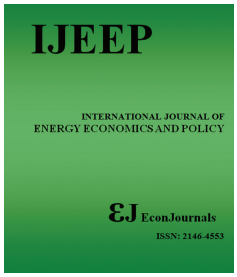

International Journal of Energy Economics and Policy

ISSN: 2146-4553

available at http: www.econjournals.com

International Journal of Energy Economics and Policy, 2017, 7(5), 16-27.

Analysis of Sustainable Development Factors in Fuel and Energy Industry and Conditions for Achievement Energy Efficiency and Energy Security

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ABSTRACT

Focus on sustainable development is a necessary condition for effective operation of any economic entity (state, region, production industry, or an organization). But in today's economic conditions a lot of Russian companies fail to take into account current economic and political challenges in their development strategies quickly enough. This is primarily caused by failure to respond quickly to rapidly changing market conditions, and to modify their social and economic functioning model respectively. In such circumstances the necessity to ensure company's sustainable development efficient strategic management based on a system-oriented analysis of internal and external factors increases. Gas consumption share constitutes over 52% of the total primary energy resources consumption, and the draft Russian Energy Strategy supposes no significant changes in energy consumption mix up to 2035. This indicates the need in an extremely balanced approach to introduction of any changes into functioning conditions of the gas industry. Russia is the 3rd world's energy consumer, but its consumption rate per a unit of its gross domestic product is higher than the one of any other country from Top-10 energy consumers. In addition to objective prerequisites (severe climatic conditions, large distances and, respectively, high energy resources transportation costs), high specific consumption of natural gas in national economy results from use of out-of-date energy wasteful technology. Russian economy is characterized by persistent energy resources wasting trend, resulting in unreasonable expenses of a community for energy self-supply, and, in addition to maintaining of energy resource oriented scenario of the country development, increases an energy resources availability lack risk. Russian oil and gas industry operates in conditions of exhausted industrial potential; it faces significant problems, preventing its development and threatening energy security of the country (Chernyaev, 2014). Such circumstances result in the need for including active measures in the field of sustainable development into oil gas companies' strategies, whilst increasing significance of preparation of the companies' non-financial reporting. The authors herein tried to analyze current system of sustainable development factors and to give recommendations on formation of a system of sustainable development factors within fuel and energy entities.

Keywords: Russian Oil and Gas Industry, Factors and Indices of Sustainable Development, Energy Efficiency and Energy Security, Energy Development Strategy
JEL Classifications: L90, O10

1. INTRODUCTION

The term "sustainable development" has become widely used by the World commission on environment and development (Brundtland Commission) since 1987. The sustainable development means development meeting current needs without compromising the ability of future generations to meet their own needs. Corporate practice contains no uniform definition of the term "sustainable development." This is due to a variety of conditions, in which companies operate at macro and micro economic levels.

Sustainable business development is a natural follow-up of other organizational changes. During the recent century public expectations regarding business activities have grown. At the beginning of 20th century antimonopoly and patent policy were pursued, then in 1970s certain attention was paid to employees'

rights, a number of programs were developed aimed at improvement of their working conditions. In 1980s companies focused on their customers and increase of their competitiveness, and during 1990s they began to pay attention to environmental protection issues. And as late as in 2000s shareholders realized that they do not meet current expectations on ethical, social and environmental issues. Expectations from business gradually became higher at each stage, number and structure of stakeholders increased as well. These steps towards sustainability that took place between early 20th century and today can be briefly characterized by a following sequence: The path from laws, stipulation, contracts, employees' needs, customers' expectations, environmental protection, public needs, and environmental restrictions to the state of sustainability. Today the society is concerned about the same problems (Wilson, 2013). New leaders arise, both regional and global, indicating formation of new development centers. The world returns to a multi-polar order (Rodionova et al., 2017).

The sustainable business is an economic process, capable of surviving in a long-term perspective. Issues of resource availability and prices instability, consumptive demand, investors' crackdown, engaging and retention of gifted employees, arising of new markets and extinction of former ones, changes in financial activities — this is not a complete list of factors influencing the problem of sustainability (Anpilov, 2012; Batyrova, 2014; Zub, 2002).

If the sustainability problem is integrated into the company's business approach, then, in strategic terms, it means cost reduction, formation of a new consumer base, gifted employees engaging and development within the organization. A company taking part in the sustainable development gets a long-term goal, aligned with its main activity and strong points, encouraging its employees and partners, and granting hopefulness (Kaspina, 2014).

The concept of sustainable development combines three main aspects: Economic, social, and environmental ones. The reconciliation of these elements is a comprehensive task, since they must be considered as a whole.

Principles of the sustainable development help in increasing of a company's efficiency using the most state-of-the-art practices in corporate management, as well as the most comprehensive and harmonized use of immaterial resources. In the end a symbiosis for all stakeholders is achieved within a corporation, personal engagement of employees grows, along with a trust towards the company from probable partners and product and services consumers.

In addition to traditional sustainability factors the authors propose to take into account the following ones: Efficient relations with major groups of users of concern, and technological and organizational efficiency. Value of these factors is determined by peculiarities of today's state of Russian economy and new challenges, faced by it.

Technological efficiency is determined by a company's ability to ensure sufficient level of process infrastructure and consistency of an innovative process at a system level. Organizational sustainability means an ability to operate supply chains, corporate infrastructure, risk and corporate management system efficiently.

2. METHODS

Basic methods used in the work were analysis and synthesis, classification and typology methods, grouping and comparison, expert evaluation method, as well as specific corporate sustainable development research practices, allowing analyzing existing inconsistencies, correlate current economical processes.

An informational background used during the research comprised scientific works, scientific periodicals, analytical data provided by oil and gas companies. Also informational overviews made by international economical agencies and informational Internet sources, which allowed performing an analysis of the sustainability development degree and sustainability development management evaluation tools being formed, and recent advances in the field of industrial companies' sustainability development management efficiency improvement based on the review of resulting values of the sustainable development in annual financial reporting of companies were used in course of the study.

3. RESULTS

Today corporate sustainable development management practice both in Russia and abroad tends to rely more on numerous standards in the field of social, economic and environmental activities (Bazarova, 2007; Chernyshev et al., 2006). These standards, on one hand, contain regulations concerning ensuring sustainable development of an enterprise, and on the other hand coordinate goals of a number of stakeholders in achievement of particular business results and corporate development.

Besides it should be noted that goals and tasks of the stakeholders, being economic actors, are often in diametrical opposition to each other. There are economic goals of business owners, who are interested in making profits sufficient for funding business activities of a company and dividends distribution. Their employees, who are involved directly into production process, are interested in remuneration of labor sufficient for workforce expanded reproduction, even if it does not result in obtaining allowable financial and economic results for business owners. Among other stakeholders are: Government, suppliers, creditors, consumers, local communities, concerned public, which evaluate company's business activity results under social and environmental criteria in addition to the economic ones (Zub, 2002).

Today there are more than a hundred of corporate sustainable development rating systems (Chernyaev, 2016).

In this regard, in the context of increased competition, the struggle for access to capital markets, as well as the growing attention of investors and the general public to the final results of business activities and to processes taking place within an enterprise, the practice of management based on standards, primarily foreign ones, as Russian Standards are created on their basis, is expanding

(Batyrova, 2014; Zub, 2002). The basic ones, as well as business activity aspects covered by them, are shown in Table 1. According to the approach used by the United Nations Organization, the standards listed regulate social, economic and environmental fields of business activity, which are the base for sustainable development (Anpilov, 2012).

It should be noted that existing indicators and indices are not always able to assess the real state of affairs objectively: Some concepts evolve, some business priorities change. Accordingly, there is a need in continuous creation of new assessment systems, universal approaches to evaluation of corporate sustainable development management quality.

The international business practice presumes that the use of non-financial reporting will allow a company to solve the most probable problems in the field of sustainable development due to the existence of typical functioning practices (Tumin et al., 2016).

When consumers see that a company discloses details of its production process, its safety with regard to consumption and its environmental friendliness, they prefer to buy products of this manufacturer. Investors act the same way if they can trust reliable and publicly available financial statements of a company.

Forming a classification of sustainable development factors. Let's outline the following approaches to the classification of sustainable development factors of a company: From the point of view of the direction of influence on the organization, their nature, field of influence, persistence of influence and a degree of influence of such factors on the business processes within a company.

Let's line out factors of direct and indirect impact with regard to the operational direction. Factors of direct impact (e.g. suppliers, personnel, customers, competitors, etc.) are the factors directly influencing the activities of a business entity and in their turn exposed to its direct influence. Indirect impact factors include the ones of a general environment of a business entity, which have no significant impact on its activities, compared to the factors of direct impact. At the same time, indirect influence environment is usually more complicated than the direct impact one. It includes economic, political, technological, social, cultural and international environment (Chernyshev et al., 2006).

The factors having direct impact on the sustainable development process include the following ones:

- External factors, directly influencing the company's business activity (political, economic, social ones);
- Financial and economic factors: Solvency, feasibility, profitability, volume of investments, ratio of own and borrowed funds;
- Production and technical factors: Environmental factor, production capacity, ratio of working capital and fixed assets, level of infrastructure and advanced technology development.

The factors having direct impact on the sustainable development process include the following:

- Organizational and managerial factors, including managerial structure, development strategy, organizational culture, business reputation and streamlined business processes;
- Social factors: Workforce structure within the organization, the level of employees' qualification and education, wages level;
- Marketing factors: Level and quality of promotion methods, availability of feedback from a consumer, strength of brands in the portfolio;
- Environmental factors: Level of environmental safety of a company, degree of harmful impact to the environment;
- Informational factors: Level of information security of a company, balance of information flows, quality of an information support;
- Factors of nano-environment influencing the productivity of a person within a company.

As to corporate operating environment, the company's business environment factors are divided into internal and external ones (Bazarova, 2007). Since the time of the classical school of management theory, much attention has been paid to investigating

Table 1: Basic standards in the field of sustainable development

Standard	Aspects		
	Economic	Environmental	Social
International treaties and charters			
United Nations Global Compact		X	X
International standards			
Social Accountability 8000:2008			X
Account Ability 1000 Assurance Standard	X		
ISO 20121:2012. ISO 26000:2010	X	X	X
The Global Reporting Initiative	X	X	X
Ethics Compliance Management System Standard 2000	X		X
IC CSR-08260008000	X		X
National treaties and charters			
Russian business social charter	X	X	X
National standards			
Russian National standard GOST R 54598.1-2015	X	X	X
National indices			
Accountability and openness	X	X	X
Sustainable development vector		X	X

Source: Compiled by the authors

the factors of corporate internal environment. The main factors of the internal environment are objectives of a company, its organizational structure and management structure, workforce potential, technological and material subsystems of business activities, the volume of fixed and circulating assets, etc. So, the following factors were considered to be external ones: The legal field, in which an entity operates, consumers' and suppliers' behavior, and competitors' activities. In strategic management, economic, political, legal, social and cultural, and technological factors are considered the external factors (Zub, 2002).

What about the nature of such influence, one can classify economic, political, technical, environmental, legal and other factors of the company's sustainable development. The factors of economic sustainability mean the ability of a company to generate profit and the degree of its endowment with sources of financing. Environmental safety factors are determined by an environmental risk management system and include a general corporate policy in the fields of environmental safety and labor protection, volume of investments into resource-saving technologies, and into certification of an environmental management system. In the same way, factors of social, technological and organizational sustainability, represented by a system of human and social capital management, the level of technological equipment of production processes and a supply chain management system, and, respectively, an entire management system are determined (Batyrova, 2014).

From the point of view of a level-based approach, all factors can be classified into factors of macro-, meso-, micro-, and nano-environment.

Macro-environment factors mean the business environment where a company operates, creating conditions for changing the sustainability of development (Anpilov, 2012). These include political and legal factors reflecting the impact of current governmental policies and existing legislation on companies' activities, macroeconomic, social and cultural factors, international cooperation, scientific and technological progress. Factors of the macro-environment will also include special conditions for holdings' operation.

All above factors of the macro environment can be sub-classified into factors that can be influenced by a company itself, and factors that a company is not able to influence. The national tax policy and provision of tax incentives, either increasing the tax burden of a company, or facilitating the use of tax-exempt funds for further development represent an example of the second group of factors.

The factors of the meso-environment are represented by an internal environment of the organization and exercise maximum influence on the sustainability of its development. This category includes: Managerial, production, economic, social, information, and environmental factors.

At the level of a company's meso-environment factors influence analysis, it is important to determine the degree of development of its management system, as well as its risk management system.

This group of factors has a major impact on the sustainable development process, since the controlling subsystem is the one that determines the company's development strategy, its main goals, methods and ways to achieve them.

When analyzing the social subgroup of the meso-environment factors, it should be determined whether the organization has any human resources management system, how it is implemented, whether it is capable to assess the quality of human resources, the degree of employee satisfaction and their involvement in processes of achieving an entity's goals adequately. Also, the company's policy with regard to a local community within a region of operation, which is expressed by a level of a company's participation in various social programs, has a great influence among the factors of this group.

Production factors that describe the state of the company's fixed assets, its technical characteristics, and competitiveness of its products compose another important group of factors of sustainable development. In this group of factors special attention should be paid to the innovative component represented by availability of an innovation implementation program in production processes, as well as efficiency of investments in innovative development, calculated based on dynamic trends of operating figures, e.g. the volume of production or production cost. As a result of the high rate of obsolescence of equipment, an essential condition for supporting the corporate sustainable development process is to maintain an adequate level of technical equipment and introduction of innovative technologies.

Financial or economic factors reflect the company's ability to secure its liabilities with available financial resources, generate profits and maximize its value. To take into account an influence of this group of factors, methods and tools of financial analysis, including an assessment of a company's property status, its liquidity, funding sources, availability of reserves, business activity, and turnover of funds, are used.

The next group of factors includes the ones of a micro-environment; they reflect the impact on the development sustainability of each division of a company, of each part of its organizational structure. The analysis of this group of factors becomes especially important for large holdings and companies with branched structure, operating in a number of regions or business areas.

The factors of the nano-environment reflect an influence of each employee on the sustainable development of a company, for example, each employee's work activity efficiency, level of personnel qualifications, competence, etc. Economic, social, environmental, information and management factors can be included in nano-science factors list. To ensure sustainable development of a company, the environmental factors of the nano-environment, represented by environmental literacy of its personnel, their responsibility for any harm caused to the environment, play an essential role. This is due to the fact that the more developed the environmental responsibility and culture of an employee is, the less the amount of waste from his activities and production process as a whole is, the more efficient will the use of resources be (Osipova, 2015).

Accounting for the impact of nano-environment factors will allow a company to assess the degree of effectiveness of employees and their contribution to company's goals achievement, and, consequently, to build an effective system of bonuses and incentives for its personnel.

Thus, the corporate sustainable development is obviously characterized by a plenty of factors. Their variety, ambiguity of influence evaluation figures, and impossibility to forecast behavior of some of them result in severe negative consequences. In this regard a need arises in detection and classification of factors effecting corporate sustainable development. Analyzing and summarizing a number of factors of various nature allowed the authors to compile an expanded classification of the most valuable factors of corporate sustainable development (Figure 1).

Ensuring sustainable development is an essential condition for operation for not only regional company, but also for a separate vertically integrated company as a social, environmental and economic system. Distinguishing and structuring of sustainable development factors having major impact on any particular company is a necessary condition for this.

4. DISCUSSION

Review of oil and gas companies in the field of reporting on sustainable development. Let's consider how international and domestic companies form reports on sustainable development in practice and what factors are incorporated into this reporting based on theoretical approaches to selection of factors.

The Dutch-British oil and gas company Shell voluntarily began reporting environmental and social indicators (Table 2); the first report was presented in 1997. "Report on Sustainable Development" details the contribution of Shell to the global work on the transition to more environmentally friendly energy sources. This includes continuous work on development of natural gas reserves, efforts to develop technologies for carbon capture and storage and development of new biofuels, as well as other investments in fuel production technology with reduced carbon emissions, for example, the use of hydrogen as an automobile fuel. This "Report on Sustainable Development" is reviewed by the Committee, consisting of seven experts not affiliated with the Concern and representing different professional areas.

Table 2: Basic aspects of sustainable development of the Shell Company

Social aspects
Public relations and projects' social impact
Occupational safety and health and workplace
Economic aspects
Corporate management
Development of local economy and supply network management
Environmental aspects
Reduction of climatic change risks
Environmental indicators

Source: Compiled by the authors based on Shell's Reports on Sustainable Development (Shell Company's Reports on Sustainable Development, 2017)

Another international oil and gas company British Petroleum (BP) declares that its goal is to create long-term value for shareholders, which, according to the company, will help to meet the growing global energy needs. BP aims to be a world-class company with a high level of corporate civil responsibility, while being a good employer. At the same time, the company's management clearly indicates what the indicators are calculated and published for: "… We will be able to work successfully only provided people's trust is maintained, both inside the company and outside it. We thoroughly monitor our actions and strive to ensure transparent reporting. We believe that without full communication and open dialogue, we will not be able to meet the expectations of our employees, consumers, shareholders and communities in which we operate...." At the same time, the company clearly shows its list of indicators in the context of factors (Table 3) (BP Company's Reports on Sustainable Development, 2017).

One more company striving to increase transparency in its reporting and demonstrates a high level of sustainable development is the US oil company Exxon Mobil Corporation (Table 4), which identifies corporate social responsibility among the significant factors of sustainable development: "…By planning the social aspect of our activities for six main fields, we contribute to the achievement of more general social goals of sustainable development and regulate the impact of our projects on local social and economic development, climatic conditions and the environment" (Exxon Mobil Corporation's Reports on Sustainable Development, 2017).

At the same time, let's pay attention to a number of the largest Russian oil and gas companies that have also started implementing mechanisms to ensure sustainable business development. However, publishing the reports on the companies' websites is not regular and is not bound to financial statements publishing.

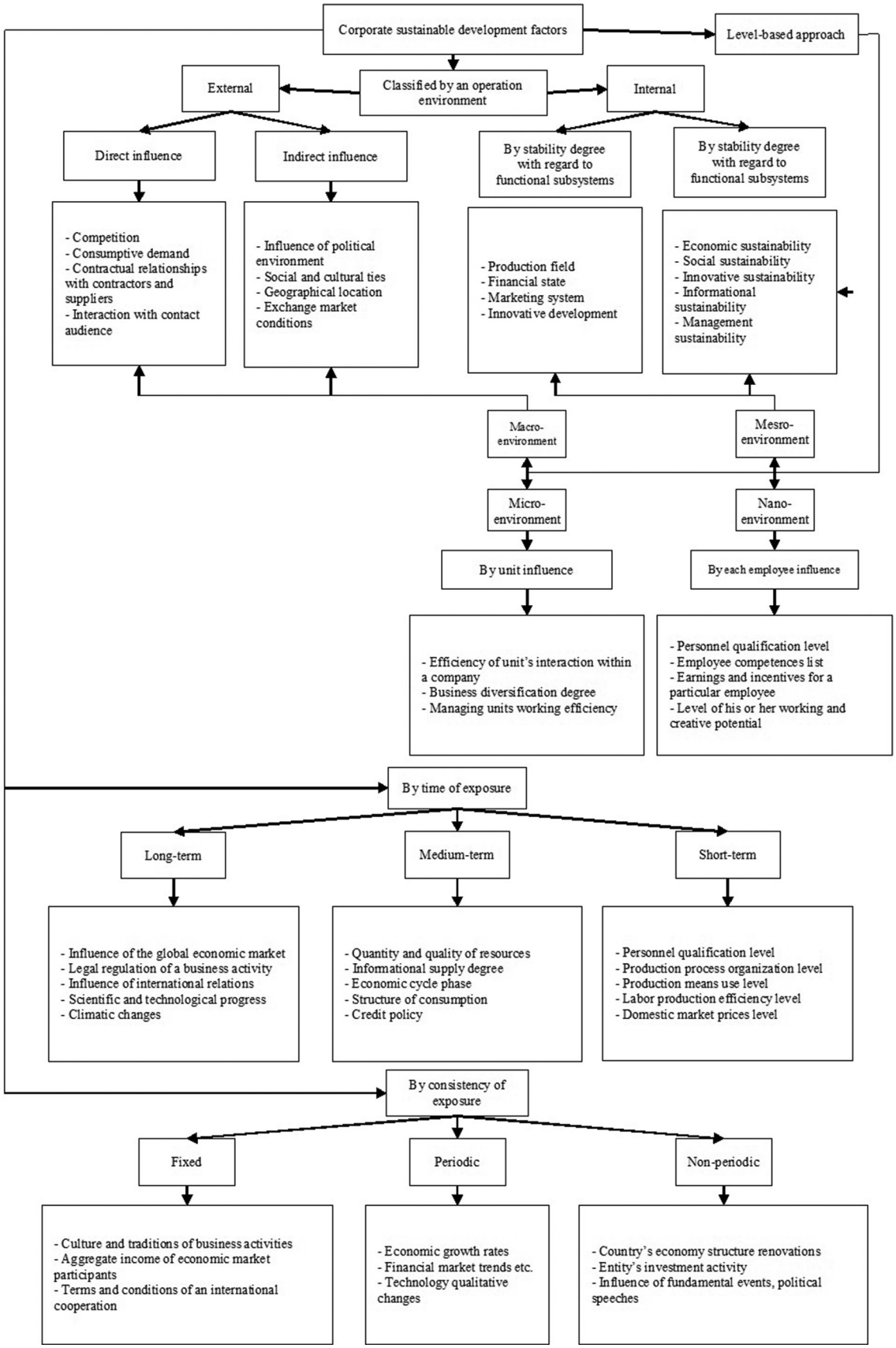
The Russian oil company PJSC Gazprom Neft is one of the leading companies with regard to this criterion. This company is one of the few companies that publish non-financial reports simultaneously with annual reports. This allows reviewing the Company's activities in solving economic, environmental, and social problems in a comprehensive, strategic context. At the same time, in 2017 the company uses the best practices to confirm the results obtained from independent experts. The report has passed the independent public assurance by the Council of the Russian Union of Industrialists and Entrepreneurs (RSPP) on non-financial reporting.

In addition, Gazprom Neft, in reflecting indicators (Table 5), uses an up-to-date system of indices. Thus, the report for 2016 is prepared in accordance with the main version of the Sustainability Reporting Guidelines (GRI-G4) and the provisions of ISO 26000: 20101 (Guidelines for Social Responsibility).

PJSC "NK Rosneft" carries out the sustainable development system policy, the main provisions of which are published in its sustainable development policy and include the following groups of factors (Russian Oil Company Rosneft, 2017).

1. Major economic factors, including the following:
    - Significant contribution to energy security of the Russian Federation;

Figure 1: Corporate sustainable development factors classification



Source: Compiled by the authors based on the studied sources (Bazarova, 2007; Batyrova, 2014; Zub, 2002)

Table 3: List of indicators within the framework of the main sustainable development factors of the BP Company

I Industrial safety
Number of fatal occupational accidents among employees
Number of fatal occupational accidents among contractors
Number of days away from work — employees
DAFWCF[b] — employees
Recordable injury number — employees
RIF[b] — employees
Hours worked — employees (million hours)
Hours worked — contractors (million hours)
Total number of primary casing loss of containment cases
Cases — production process safety incidents of 1 level (number)
Cases — production process safety incidents of 2 level (number)
Oil spills (> 1 barrel)
Spilled oil volume (million liters)
Environmental indicators
Number of oil spill cases— onshore and offshore
Volume of unextracted oil (million liters)
Direct carbon dioxide (CO_2)* emissions (million tons)
Direct methane emissions* (million tons)
Direct NG emissions (million tons equivalent [CO_2e])
Indirect carbon dioxide (CO_2) emissions (million tons)
Consumers' emissions (million tons CO_2 equivalent)
Combusted gases volume (exploration and production) (thousand tons of hydrocarbons)
Environmental expenses (million USD)
Environmental and occupational safety violations fines (million USD)
Human resources
Number of employees within the Group
Number of managers within the Group
Percentage of female employees within the Group (%)
Percentage of female managers within the Group (%)
Percentage of representatives of ethnic minorities of the United Kingdom and the USA among the Group managers (%)
Percentage off foreign citizens (not the UK and USA) among the Group managers (%)
Fluctuation of personnel movement (%)
Number of calls via "Open talk" hotline
Dismissal for infringement of law, duty instructions or misconduct
Payment to employees, including salaries (wages), options, benefits packages and retiring pensions (million USD)
Financial and production figures
Total amount of hydrocarbons produced (thousand barrels daily)
Proven reserves recovery rate (%)
Total producing capacity of refining companies (thousand barrels daily)
Total volume of petrochemical production (thousand tons)
Profit (loss) excluding assessed value of the product stock (million USD)
Tax payment (including profit tax and production taxes) (million USD)
Dividends for shareholders (million USD)
Contributions into the development of local communities (million USD)

DAFWCF: Days away from work case frequency, RIF: Recordable injury frequency. Source: Compiled by the authors based on the BP company sustainable development reports

- One of the largest national taxpayers;
- Significant influence on industrial markets (mechanical engineering, etc.);
- Large employer and town-forming enterprises.

2. Major environmental factors, including the following:
   - The impact on the atmosphere;
   - The impact on water resources (water abstraction and pollution);
   - Use of land and natural resources.
3. Major social factors, including the following:
   - Providing employment with an adequate level of labor remuneration; human rights;
   - Contribution to the formation of ethical public and business relations.

The Russian transnational energy corporation PJSC Gazprom identifies 4 main groups of factors in gas production in preparation of its report on sustainable development (Table 6).

- Managerial
- Economic
- Social
- Environmental.

The key indicators of the company's performance (Table 7) partially reflect the main aspects. For example, the table shows that the indicators of "Innovations and R&D" category are not included in the list. Also, the "Corruption prevention" is not highlighted as a visual indicator, although the company places information on the number of purchases conducted through competitive procedures that could be used to reflect this aspect. Thus, we can talk about a certain need in further improvement of the direction of reflecting the resulting indicators in the framework of the main sustainable development factors within the entity.

According to the results of the conducted analysis of companies it was found out that Western energy companies are forming sustainable development reports together with financial reporting, with the same degree of clarity and efficiency. The list of indicators in them corresponds to current trends with regard to improving transparency of reporting and professional diligence in demonstrating the strengths of companies.

As for Russian companies, it should be noted that they publish reports without binding to a clear deadline. At the same time, their list of indicators does not reflect main fields of sustainable development and reflects the need in a serious study regarding improvement of both the concept of sustainable development and a list of indicators that would reflect good governance in ensuring competitiveness.

5. CONCLUSION

Proposals concerning the use of international and domestic experience in the formation of conditions for the sustainable development of FEC enterprises at the territory of the Russian Federation include certain actions aimed at getting maximum performance from an entity and also for transforming it into a brand new functioning form through efficient interaction with factors of internal and external social and economic field. The first step in this direction is formation of a sustainable development strategy (Figure 2) determining goals for each identified sustainability factor (Table 8).

Table 4: Performance indicators of Exxon Mobil Company in Field of Sustainable Development

Safety, labor protection and workplace
Number of fatal accidents — employees
Number of fatal accidents — contractors
Frequency of fatal accidents — total number of employees (per 1,000,000 working hours)
Frequency of accidents with loss of working hours — total number of employees (per 200,000 working hours)
Number of recordable accidents — total number of employees (per 200,000 working hours)
Percentage of employees — beyond the US
Percentage of female employees — total number of employees worldwide
Percentage of newly employed managers and experts — female employees
Percentage of newly employed managers and experts — beyond the US
Reduction of climatic change risks
Emissions of greenhouse gases in absolute terms (under net assets of the company, emissions in CO_2 equivalent), million metric tons
Emissions of greenhouse gases, normalized value (under net assets of the company, emissions in CO_2 equivalent), million metric tons per 100 metric tons of product
Exploration, production
Processing, sale
Petrochemical production
Power consumption (bln. GJ)
Power consumption normalized to a reference year (2002) of the GEMS — processing
Power consumption normalized to a reference year (2002) of the GEMS — chemical steam cracking
Torch combustion of HC (projects worldwide), million metric tons
Capacity of combined heat energy production facilities, where we have a share, GW
Environmental indicators
Area of preserved wildlife inhabitance zones, acres
Fresh water consumption, million m^3
Fresh water intensity, metric tons of fresh water per a metric ton of power or product
Exploration, production
Processing, sale
Petrochemical production
Spills from sea ships (own and in long-term charter), HC spilled amount >1 barrel
Spills (ex. spills from sea ships), number of oil, chemicals, and drilling substances spills >1 barrel
HC spills (oil spills), thousand barrels
Other spills, thousand barrels
Controlled discharges of HC into aquatic environment, thousand metric tons
Emission of sulphur dioxide (SO_2), million metric tons
Emission of nitrogen oxides (NO_x), million metric tons
Emission of VOCs, million metric tons
Emission of VOCs, metric tons per 100 metric tons of power or product
Exploration, production
Processing, sale
Petrochemical production
Environmental expenses (billion USD)
Total amount of production wastes, million metric tons
Civil society and social impact of projects
Investments in local social development, million USD. Beyond the US

Source: Compiled by the authors based on Exxon Mobil company sustainable development reports, GEMS: Global Energy Management System, VOCs: Volatile organic compositions

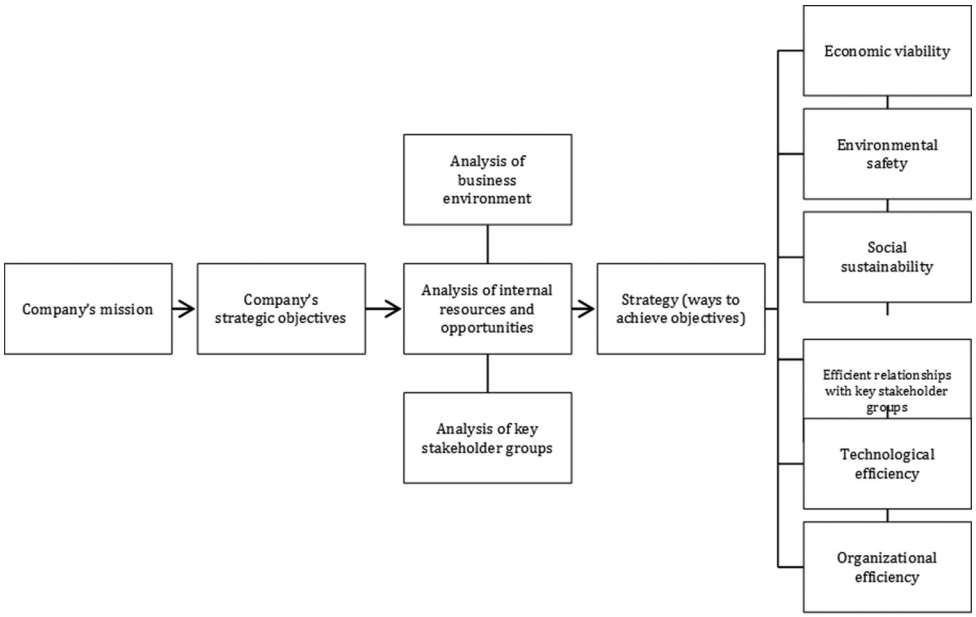
Methodological tools used for researching the level of sustainable development in the fuel and energy industry of entities within the Russian Federation in order to achieve energy efficiency and energy security of regions include definition of absolute values of analyzed indicators classified by types of sustainability: Economic, social, environmental and global.

Monitoring of factors, both adverse and favorable, influencing the process of sustainable development is an effective tool for managing corporate sustainable development process. Comprehensive objective monitoring should be carried out based on the above system of indicators of sustainable development level. A program of measures aimed at preventing factors impacting corporate sustainable development should be the result of the monitoring (Kondaurova, 2015).

The principles of sustainable development should be integrated into the basic processes of corporate operation and, in particular, into the process of project management, by means of balanced increase of economic and social efficiency while reducing the environmental impact (Manaykina, 2015).

The strategy of gradual governmentally-regulated transition to sustainable development should be implemented taking into account specific individual features of Russian regions. The objectives of sustainable development within individual territories should take into account the following factors: Natural and climatic conditions; social and economic conditions; technological potential; intellectual potential of the population; available resources etc.

Figure 2: Structural logical diagram for sustainable development strategy formation



Source: Compiled by the authors

Table 5: Essential topics and aspects from the report of JSC Gazprom Neft

Topics and aspects
Economic performance
Company's strategy
Investment program
Financial stability
Production efficiency
Product quality
Innovative activities
Industrial and occupational safety
Production process safety, readiness to handle accidents
Occupational safety, employees' health care
Environmental safety
Process environmental control
Compliance with environmental regulations
Company's activity environmental impact at Prirazlomniy deposit
Use of energy and energy efficiency
Rational use of natural resources
Greenhouse gases emissions
Human resources
Fair remuneration and social support of employees
Training and development of employees
Labor relations and employment
Fair remuneration and social support of employees
Company's influence in region of operation
Local communities development programs
Import substitution programs
Local suppliers development program
Rights of native and small-numbered peoples

Source: Compiled by the authors based on O and GC JSC Gazprom Neft sustainable development reports (Gazprom Neft Company's Reports on Sustainable Development, 2017)

Table 6: Basic aspects of sustainable development of the PJSC Gazprom Company

Managerial
Strategy
Corporate management
Compliance
Ethics and good faith
Corruption prevention
Economic
Market presence
Supply chain
Innovations and R and D
Operation efficiency
Investments
Supplier relationship management
Social
Employee engagement and development
Freedom of association and collective bargaining
Diversity and equality
Labor reimbursement
Human rights
Works and services labeling
Energy security and consumers' health
Occupational safety and healthcare
Employment
Local communities
Environmental
Power
Waste management
Alternative energy sources
Emissions
Water
Biodiversity

Source: Compiled by the authors based on PJSC Gazprom sustainable development reports analysis (Gazprom Company's Reports on Sustainable Development, 2017)

The first priority for sustainable development of any company is to find ways to select projects in the order portfolio. It is very important to avoid a non-systematic way of selection and to seek for a structured approach.

In order to determine and select the most preferred projects, we have developed and proposed a list of indicators for each of the three aspects. Such a division, we believe, will allow a company

Table 7: Key operating indicators of Gazprom Group's performance

Hydrocarbon reserves of A + B + C1 category at the territory of Russia
Natural gas, billion m^3
Gas condensate, million tons
Oil, million tons
Extraction of hydrocarbons at the territory of Russia
Natural and associated gas, billion m^3
Gas condensate, million tons
Oil, million tons
Processing of hydrocarbons at the territory of Russia
Natural and associated gas, billion m^3
Oil and gas condensate, million tons
Sale of hydrocarbons
Sales volumes of gas, billion m^3
Russia
Far abroad
Countries of the former soviet union
Sales volumes of oil and gas condensate, million tons
Russia
Far abroad
Countries of the former Soviet Union
Heat and power production in Russia
Power generation, billion kWh
Heat production, million Gcal
Key financial and economic indicators of Gazprom group
Capitalization at the end of the year, trillion RUR
Incomes from sales, million RUR
Profit for the year, million RUR
Capital investments, total, million RUR
Including according to segments
Gas production
Transportation
Gas supply
Gas storage
Extraction of gas and gas condensate
Recycling
Manufacturing and sale of electric and heat energy
All other segments
Key social performance indicators
Number of personnel at the end of the reporting period, thousand people
Social expenses, million RUR
Labor costs, million RUR
Key performance indicators in the field of environment protection, industrial and occupational safety
Current costs for environment protection, million RUR
Emissions of pollutants into the atmosphere, thousand tons
Emissions of greenhouse gases, million tons of CO_2 equivalent
The area of contaminated land at the end of the year, hectares
Injury rate with loss of working time

Source: Compiled by the authors based on PJSC Gazprom sustainable development reports analysis

Table 8: Corporate sustainable development level indicators classified by sustainability factors

Sustainability factors	Group sustainability within types	Absolute indicators of group sustainability
Economical sustainability	Financial sustainability	Current liquidity ratio
		Equity to total assets ratio
		Leverage ratio
		Current assets to equity ratio
		Assets constancy ratio
		Current assets coverage ratio
		Interest coverage ratio
	Marketing sustainability	Product sales volume
		Occupied market share
		Marketing expenses
		Goods turnover volume
	Production sustainability	Product manufacturing volume
		Production profitability
		Capital productivity ratio
	Organizational sustainability	Industrial management efficiency
		Labor management efficiency
		Management structure efficiency
	Investment sustainability	Entity's investment activities
		Capital investment level
		Innovation expenses level
		Financial market activity
Social efficiency	Human resources sustainability	Number of employees
		Fluctuation movement of personnel
		Qualification level
		Share of female managers
		Share of female top managers
		Level of employees' qualification improvement
	Material incentives sustainability	Wages to industry average ratio
		Level of social, cultural and living conditions at work

Table 8: (Continued)

Sustainability factors	Group sustainability within types	Absolute indicators of group sustainability
	Working environment engineering sustainability	Accident rate
		Occupational morbidity rate
		Temporary disability rate
	Sustainability of social and cultural conditions	Workplace discipline rate
		Dismissal for infringement of law or duty instructions
	Region of operation development sustainability	Degree of cooperation with governmental authorities, as well as with non-profit and non-governmental organizations in the field of key social tasks
		Increase of social and economic level of development of the region
		Volume of tax payments within the regions of operation
Environmental security	Environmental sustainability	Resource saving rate
		Renewable resources consumption level etc.
	Zero-waste production	Air contamination degree
		Water contamination degree
		Soil contamination degree
		Total environment contamination degree etc.
	Environmental protection sustainability	Environmental protection measures development expense rate
		Level of equipment with waste treatment facilities
		Degree of waste treatment facilities sophistication
		Environmental protection measures implementation expense rate etc.
Efficient relations with related parties	International business sustainability	Foreign investment rate
		Foreign trade turnover rate etc.
	Business relations sustainability	Degree of compliance with information requirements and expectations of major stakeholder groups
		Share of customers with whom the company has been having business for a long time
		Degree of customer satisfaction
Technological efficiency	Technological sustainability	Technologies usage rate
		Fixed assets renewal and upgrade rate
		Capital addition rate
	Innovative sustainability	R&D funding volume
		Innovative technologies implementation level

Source: Compiled by the authors

to focus on the most relevant areas and to observe necessary development balance. The indicators are shown in Table 9.

The company can develop its own weights for each criterion according to its objectives, and in future use this list when selecting projects to fill its investment portfolio. Priority is given to those projects that gain the highest estimates. After a more detailed analysis of projects accepted for consideration, adjustments may be made in determining the importance of individual criteria within each of the indicators, with reviewing of the reference target indicator values.

In conditions of macroeconomic instability and high geopolitical tensions, and also due to a number of structural reasons, it becomes evident that the only condition for the preservation and development of business is the company's development strategy that provides improved protection against unfavorable external and internal impacts, in other words, a sustainable development strategy.

Table 9: Project sustainable development indicators

Economic indicators
NPV, net project value, million RUR
PP, payback period, years
IRR, internal rate of return, %
Procurements from Russian suppliers (construction works carried out by Russian contractors), %
Investments into fixed assets, million RUR
Investments into infrastructure and services, million RUR
Environmental indicators
Use of recycled materials, %
Share of returned products, %
Use of energy from renewable sources, %
Specific energy consumption in physical terms, tons of fuel oil equivalent
Share of recycled water in the total water discharge under a project, %
Greenhouse gases emission, tons per year (reduction)
Air contaminants emission, (% of reduction)
Wastewater drainage, tons per year
"Hazardous" waste, tons per year
Investments into environmental protection facilities, million RUR

(*Contd...*)

Table 9: (*Continued*)

Social indicators
Creation of new jobs, number of jobs
Expenses for occupational safety, million RUR
Expenses for training, million RUR
Cooperation with governmental authorities, as well as with non-profit and non-governmental organizations in the field of key social tasks (social and economic development of the region), number of agreements
Estimate of impact of the entity's business on social and economic development of local communities, number of programs
Increase of social and cultural development of a region, million RUR

Source: Compiled by the authors

6. ACKNOWLEDGMENTS

This paper was financially supported by the Ministry of Education and Science of the Russian Federation, which ensures the Peoples' Friendship University (RUDN University) the provision of budget funds for financial support for the implementation of project "Support Tools for Fuel & Energy Complex as a Condition for Achieving Energy Efficiency and Energy Independence of the Region" (Task No. 26.4089.2017/PCh (26.4089.2017/ПЧ)) in 2017-2019.

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