledge the positive influence of energy companies on the life of the city. Despite the activity of these companies in the implementation of social programmes in the region, the awareness of population appeared to be rather low. Only 1.8% expressed awareness mentioning only one company – LUKOIL-Kaliningradmorneft. One respondent highlighted the LUKOIL programme aimed to increase quality and price stability, three answers revealed the acquaintance of the respondents with the programmes supporting sports, culture, and gifted children, another answer mentioned the LUKOIL Kaliningradmorneft housing programme targeted at young families (table 4).

Table 4

The respondent awareness of the social programmes of energy companies, % of the respondents

Are you aware of the social programmes of energy companies aimed to support residents of the region who face difficult situations?	Age, years					
	18—29	30—39	40—49	50—59	Above 60	Total sample
Yes, I am	2.8	2.4	3.3	0.0	0.0	1.8
No, I am not	97.2	97.6	96.7	100.0	100.0	98.3
Total sample	100.0	100.0	100.0	100.0	100.0	100.0

As to the negative influence of energy companies on the life of the city, a half of the respondents (51.2 %) mentioned environmental damage, 12.8% pointed to the insufficient investment of energy companies into social services. Moreover, almost 11% of the respondents believe that the negative influence of energy industries manifests itself in the increasing social inequality. Growing fuel prices, corruption, low fuel quality, and expensive petrol were considered as a result of the influence of energy industries by 4.2% of the respondents, while 40% gave no answer to the question (table 5).

Despite the understanding of the need to increase energy capacities, the idea of the construction of a nuclear power plant in the region did not find support with 36% of the respondents and is partially opposed by 20.3%. The number of committed supporters of the new generating facility construction amounted to 9.5%, while 22.4% of the respondents partially support the plans to construct the NPP (table 7).

Table 7

The attitude towards the idea of the construction of a nuclear power plant on the territory of the region, % of the respondents

The government of the Kaliningrad region met a decision concerning the construction of a nuclear power plant on the territory of the region. Do you support this idea?	Age, years					Total sample
	18—29	30—39	40—49	50—59	Above 60	
Yes, I support it	8.3	8.3	5.0	16.0	9.6	9.5
I partially support it	27.8	21.4	33.3	18.7	11.0	22.5
I partially oppose it	14.8	17.9	26.7	21.3	24.7	20.3
I oppose it	42.6	38.1	25.0	40.0	28.8	36.0
No answer	6.5	14.3	10.0	4.0	26.0	11.8
Total sample	100.0	100.0	100.0	100.0	100.0	100.0

The research shows that, prior to the crisis, the situation in the region was characterised by the increase in major indicators of the standard of living, i.e. per capita income and gross salary; the number of population with substandard income decreased more than twofold; there was a substantial growth in social benefits. These positive changes were mentioned both by the experts and the residents of the region. The social situation stabilised to a degree even in the crisis conditions; the experts consider it to be manageable. A cornerstone of stability is the middle class, which has expanded over the last years; energy companies also contributed to this process. The employees of energy companies have higher income, enjoy social protection, and are highly qualified and mobile.

The most acute social problem in the region, which was mentioned both by the experts and the residents, is the situation regarding the labour market caused by the growing unemployment rate and the decrease in the number of vacancies. The industries mostly affected by the crises are import substitution industries and the new for the region household appliance production cluster mostly exploiting the export and raw material potential. The second most acute problem is the health of population and the situation regarding regional healthcare. The poor training of medical staff, the closure of a part of regional medical institutions, the low level of medical services, especially, in rural areas – this is an incomplete list of the problems mentioned in the survey. The situation regarding healthcare, according to the respondents,

deserves closer attention, especially in terms of financing. Another serious problem is the situation regarding the housing and utility services brought about by decreasing salaries and the limited opportunity of a part of the population to pay growing tariffs and enjoy housing credits. Among the problems in the field of education, the respondents pointed to the increasing demand for engineers, technical specialists and the low level of training of such specialists in the regional education institutions. Moreover, the participants of the survey consider it essential to improve the system of professional training, also by the order of enterprises. The environmental problems are also considered by the residents of the region as serious, though today they were outranked by the social ones. Crime was not listed among major problems, but the experts expressed an opinion that the crime rate may increase in the crisis conditions.

The survey conducted in the framework of the project showed that the residents of the Kaliningrad region are hardly aware of the social programmes implemented by energy companies. It can be easily explained – the employees of energy companies constitute only 3% of the workforce, and only 1.6% of the respondents were employed within the industry. At the same time, the participants of the survey expect positive influence of the energy companies on the life of the city by means of job creation and increasing the city budget through tax returns. Some of these expectations concern the growing role of energy industries as a result of direct investment into social services. A half of the respondents mentioned environmental damage among the negative aspects of the influence of energy industries in the region. 10% of the respondents believe the negative aspects manifest themselves in increasing social inequality.

The analysis suggests that the energy industries do not influence the social sphere of the region directly. One of the facts proving this point is that a significant number of respondents (40 %) gave no answer as to the influence of the energy industries. At the same time, the research shows that the conditions of energy infrastructure have massive impact on the regional economy in whole and on its economic entities. In this sense, the role of energy industry, the modernisation, first of all, of power industry is a basic requirement for perspective regional development. The crucial strategic tasks of the region are the development of a local generation complex, which would both meet the regional demand and export electricity in the countries of the European Union – mainly, Lithuania and Poland. In order to solve this problem, it is planned to build the second power unit of the Kaliningrad CHPP-2 (2010), to construct generation facilities in the towns of the regions (2009-2012), to develop renewable energy, to build the Baltic nuclear power plant (first power unit will come online in 2014, the second one – in 2016). In accordance with the plan drawn up by the government, the region will evolve from 'energy deficient' into 'energy superabundant'. It will totally change the energy balance and expand both economic and social opportunities of the region.

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