Оглавление

THE EFFECT OF OIL TAXATION ON INVESTMENT ACTIVITY OF COMPANIES AND ECONOMIC GROWTH IN RUSSIA

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Key words: oil industry tax regimes, investment opportunities of oil companies, investment incentives, investment requirements, oil companies' revenues, sources of oil projects' funding, tax maneuver, excess profits tax, tax on financial result.

Oil industry is the main income-producing sector of Russian economy. From 2006 year oil & gas revenues provide about 40-50% of consolidated budget [4]. Any changes in this industry have not only multiplying economic but also geopolitical effect, since Russia is one of the world leaders in oil reserves, its production and export.

Nowadays the following trends in oil industry development should be emphasized:

– despite oil extraction increase, depletion of oil fields is rising;

– the quality of new geological discoveries decreases and therefore the capital intensity of the development of complex and remote fields is growing;

– export's geography is changing: there is decline of oil & gas deliveries to Europe and growth to the Asia-Pacific Region;

– new entrants appear at the international market;

– many countries shift to alternative energy sources and develop energy-saving technologies;

– taking into account the dependence of Russia on equipment's import and foreign loans, current sectoral sanctions encourage delay of some investment projects' execution;

– recession in Russian economy slows down the growth of fuel and energy domestic demand and reduces investment activity within fuel and energy complex.

All these serious challenges need an adequate response. One of the main steps within solution of oil industry problems (and, hence, problems of oil-depending Russian economy) is formation of adequate tax regime, which would allow, from the one hand, to provide completion of budget and performing of social functions by the State, and to meet needs of long-term development of this important industry – from the other.

Thus, the *goal of the research* is an assessment of the existing oil & gas tax regime's performance and justification of its development key indicators to improve the sustainability of the Russian economy.

Contemporary tax regulation system has being forming from the late 2002. The important part of reforms in the beginning of 21st century was introduction of mineral extraction tax (MET) in 2002, then taxation reforms of 2007 [6], 2013-2014 and many other adjustments took place. As the result, taxation system became more transparent and close to international practice, completeness of the budget has increased together with the growth of extraction and refining activities.

At the same time, tax regulation is still based on gross revenues from extraction, refining and export: it allows to administer taxes in relatively effective way and to fill the budget, but it neither stimulates the development of oil companies' investment potential nor provides correlation between financial results of companies and paid taxes.

Nowadays the *strategic tasks of further tax regime reforming* are the following:

– establishing of stable and predictable terms of taxation;

– nature rent withdrawal without sacrificing of financial sustainability and investment attractiveness of efficient companies of fuel and energy complex;

– efficient allocation of revenues generated by fuel and energy sector between the State and business (determination of optimal tax burden);

– attraction of investments to hard-to-reach reserves' extraction, exploitation of small, depleted oil and gas fields.

An important part of tax regime strategic reform in Russia can become an introduction of widely used in developed oil producing countries supplementary charges – Excess profits tax and Tax on financial result [1]. These taxes implementation provides tax differentiation depending on concrete oil extraction conditions, acceptable level of net revenue in case of availability of operational profit. All tax mechanisms based on such excess profits taxes has significant advantages in comparison with prevailing using of mineral extraction tax (MET): they reduce opportunities for selective approach to taxation of certain oil projects, stimulate investments to discovery new fields since the tax does not apply until the full payback of capital expenditures.

In 2016 the concept of Tax on financial result was developed together by Ministry of Finance and Ministry of Energy of Russia, which implies pilot adoption of this new tax in 2018. In parallel export duty will gradually decline to balance internal and external oil prices.

Nevertheless, in contemporary Russia the shift to EPT has also weaknesses and certain threats. Our SWOT-analysis [2] evolved the following:

– complexity of establishing new system of cost control and tax administration, providing true recording of production, investment and financial measures. In Russia it is difficult to build because of practice of "creative" accounting, transfer pricing;

– many project, price and currency risks should be assumed by the State, which can lead to decrease of budget incomes.

Thus, the threats of dramatic tax maneuver for Russia seem quite serious. After EPT implementation budgetary revenues can diminish, in particular, because many projects of hard-to-reach reserves' extraction will be under construction in the coming years and have relatively low profitability. In a whole, systematic approach to reformation of oil industry tax regime should consider concrete stages (road map) of such tax move to achieve balance between the society's interests and oil companies. Long term milestones and road map should exclude the possibility of frequent and random law adjustments and give oil companies and the State an opportunity to plan for a long perspective.

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SUSTAINABLE SALE OF INTERNATIONAL MEGAPROJECTS: NUCLEAR POWER CASE-STUDY

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Key words: sustainable sale, organizational and financing model, international megaproject, multi-focus strategy, hybrid cooperation strategy, system dynamics.

"Iron law" of megaprojects is "over budget, over time, under benefits" [2]. The major scientific efforts to tackle the problem are focused on management skills. Fair number researchers point out that the roots of the megaprojects' poor performance should be traced on the early stages of project preparation [1]. This mission is hampered through large uncertainty implying megaprojects' planning given their technological and organizational complexity. Key decisions on megaprojects are considered to be made with bias of overoptimistic budget and unsatisfactory risks assessment.

Nonetheless the embedded reasons of megaprojects Iron law are still to be unlocked. One should note that megaprojects proliferation stemming from economies of scale [3] are often implemented as international endeavor with a megaproject exporting country on one side and a recipient country on another. The latter being often developing countries enjoys efficient gap overcome in technological and infrastructure development. Exact roles of partnering organizations can differ due to diverse megaproject organizational and financing models (e.g. turn-key, BOO, etc.) Two features are common for all of them: 1) there is always a megaproject's vendor and buyer; 2) the deal should be economically feasible namely the investments pay back mode is to be settled.

Thus the preparatory stage of a megaproject is actually arranged as a sale process with fierce competition and ends up engraved in stone of legally binding multilayer set of interrelated documents (e.g. intergovernmental agreement, host-government agreement, EPC-contract, power purchase agreement, etc.) Vendor is to be talented enough to strike a deal between Scylla and Charybdis: the business case conditions should be attractive for the buyer and profitable for the vendor's shareholders. Considering megaprojects long-lasting life-cycle (LC) and huge risk, undercutting is not a sustainable strategy, but a highway to Iron law. In view of all these features a nuclear power plant (NPP) project is a typical megaproject.

Peculiarity about megaproject marketing is that its competitiveness is assessed on three levels. For a NPP megaproject on a micro-level the technology maturity and commercial attractiveness matter. The first is compliance with buyer's terms of references and national regulation both nuclear, industrial, environmental, and etc. The latter are evaluation of NPP LC (NPV, LCOE, IRR, etc.) NPP business case should match anticipated tariff and volume of electricity target market simulated with dynamic system. LC calculation is supported by requirements management and BIM systems.

On a meso-level the organization and financing model is to be developed in such a way that buyer's demand is satisfied. Affordable financing sources imply coherent supply chain. Close ties of financial and technological partners compose hybrid cooperation strategy and establish a sustainable robust business case.

On a macro-level a bulk economic, political, environmental, technological, reputational multiplier effects of a megaproject are tested for their competitiveness. Megaproject parameters on micro, meso and macro-levels compose a ground for buyer's decision which suppler to chose. These very parameters are to be crucial for vendor's competitive multi-focus strategy. A local optimal solutions on one level can sometimes not be achievable. Then deadlocks are escalated to a higher level and trade-offs take place in order to find an integral consensus.

Stakeholders' account-management contributes to megaproject sustainability throughout its LC. For NPP deals a strategy of integrated sale (IS) is elaborated which can encompass

(besides NPP): NPP LC facilitation (fuel supply, O&M, waste treatment and decommissioning), financing arrangement, localization and technology transfer (customer's national industry involvement), capacity building and education, nuclear infrastructure (NI) development services. According to IAEA concept NI includes 19 elements which are to be mature for launching a national nuclear power program. For each NPP megaproject IS is contextualized with buyer's needs and buyer's country NI status (IS is theirs derivative). Sustainable IS strategy engage efforts on micro, meso and macro level.

Each component of IS should be viewed as a potential risk area to be cared for by a megaproject vendor. Creative IS makes it possible to foster sustainable relations with broad range of stakeholders attempting to avoid Black swans' step out from their shell eggs. Proactive IS constitutes novel social and institutional relations and is a key to fight against Iron law. Thus sustainable sale of megaproject are those which result in appropriate megaproject implementation for its stakeholders on micro, meso and macro-levels.

The presented concept of sustainable sale of international megaprojects is expanded relying on a data base of international NPP projects launched in 21st century both ongoing (in China, Finland, France, Turkey, UAE, UK, USA) and discontinued (in Bulgaria, Czech Republic).

Conclusions. Concept of sustainable sale of international megaproject is elaborated, including multi-focus, integrated sale and hybrid partnering strategy. Such multi-focus strategic set can be compared to multi-dimensional chess games, interconnected to each other and being played simultaneously.

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THE ROLE OF MODERN MARKET INSTITUTIONS IN THE FOREIGN ENERGY POLICY OF RUSSIA

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Key words: commodity exchange energy trading, oil futures, oil futures on the Russian market, the benchmark oil grades.

The article considers the problem of organization of a futures exchange trading of Russian oil in order to create independent level of export prices without reference to existing global benchmarks. The author substantiates the relevance of this problem for the external energy policy of Russia and socio-economic development of the country, considering the fact that the commodity exchange trade in oil and oil products began to play a decisive role in identifying the current world prices and the prediction of the development of the oil market.

High importance of futures markets was confirmed in many studies of foreign and Russian specialists and the author herself [1].

The hypothesis of the study is the assumption that forming of a liquid futures market on the Russian oil Urals will help to "decouple" the price of export Russian oil from the price of benchmark Brent crude oil, which would create a national price indicator in the long term, can make Urals a reference mark for grades of similar quality.

Recognizing the role of the exchange trade and, in particular, trade in oil and oil products, the Russian government for two decades has made great efforts for the organization of such trade, initially on the terms of cash market and later the market of futures contracts. Unfortunately, often in such projects the idea of the revival of the commodity exchange was implemented by measures which forced producers to exchange trade in oil and oil products, which did not find understanding among domestic companies.

In the main part of the article the author presents an analysis of the main markets of exchange trade in energy in the world with the identification of their specifics and key contracts. The article emphasizes that futures contract quotations are generally accepted as price indicators used in the formulas of spot and forward energy contracts, and the products for which there are liquid exchange-traded futures contracts, become the benchmarks for other grades. The sale and purchase of futures and options contracts allows market participants to minimize price risk and to manage earnings.

The whole range of energy products as crude oil and petroleum products, and natural gas is now covered by liquid futures contracts. The volume of trading of such contracts is steadily growing on recognized markets, but subject to fluctuations on the young markets as India and China [4]. Taking into account the evaluation of foreign experience, the author traces the history of the development of exchange trading in energy resources in Russia from the first attempts up to the present time, revealing the reasons of failures of the 90-ies of the last century and fixing the current state of affairs.

Special attention is given to the latest project of the introduction of futures contract of Russian export oil Urals at the St. Petersburg international commodity exchange [6]. The author presents calculation of the ratio of quotations of the contract for the Russian grade and two reference grades of Light Crude and Brent, the level of discount for Russian grades prevailing in the first period of the new contract.

Conclusions. International experience allows to draw some conclusions. First, it can be stated that the choice of contract grade to trade is an important factor what can be proved with the success of the Indian contracts for two world benchmark crudes Light Sweet and Brent comparing to more than modest results of marks Dubai and Oman, despite the fact that physical delivery of the last two predominate. Secondly, the use of national currencies in trade is not an obstacle, if there is interest of market participants.

Bad experience with commodity futures in Russia in the first period of development of exchange trade (up to the mid 90-ies) can be explained by both technical reasons and the characteristics of the Russian market and the economic situation. Among the technical reasons can be noted the lack of infrastructure for the development of the futures market. But more important was the specificity of the Russian market of the period: high monopolization of commodity markets, strict government regulation, lack of experience in exchange futures trading in the past, the one-side of price dynamics.

The conducted study gives grounds to draw some other conclusions. First, exchange trade in energy has become an important part of the world oil market, providing participants the opportunity to manage price risk and have constant information about the current price. Second, active trading in futures on energy can be conducted not only on the exchanges of developed countries, but new exchanges are the problem of fluctuations in trade volumes and the need to maintain the liquidity of the market by the state or large financial institutions. Thirdly, the Russian practice till now does not give a successful example of futures market trading, which would allow not only to create national price indicator for export, but also to provide the oil exporters with the opportunity to hedge their risks.

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OIL COMPANIES' STRATEGIES IN CONTEXT OF ENERGY TRANSITION

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Keywords: oil companies, oil market, energy transition, Russia.

Prior to the beginning of the 21st century, the dominating oil market paradigm was based on the 'peak oil' theory. Oil prices were expected to rise for the reasons of inevitable resource depletion. However, recent trends reveal the shift of the market paradigm from the context of resource constraint towards resource abundance. While increasing efficiency of energy use leads to a slowdown of oil consumption [9], technological progress allows to expand the resource frontier as demonstrated by the shale revolution in the U.S. The entry in force of the Paris climate agreement adds supplementary constraints on traditional fossil fuel industries. The greenhouse gas emissions reduction implies the "unburnable carbon" problem. As demonstrated in McGlade & Ekins [4], about 33-35 percent of word oil reserves should not be developed in perspective to 2050 to limit the global temperature rise. Besides regulatory norms fostering the adoption of renewable energy technologies and more efficient energy use, numerous bottom-up and voluntary initiatives (i.e. carbon divestments campaign) negatively affect fossil fuel consumption and investment attractiveness of the oil industry.

Emergent strand of literature investigates impacts of energy transition pathways on oil companies' strategies [2, 6]. However, the relevance of this issue has not been thoroughly assessed with a specific focus on Russian companies. The present paper aims to highlight the importance of this issue and to provide a step towards qualitative assessment of climate challenges for Russian oil companies. The research questions are the following:

(1) What are the relative advantages and disadvantages of Russian companies in context of long-term constraints on world oil demand?

(2) How could Russian companies adapt to new market conditions?

The research is based on multiple case analysis. Information is gathered from open sources (international statistics, companies' reports and press releases).

Firstly, the long-term market trends are discussed. In the coming decades, the envisaged decline of oil consumption in OECD countries will be compensated by the expansion of demand in emerging economies, in particular in China and in India [3]. In perspective after 2030-2040s, a stabilization or decline of global oil consumption in expected [8], thus raising the question of necessary adaptation of oil companies' strategies. Possible options may range from denial of changes to a radical shift of business from oil to renewables [2]. More specifically, possible options include implementing cost savings, more mega-mergers, optimizing portfolio of assets, diversification, developing in-house technologies or downscaling operations to OECD countries [6].

Russian companies are vulnerable to the shift of the world oil market paradigm given the high dependency on foreign markets. Internal consumption in Russia stands for only 26 percent of production volumes [1]. Nevertheless, we argue that Russian companies dispose of significant advantages, which are primarily based on low upstream costs. As reported by Rosneft [5], company's lifting costs are about 6.5 times lower in comparison to ExxonMobil, Shell or Chevron. Moreover, implementation of a more flexible taxation system in Russian oil upstream could foster price competitiveness of Russian oil and therefore a more efficient use of reserves [7].

Cost advantage provides grounds for forward vertical integration strategies allowing to secure final demand through acquiring stakes in the downstream segment. Rosneft operations in refining segment in Germany testify to the relevance of this strategy.

Another opportunity for Russian companies is their strategic positioning in the fast growing emerging economies, in particular in China and in India. Several long-term export

contracts and joint projects in downstream segment with Chinese companies demonstrate this trend. It is noteworthy that Russia outperformed Saudi Arabia as a major supplier of oil to China in 2016. Recent acquisition by Rosneft of a 49 percent stake in Essar Oil – the owner of India's second largest Vadinar refinery – allows for synergies and further expansion in fastest growing Asian consumption centres. High-level political contacts create favourable institutional context for commercial operations.

Cost savings also find their place in the case of Russian companies. We argue that uncertainty of the external economic environment (also due to the economic sanctions) implies that several high-cost complex projects are postponed while the efforts are intensified on enhancing recovery from brownfields.

Technological sanctions stimulate the import substitution policy in the oil service industry, although the cost of capital may restrain the development of in-house technologies.

Finally, to a very limited extent, Russian companies invest into alternative energies (Lukoil) to acquire a stand in high-potential business segments.

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MODERN CHALLENGES FOR RUSSIAN ENERGY DIPLOMACY

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Key words: foreign energy diplomacy, Russian energy security, energy markets, European energy market.

For the recent months and even days, we have been observing a serious escalation of the situation in the world. Geopolitical processes tend to have increasing influence on the global economic development. Russia turned out to be in the middle of these tendencies and the energy sector is the most related. Considering political instabilities in the world, emerging competition between Russian and foreign energy companies, mainly US and European, the Russian energy security is becoming the most pressing issue.

Hence it is particularly important to examine new objectives of the Russian foreign energy diplomacy and the most crucial challenges it has to face considering the existing global geopolitical situation. New challenges threat to undermine the comparative advantages of Russia as the leading energy supplier. The growing competition for energy markets requires new foreign policy methods and ways of energy diversification to be searched.

It is vital to mention that the key objective of the national energy diplomacy is to strengthen the role of our country in the global energy society by using its economic potential in the most effective way. Russia accounts for about 25% of global gas trade, 12% of oil trade and 12% of coal trade. Russian energy companies are the main suppliers for the European market.

The paper introduces the main trends of the Russian energy diplomacy, including market diversification, enhancing energy cooperation with the traditional partners, ensuring energy security, developing LNG and Arctic projects. The author describes the major joint projects with the European countries, such as Nord Stream, Druzhba Pipeline, Yamal-Europe Gas Pipeline and South Stream, as well as the biggest projects with other partners, for instance, Far East – Pacific Ocean oil pipeline and Sila Sibiri gas pipeline. In particular, the paper touches upon the perspectives of the biggest LNG projects focused mainly of the Asian market expansion (including such projects as Sakhalin 2,3,4, Yamal-LNG and Vladivostok-LNG). The development of the Arctic Region remains one of the Russian policy's priorities, especially in terms of transportation. The author stresses the importance of the Northeast Passage project and offshore projects.

The major part of this article is devoted to the relations between Russia and the European Union which, inevitably, play the determining role in the Russian energy diplomacy. Despite the great number of existing joint projects and the leading position of Russia among energy suppliers for Europe, the European Union is striving to minimize the dependency of the European energy market on Russian energy resources by introducing the Third Energy Package (which poses threat for Nord Stream-2 project), establishing the Energy Union, encouraging green energy and shale projects and imposing sanctions on Russia.

Nevertheless, the European Union still remains one of the most important partners of the Russian energy sector. In 2012 more than 50% of all Russian energy supplies were directed to Europe. The author comes to the conclusion that longstanding energy cooperation between Russia and Europe is mutually beneficial for both parties. The success of this cooperation will only be ensured if economic interests prevail over political decisions exacerbating detrimental effects on economic relations among the countries.

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INTERNATIONAL SHIPPING IN THE ARCTIC: THE KEY ROLE OF LNG

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An aspect of the Arctic that is attracting increased international attention is the potential for increased utilization of Arctic shipping lanes. Future estimates indicate that the reduction of Arctic ice cap will open up new areas and increase the viability of the region to be increasingly used for international shipping [5]. According to Sakhuja [6], the two most practical Arctic shipping routes are the Northern Sea Route and the Northwest Passage. Via the Arctic, large bulk carriers can significantly reduce the distance between Asia, Europe, and North America by navigating the Northern Sea Route or the Northwest Passage and the increased melting of Arctic sea ice poses the potential for an expanded navigation season along the routes [4].

Within this context, shipping companies are increasingly adopting the strategy of utilizing LNG as a fuel for maritime transport, instead of the current status quo strategy of using heavy fuel oil. The key benefits are considered to be the abatement of NO_x, SO_x, and PM as a result of adopting the use of LNG as a strategy instead of the continuing to utilize the more highly polluting heavy fuel oil for maritime transportation. Lessons from the transition from organic sources of energy to coal demonstrate the importance of sound environmental policy and regulation with effective enforcement and compliance mechanisms that are administered in a fair and just manner. International trade is a fundamental aspect of the transition towards LNG as a maritime propulsion fuel, particularly within the Arctic region, where the prospect of potential increases in trade and related development activity taking place within the region present the potential for significant impacts not only for the Arctic region but also well beyond.

The prospect of increased shipping activity along Arctic routes presents a collection of concerns and considerations that must be addressed. Ho [3] lists increased infrastructure investments and the establishment of expanded marine services focused on safety and environmental responsibility throughout the region, as steps that are necessary before the Arctic sea routes can be reliably used on a large scale. Liu and Kronbak [5] discuss various construction and equipment standards such as hull thickness and structural support requirements that are necessary for ships to be qualified as an ice class vessel. These issues must be taken into consideration among others factors by the maritime community and determine how quickly the utilization of Arctic sea routes increases in the future.

The discharge of air pollution resulting from international shipping has serious negative effects that are harmful to both health and the environment. As the impact of these detrimental effects become more clearly understood, efforts aimed at the abatement of these emissions have received increased attention, particularly in the form of recent regulatory actions. Until recent regulatory efforts began inciting the need for a viable alternative, most large vessels engaged in international shipping burned heavy fuel oil which is a residual by-product of the refining process [1].

The emissions generated from the use of heavy fuel oil by the shipping sector discharge into the air large volumes of SO_x and NO_x, which have been shown to be extremely harmful to crops, forests and the ocean as a result of acidification, and also fine particulate matter which has been shown to be a cause of serious health issues such as lung disease and coronary illness [1]). Despite maritime transport having a favorable emissions performance, in comparison to that of

land and air transport, ocean going shipping is still responsible for an estimated 15% of anthropogenic NO_X emissions and 5-8% of SO_x emissions globally [7]. The emission of these harmful substances by ships therefore has a serious impact on world health; with one study by Corbett et al. [2] estimating that emissions from shipping were contributed to 64,000 premature deaths worldwide in 2002 [1].

The development of the Arctic region itself presents, therefore, an opportunity to encourage an energy transition in shipping fuel. Its unique environment, both physical and political, can lead to environmental, economic and social imperatives which may drive the adoption of LNG. Future research should quantitatively investigate both the costs and benefits of such a transition.

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LOCAL CONTENT POLICIES IN RESOURCE-RICH COUNTRIES

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Key words: resource-rich countries, LC, local content policy, natural resources, WTO, O&G sector.

Many resource-rich countries are pursuing policies to maximise the impact of natural resources. This paper is analysing local content policies as part of sectoral (oil and gas) or wider economic and institutional catching up, and aims to situate these policies within a wider framework of sustainability in the form of industrial diversification and innovation-led growth.

There are different definitions of local content which vary from country to country and even between periods of policy implementation. Therefore it is complicated to unite different elements of policy-making in resource-rich countries into a single definition of LC. We define LC is an industrial tool that can enable domestic producers to expand their activities, at least partially with domestic inputs, and gain access to international technological and managerial expertise. Jointly these factors can improve economies of scale and have positive domestic external effects that enhance producers' competitiveness on the international market [6].

Local content policy includes mandatory requirements for the local procurement and employment of labour, but also technology transfers and attempts to develop knowledge-intensive industries that form part of a strategy to reduce the reliance on natural resources and facilitate innovation-driven growth. The experiences of a range of resource-rich countries are drawn upon with a particular focus on two developed countries and three emerging markets. Contingent on country-specific institutional matrices, macro-economic drivers and social-development objectives the role of host governments and the articulation of LC policies differ. These factors mitigate the effectiveness of LC policies in facilitating economic and institutional catching up.

We argue that LC policies are often key, but not sufficient, for the complete implementation of the LC strategy within resource-rich countries. The experiences of individual countries provide us with different outcomes and economic consequences. The experiences of LC policy within five oil-producing countries, namely Brazil, Kazakhstan, Norway, Russia and the UK are presented.

Resource-rich economies are likely to have a mixture of the three types of local content [6] at any given time. However, it is important to emphasise that market-creating and efficiency local content policies bring sustainability of economic growth and therefore create prosperity: creating new value networks, building new capabilities and generating economic diversification.

The Norwegian economy was already quite well developed when oil and gas were discovered, so its challenge in many ways was less to develop things from scratch, but rather to find the instruments and ways of creating new comparative advantage based on the new discoveries [4]. The Norwegian success in that effort could be attributed to national pride and a strong policy-making decision ethic, to the vision of government agencies, such as what was then the Ministry of Oil and Gas, or to excellence in science and engineering education [7].

The same pattern was seen within the UK, although without the specific formalisation. Both governments followed a strategy of promoting domestic companies and developing local skills and expertise in the O&G sector [5].

In Kazakhstan too the government has attempted to build domestic niches into the regional and global O&G markets, in industries ranging from services to construction equipment.

The same pattern appears in other countries as well. In Brazil, the government paid particular attention to reform in the areas of R&D in the booming O&G sector, and market-creating local content policies have been a significant engine of growth [3].

Such examples suggest a wide range of opportunities available to grow by targeting domestic industries, supporting them with LC policies and creating robust domestic competitors that can then achieve regional or international competitiveness. These experiences shine a light on the role that natural resources and investments actually play in development; however, the experience of resource-rich countries demonstrates that often investments do not bring the desired benefits. Here we see, also, that investments in the hydrocarbon sector in some countries (such as Iran, Iraq, Mexico, Nigeria and Venezuela) generate significant revenues and profits, but still do not manage to create jobs and increase national economic growth.

Russia, initially, developed local content policy as a vehicle for specific and selective technological and sectoral catching up before external constraints resulted in a more systematic and economy-wide policy of self-sufficiency [2], [6].

Another important external factor is the relation between local content development and World Trade Organization (WTO) membership. Under WTO rules most forms of local content are prohibited – they are perceived as protectionist and trade-distorting measures. Nevertheless, there are multiple examples of violation of WTO rules in the form of WTO members pursuing LC policy. At the same time no country-to-country level case has been pursued under WTO regulations in the O&G sector [1]. There is a clear weakness in the WTO's dispute-settlement system but, more importantly, interpretations of local content requirements vary making it costly to pursue disputes and damaging for the relations between countries.

The knowledge-creation and diffusion capacity of innovation systems reflect the interaction and learning of firms with other firms and the knowledge infrastructures. While several of the economies examined in this book have substantial absorptive capacity a challenge remains to overcome economic, political and social barriers and state autonomy to incentivise economic actors to invest in value-added production or generate higher labour productivity. Educational policies and knowledge institutions (schools, technical colleges, universities, R&D institutes, et cetera) are, in this respect, also part of a system that enables LC policy as a vehicle of sectoral or economy-wide catching up.

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ARCTIC OIL AND GAS: FACING NEW CHALLENGES

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Key words: petroleum, Arctic, downscaling, environment, sanctions, threats.

Since 2014, the global political and economic landscape has undergone deep changes which, taken together, challenge the Arctic development worldwide, including notably its prospects of turning into a new global-scale petroleum province.

First, policy stakeholders, both in the polar and relevant non-polar nations, shift their focus towards the numerous acute crises in Europe and Asia-Pacific, as well as the fate of new giant trade and investment blocs (TPIP, New Silk Road, Eurasian Economic Union, etc.). The Arctic, indeed, still enjoys some attention, but it is rather regarded as a 'safe backyard' which allows decision-makers to concentrate on the more critical issues.

Second, the ongoing macroeconomic turmoil affects the northern regions with their raw material-based economies, and simultaneously limits the opportunities for the national governments to support them financially. The pertaining low oil prices and structural transformations (like shale development, emerging shelf areas, etc.) have hit new field developments in marginal hydrocarbon provinces worldwide.

Third, as the Arctic was turning less attractive for investors, a precautionary approach to its nature, especially in the case of oil & gas projects, became increasingly popular and dominant in many countries. In 2016, this was clearly manifested in the joint statements of the US-Canada and US-Nordic leaders' summits [5, 6], plus the controversy about leasing new acreages in Alaska after the US Presidential elections [1, 2].

Fourth, Western sanctions on exports of Arctic and deepwater drilling and production equipment to Russia have hit the industry further. They have effectively split the emerging international market for advanced offshore technologies and jeopardized the return on investments in the relevant R&D (which in practical terms made a bigger impact on the Western producers than on the Russian consumers).

As the result, Arctic licensing and exploration do go on, but actual development is largely pursued by national champions or risk friendly medium-size companies. Onshore, Russian companies continue large-scale projects, like Gazprom's new upstream province in Yamal Peninsula, Rosneft's Vankor cluster (where Indian companies will obtain 49.9 per cent) and Novatek's Yamal LNG, a private initiative involving Russian, French and Chinese stakeholders and strongly supported by the government. Offshore, only a few projects applying groundbreaking technologies are underway in Norwegian Arctic waters, which in climatic terms (lack of winter ice etc.) are closer to the North Sea than to 'regular' polar areas. Norway is also the only country to continue leasing of new Arctic offshore blocks [4]. Alaskan continental shelf was abandoned by the oil companies in 2016, and no major operations are planned offshore Arctic Canada, Greenland and Iceland.

The contemporary situation in the Arctic seems thus to be transitory by nature. Several major gaps are growing: the remaining interest policy-makers maintain to the region vs its reduced economic attractiveness; the overall 'big chill' between Russia and the West vs their continued cooperation in the Arctic; interests of the 'Arctic five' nations vs those of the outside powers who set their footprint in the area; and, in more general terms, the global nature of the challenges facing the Arctic vs the policy reaction thereto, which often lacks systematic long-term vision. When resolving these issues, the Arctic is likely to be put aside by the decision-makers, with its concerns being evaluated from the viewpoint of more overarching principles [3].

If the present day trends go on, the Arctic will eventually witness a new political downgrading, yet another economic downturn (whereby only some of the existing, export-oriented ventures within extraction industries will survive), and a scaled-down international cooperation.

If left to private investments only, the recent oil rush may turn into yet another 'tidal wave' (like former quests for furs, whales, gold or military presence) which hit the Arctic and then retreat, leaving few remnants. This situation represents a challenge to both oil & gas companies, central and local governments, urging them to improve their mid-term planning, enhance mutual cooperation and maximize ripple effects of any offshore project.

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HYDROCARBONS TRANSPORTATION SAFETY

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Keywords: trunk pipelines, operability, fault rate, safety, safe operation life, maximum allowable working pressure, technical condition assessment, throughput.

Trunk pipelines, both in Russia and abroad, were mostly built during the period of 60's – 80's, and the age of the pipelines that are currently operated is exceeding 30 years. It is the reason of the great importance attached to determining the safe operation life for pipelines and optimizing capital investments and maintenance schedules.

In order to ensure safe operation of a pipeline, the maximum allowable working pressure (hereinafter referred to as MAWP) downstream the pumping stations (hereinafter referred to as PS) must be designed and set, which pressure will not cause damage to each spool piece.

Determining the technical condition of pipelines through diagnostic examination, particularly with the use of inline inspection tools, and timely rectification of dangerous faults will ensure the industrial and environmental safety of hydrocarbons transportation by trunk pipelines. The allowable pressure of faulty spool pieces is also designed in foreign practice [1], [2].

The approaches adopted in Russia's oil/products pipeline transportation are discussed in this study.

The allowable working pressure (hereinafter referred to as AWP) in spool pieces designed in accordance with the Russian standards [3] is determined using the classic Mariotte formula (boiler formula), with a specific safety factor:

$$P_{ДРД} = \frac{2\delta_{факт} \cdot \sigma_{вр}}{D_{вн}} \cdot \frac{m}{n \cdot k_1 \cdot k_н}, \quad (1)$$

where $\delta_{факт}$ is the wall thickness according to smart pigging data; $\sigma_{вр}$ is the design strength; $D_{вн}$ is the internal diameter; m, n, k_1, $k_н$ are the design safety factors.

MAWP for a pipeline according to the US standards [4] is also designed using the boiler formula, nevertheless, the pipe metal yield point is used instead of the break point to limit the maximum pressure:

$$P_{ДРД\ ASME} = \frac{2 \cdot \delta \cdot S_v \cdot F \cdot E}{D_н} \quad (2)$$

where δ is the pipeline's wall thickness; S_v is the specific minimum yield strength; $D_н$ is the outside diameter, mm; F is the estimated factor based on the nominal wall thickness (F = 0.72); E is the welded connection factor (E = 1 for all welding types, other than furnace pressure welding and deposit welding).

The standards used in Canada [5] are similar, on the whole, to those used in the US.

Figure 1 is demonstrating the comparative results of AWP calculation based on the example of D1220x14-K56 and D720x9-K52 pipes, with the use of the standard safety factors.

As is clear from Figure 1, the design wall thickness values at the higher importance sections (water courses, motor road/railroad crossing points, etc.) are higher under SNiP 2.05.06-85* than those stipulated by the US and Canadian standards. As regards the sections located outside the points of crossing natural and artificial barriers, the US standards offer a more

conservative solution with a higher wall thickness, as compared with the RF standards, while the Canadian standards offer a solution close to the RF standards. The importance of a pipeline section is determined by its category under the design standards.

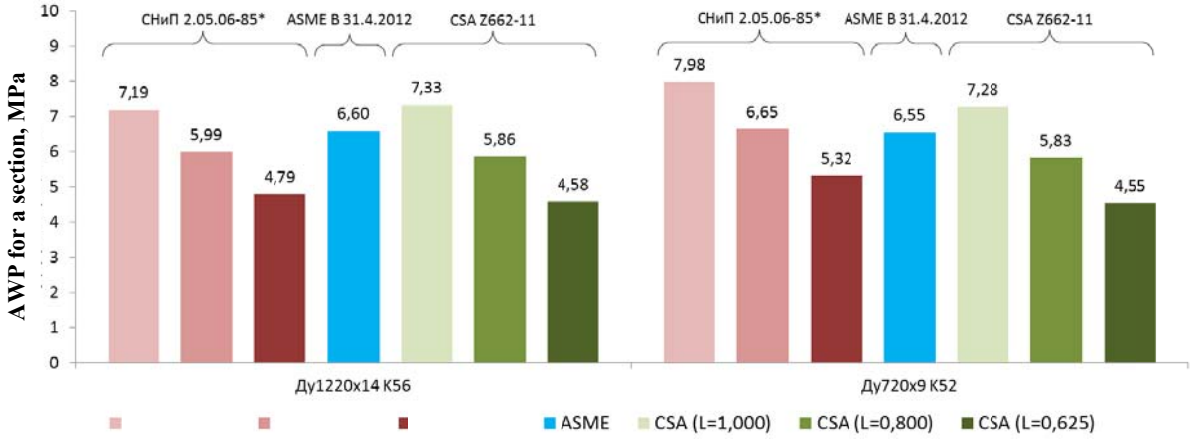

Figure 1 Comparative results of spool piece AWP design under the methods prescribed by SNiP 2.05.06-85*, ASME B 31.4.2012, CSA Z662-11

A specific of designing MAWP for pipelines in the long-term operation conditions is that safety factors for such pipes are not regulated separately.

The safety factors system adopted in the RF to design AWP for a spool piece was remaining unchanged, as a matter of principle, since 1975. The higher quality of pipe products, the development of technologies used in construction, diagnosis, industrial automation, development of the design software allow and require a revision of safety factors.

A study of safety margins

The authors have analyzed the results of testing 217 spool pieces made by 14 manufacturers using 33 various specifications from 29 unique steel grades.

Table 1 Deviation of the actual safety margin from the standard and certified values

Deviation of ultimate strength according to test results							
with respect to TU data (min. requirements)				with respect to pipe certification data*			
Average upward deviation		Average downward deviation		Average upward deviation		Average downward deviation	
%	pcs.	%	pcs.	%	pcs.	%	pcs.
8.93	**230**	**-2.66**	**4**	**7.72**	**206**	**-5.32**	**14**

* warranted by the manufacturer (usually higher than under TU; particularly confirmed by foreign studies [6])

The reliability factor for k_1 material is providing for cumulative probability of the standard strength characteristics of a pipe metal at the level of at least 0.95 [7], as confirmed by tests.

An adjusted value of load carrying capacity P_f for actual ultimate stress is proposed to be determined using the following formula:

$$P_f = \frac{\sigma_f}{\sigma_H} \cdot P_H , \qquad (3)$$

where σ_f is the actual ultimate stress of the pipe metal; σ_H is the standard ultimate stress of the pipe metal; P_H is the standard load carrying capacity.

In case of a reduction of impact strength with respect to standard value $\sigma_{vf} < \sigma_{vH}$, actual ultimate stress of the pipe metal σ'_f is proposed to be determined using the following formula:

$$\sigma'_f = \sigma_f \cdot \left(\frac{\sigma_{vf}}{\sigma_{vH}} \right)^{0,5} , \qquad (4)$$

where σ_{vf} is the actual Charpy toughness; σ_{vH} is the standard Charpy toughness.

Studying standard safety factors

The safety factors can be adjusted with the uncertainty factors taken into account when determining such factors excluded. So, if the design pressure values are available for a steady pumping mode and maximum pressure values for transient processes (in case of an emergency stop of a PS, closing shut-off valves, etc.), the safety margin for load reliability factor (n) may be decreased.

One more possible method for an adjustment of safety factors is to analyze the wall thickness measured by smart pigging [8]. See Table 2 [9] for the results of studying wall thickness on an oil pipeline example.

Table 2 Distribution of wall thickness within a section*

Number of sections investigated, pcs.	Negative allowance, mm	Measuring area, % of section area				
		less than negative allowance	within negative allowance	Actual thickness measured by smart pigging	within positive allowance	more than positive allowance
25055	0.8	0.2	22.1	27.3	48.1	2.3

* measuring using an inline inspection tool (IIT)

As is clear from Figure 2, 0.2% of pipe area are faults, and safety factor is not exhausted by 77.7% (AWP in a spool piece can be increased by 1 to 5%).

An increase of MAWP in operated pipes is demonstrated in Figure 2.

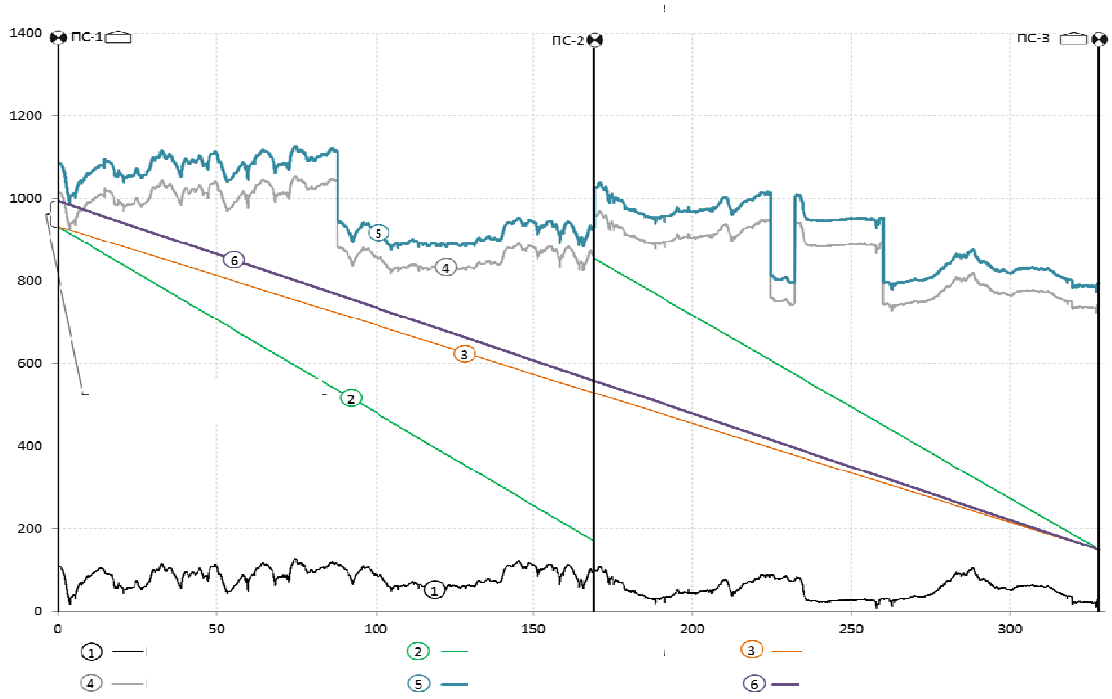

Figure 2 Hydraulic slopes and maximum working pressure curves

The maximum load carrying capacity of a spool piece at Figure 2 means the maximum allowable excessive pressure in the pipeline section calculated for the nominal wall thickness.

Conclusions. The authors have developed proposals for improvement of safety factors system through a more accurate determining the wall thickness, strength characteristics and possible overload relating to the working pressure, which proposals will allow, if implemented:

- a reduction of metal consumption for new pipelines;
- an increase in MAWP and throughput for operated facilities;

• an increase in operational safety of trunk pipelines' linear section.

Application of the study results will allow:

• an increase in MAWP for operated pipelines by up to 10%;

• a reduction of metal consumption for new pipelines by up to 6%.

The study results may also be applied to pipelines built in accordance with the foreign standards. An interpretation of safety factor (F) for calculation of the adjusted values of its components will be required in such case.

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PROMISING LINES FOR STUDYING STRENGTH AND LONGEVITY OF HYDROCARBONS TRANSPORTATION PIPELINES

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Keywords: safety margin, longevity, service life, ageing, crack resistance, survivability, concentration zone, local stresses.

A currently actual task is to extend the period of operation of the existing pipelines within the existing standard requirements to strength and longevity (service life), to resolve the problems of integrated technical diagnosis and repair/recovery activities in the damage areas outside the allowable fault rate standards to extend the safe operation life with a fixed maintenance schedule.

The following assumptions apply under the regulations that justify strength, longevity and reliability:

– the temporal technological heredity of the base metal production, plate/pipe making processes by manufacturers is not taken into account explicitly;

– the mechanical properties of pipe construction steels are assumed to be remaining unchanged during the pipe transportation, pipeline construction and operation processes;

– safety margins are considered to be constant for all life cycle phases;

– pipe/pipeline deterioration is connected first of all with a decreasing of wall thickness because of corrosion (general and local) and erosion.

The above factors must be taken into account to ensure safe operation.

Taking into account deterioration and ageing of pipe steels

The promising lines of design and experimental analysis of pipelines' strength should include a direct quantitative accounting of temporal deterioration and ageing of pipe steels at various temperatures, cycle numbers leading to a corruption of the basic design characteristics of yield stress and ultimate stress.

The processes of deterioration and ageing of pipeline steels in the conditions of plates and pipes making, transportation, construction, pipeline testing and operation must be reflected.

The existing knowledge of the temporal ageing and deterioration of carbon/low-alloy steels is reduced to the following basic provisions (Figure):

– natural ageing (curve 1) of steels in the initial state ($e = \sigma = 0$) at the ambient temperature is characterized by a slow growth of yield stress, and a reduction of the yield stress to ultimate stress ratio;

– heat ageing (curve 2) of steels in the initial state ($e = \sigma = 0$) at higher temperatures t_1 and t_2 ($t_1 > t_0$; $t_2 > t_1$) is leading to an accelerated growth of yield stress values at the initial phases of exposure, with their further reduction (overageing of steels);

– deformation ageing (curve 3) of steels in a cold-worked state for $e > 0$ gives a less change in the yield stress than the natural change, even at the ambient temperature;

– dynamic ageing (curve 4) for higher temperatures in a plastically deformed state ($e > 0$) in the conditions of stress effect ($\sigma > 0$) may be first accompanied by a minor growth, then a drop of yield stress and ultimate stress values, with a reduction of the extent of hardening of pipe steels in the plastic area.

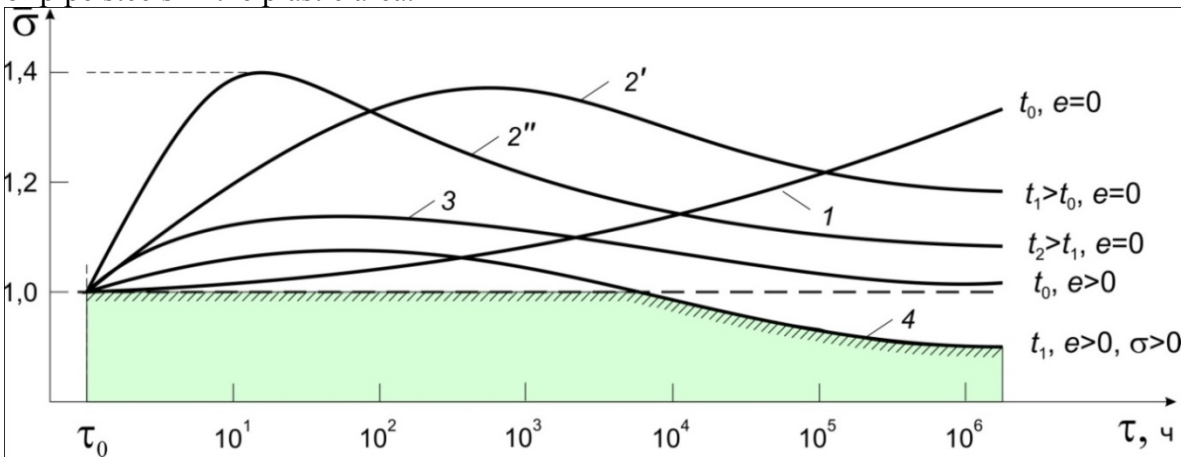

Figure. Pipe steel ageing process diagram

In all cases of ageing (curves 1 – 4), the yield stress to ultimate stress ratio is growing.

The following must be taken into account in the adjusted and standard calculations of pipelines' strength:

– an alteration of ultimate stress and yield stress values, which is not interrupted in all ageing and deterioration modes;

– mechanical properties deterioration effects, i.e. a reduction of the relative yield stress;

– a reduction of plasticity and fracture toughness accompany the ageing and deterioration process.

Safety margins appear to be depending on ageing and deterioration of pipe steels and depending on time, temperature, cyclicity and stress-strain behavior. This fact not reflected explicitly in the domestic and foreign regulations must be taken into account in future elaboration of pipeline strength standards.

Taking into account a damage of pipes' surface layers

The cases of pipeline damage are largely connected with the most intense damages of pipes' surface layers (because of corrosion, erosion, mechanical impact). Relevant tests are required for an experimental assessment of the surface damage effect.

The problems of crack resistance and survivability, when cracks of a technological and operational origin occur and are growing, are and will be particularly important in the pipelines strength analysis.

The standard approach of Transneft Research Institute has an important development element, where the assessment of strength and longevity of pipelines with cracks not only covers nominal stresses, but also local deformation in the concentration zones. A local stress-strain behavior at the crack point is determined on the basis of solving a boundary-value problem using numeric methods, with determining maximum stresses and strains. In such case, an effective stress-concentration factor for the crack zone is determined, which factor is depending on the material's structural parameter that is determined experimentally, when testing samples with cracks.

One more, and the most widely used, method for assessment of pipelines strength is to assess safety margins using equations and criteria of the linear and non-linear fracture mechanics. This approach determines through calculation the stress intensity factors. In case of a plastic deformation, strain intensity factors should be used instead of stress intensity factors.

Conclusions

The standard calculation of pipelines' strength on the basis of the allowable stress and ultimate limit states that is widely used for several decades both in the domestic and foreign

practice is based on a quantitative determining safety margins for yield stress and ultimate stress is still actual.

A new scientific basis for the design analysis and justification of safety margins, with a quantitative accounting of all basic operational, technological and structural factors, including the effects of ageing, deterioration of pipe steels and pipes, generation and development of hazardous damage and faults (including those caused by corrosion/erosion), is being established on the basis of in-depth and wide-scale design and experimental work performed by the academic and leading industrial institutes.

The scientific researches and development of standards by Transneft Research Institute LLC have accumulated a considerable experimental material that allows, on the basis of actual mechanical characteristics of steels, a reasonable minimizing the excessive safety margins for both the existing pipeline systems and those under construction and future ones.

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EVOLUTION OF R&D FUNDING: INTERNATIONAL PRACTICE REVIEW

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Keywords: R&D, innovations, R&D funding, innovation development, funds, corporate venture funds, innovators, crowdfunding, open innovations.

Innovations are a multi-factor process, with a significant role played in this process by looking for required financial resources, arrangement of financing, distribution of financial risks. Moreover, international experts assess various countries' competitiveness on the basis, particularly, of the amounts of expenditures for financing R&D activities. Taking into account today's trend in growth of the small and medium-size innovative business, and risks inherent in the innovative developments, an efficient arrangement of financing innovative programs as a whole and corporate programs in particular is thought to be actual and deserving a serious investigation.

According to the polls arranged by the International Industrial Institute (IRI) and R&D Magazine on the innovations financing problem, a majority (77%) of respondents, representatives of companies and research centers mention an increase, during the period of 2012-2015, in the R&D expenditures, and just 8% say that their budgets have been cut [1]. Such responses reflect the world's general trend to a growth in innovations, first of all R&D, financing. Nevertheless, this trend is not always the same in some countries. The innovative asymmetry, that is uneven development of technologies and researches in various countries, still exists [2], although its proportions are gradually changing. Asian countries, particularly, China are leaders of the process, ever strengthening their positions, and making 40% of the world's total expenditures in innovations, with 30% held by North America, and about 20% by Europe [3].

In the process of measuring innovative asymmetry, countries' and companies' competitiveness is largely depending on the already existing innovative potential, particularly in the leading technological spheres. Mainly because of this reserve, and despite a relative reduction of share in the world's flow of investments in innovations, the US are still the established technological leader. According to an investigation of the European Commission, the US' expenditures for innovations are largely concentrated in the so-called "highly saturated industrial sector" [4], including pharmaceuticals industry, those connected with biotechnologies, software development and computer services, process equipment manufacturing. The US companies in the industries above mentioned at least doubled their expenses recently.

The technological leadership is protected by the level of development of innovations financing, its flexibility and adaptability to the changing conditions and the aggressive behavior demonstrated by competitors. Such financing is still sensibly higher in the developed countries. The most dynamic forms of financing and motivating innovations include: research centers, including corporate scientific centers, corporate venture funds, business angels. Nevertheless, the greatest activity is now concentrated in the sector of so-called open investments, which are a tool for significant expansion of limits and "density" of knowledge in a technological field. Such investments help to include a tangible innovative item into a wider and continuous innovative process [5]. They include joint industry/inter-industrial projects (JIP), crowdfunding, corporate venture funds.

A great deal of successful JIP's exist, including DeepStar, COSIA (Canadian Oil Sands Innovation Alliance), Gulf of Mexico Gas Hydrates Joint Industry Project, Global Industry Response Group, GIRG, etc. Due to JIP's, the teams, experience and resources of technological leaders, i.e. the companies interested in joint solving important industry-wide problems, are combined.

Crowdfunding is a method of attracting a wide range of private and other investors to solving the problems of innovative operational activities. This method is used, *inter alia*, to get

an independent external assessment of an invention, and its future in the market. Future consumers of the developed product often act as investors. Crowdfunding allows a small firm or even an individual to generate a startup capital to produce a pilot series of innovative products. A lot of programs exist to stimulate crowdfunding/open innovations development, including Dell Social Innovation Challenge, General Mills Worldwide Innovation Network(G-WIN), Anheuser-Busch, MIT Clumate CoLab, Zooniverse, The Cairo Transport App Challenge, Innovation Exchange, Co-contest, GE Ecomagination, My Starbucks idea, Idea connection, etc.

Corporate venture funds are an important and efficient format of resources concentration for financing innovations. They allow a concentration of resources to finance breakthrough and venturous developments, and help to attract outside investments. E.g., the US National Venture Capital Association records an increase in the share of corporate players in the venture market as one of the most remarkable trends of the industry. Corporate venture funds provided 10.5% of the total capital involved in venture transactions in 2013, and took part in 16.9% of the total number of transactions [6]. A like trend also exists in Europe. Corporate investors' participation in venture transactions in 2012-2013 demonstrated a drastic growth from 0.5% to 8.6%. The total amount of venture financing of more than 7,500 companies was equal to 69.1 billion US dollars in 2016. The number of companies that use this tool grew more than twice during the period between 2009 and 2016 [7].

The purpose of creating corporate venture funds is not only to finance the most speculative ideas and developments and to share risks connected with their implementation, but also a method of "democratization" of the innovative activities, attraction of the widest range of novel ideas and developments, which can be supported by the funds. E.g., establishment of venture funds helped Philips to increase significantly the flow of novel ideas, particularly from its employees. A like purpose is pursued by the annual Innovators' Cup as a competition of talented inventors. The same tools are used by Boeing, Adobe Systems, UPS, Ball Aerospace and others. Various names are used, such as "innovation group" or "green house", but they have the same function to finance and to provide relevant resources to the projects proposed by a wide range of talented inventors, including the companies' employees.

Corporate funds often become a link between a corporation's budget financing of projects, research laboratories and collective investments in innovations (crowdfunding) to stimulate individual inventions and innovative activities. A number of companies arrange special sites and tools to support young talented innovators, researchers and entrepreneurs, e.g., each IBM employee may propose an idea and elect a team for its further development. If the idea is successful, such team can establish its own ventures company. Entrepreneurial Leave Program is also rather popular, many research universities and national laboratories in the West offer to their researchers a job-protected leave to establish a new company or to join an existing business entity that develops technologies. Such an opportunity helps, as practice shows, to transform rather quickly a mature lab technology into commercial product. It is very important that this process allows a maximum possible utilization of employees' experience.

The above examples demonstrate a general wish of innovative companies to build a system of cooperation and internal communication to enhance employees' creativeness and interest in initiating novel ideas and projects and ensuring their implementation. It is the very way to lay a trend to development of network innovations, i.e. their considerable democratization, to making talented specialists and inventors the real idea generating centers. Internet and up-to-date communications allow an ongoing reduction in the costs of innovations, and, first of all, increasing the availability of innovations, and making this process open and comprehensive. Anybody may become innovator and generator of ideas in today's world. E.g., such major projects as Google, Yahoos and Facebook have not been created by major research laboratories with a million-grade financing, but by teenagers at hostels. Today's world makes it unnecessary to request for a permission and for huge financing amounts to create a really novel idea or innovation, and a majority of the most innovative ideas would never be approved by any level of the bureaucratic system (budget and investment committees, etc.) It affects the general

process of "democratization" of the tools and methods of financing innovations, and such tools, as today's social communications system as a whole, become really network-based.

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THE PERSPECTIVES OF THE ENERGY COMPLEX OF AZERBAIJAN

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Keywords: Azerbaijan, energy sector, electricity, energy balance, privatization, fuel and energy complex, renewable energy, oil, gas, gas and oil pipeline.

Azerbaijan has a very large energy potential in the region. For over a century, energy has been playing a huge role in the economic growth, progress and development in this small country in the South Caucasus. During the Second World War, Baku fields were continuously providing the Soviet troops with the fuel. In the early 2000s due to high oil prices the production at offshore fields rose. That's why Azerbaijan became attractive destination for foreign direct investment. The author analyzes the fuel and energy sector of Azerbaijan and gives projections of the further development of the industry.

Azerbaijan has dynamically developing economy. It is a transition country which is trying to move from planned economy to market. Historically speaking, the energy sector played a major role in the economy of the country. At the beginning of the 20th century more than half of world crude oil production was in Azerbaijan. After gaining the independence from the Soviet Union during periods of high oil prices Azerbaijan had the world highest GDP growth in 2006. The driving force of its economy is exports of oil and gas which help Azerbaijan to earn foreign currency. Nevertheless the country's high dependence on oil prices reveals vulnerability of Azerbaijan's economy. We see, that in 2008 hydrocarbon export earnings made up about 97%, in 2015 87% of total exports.

So the oil and gas reserves in Azerbaijan make up 0,4% and 0,6% of the world's proved reserves and 5,0% and 2,1% of the CIS countries proved reserves accordingly.

Now there are several export oil pipelines through the territory of Azerbaijan which help her to pursue an independent energy policy and which play a key role in ensuring the energy security of Europe. After the beginning of the exploitation of the huge oil field "Azeri-Chirag-Guneshli" Azerbaijan with major international energy companies created a network of pipelines in the region to export light crude oil to global markets. In the early 1990s there was the only oil pipeline Baku-Novorossiysk in Azerbaijan. But later Azerbaijan diversified transport routes by Baku-Supsa and Baku-Tbilisi-Ceyhan. Oil tankers now travel either through the Turkish straits of Bosporus and Dardanelles or to port Ceyhan in Mediterranean Sea. Since 2008 Kazakhstan oil has been transporting via the BTC pipeline either.

Azerbaijan's small proved oil reserves cannot compete with world leader's. It's obvious that the Contract of the Century was a political rather than economic project. But Azerbaijan used it in order to achieve political and economic stability in domestic policy.

Azerbaijan gained momentum when in 1999 a large volume of gas was discovered in Shah-Deniz field. Now the country is an alternative source of natural gas for a neighboring countries. Later with the support of European countries Baku-Tbilisi-Erzurum gas pipeline was constructed. Erzurum is a gas hub in eastern Turkey. Now there are several gas pipeline projects like the Trans-Anatolian Natural Gas Pipeline (TANAP), which will be connected with the European gas network in Central and Eastern Europe, and the Trans Adriatic Pipeline (TAP) which will be connected to the Italian national transmission network from the Turkish western border and Greece. These projects will also help Azerbaijan to diversify its own routes. Azerbaijan's reserves are still not enough to satisfy European demand, that's why it is necessary to attract Turkmenistan and Kazakhstan gas reserves to meet the growing demand in Europe.

Main buyers of Azerbaijan oil are Italy (24%), Germany (13%), France (10%), Israel (9%), Czech Republic (6%), buyers of gas are Georgia (78% of gas exports) and Iran (19%).

Additionally, SOCAR has a swap contract with Iran to supply Azerbaijan's enclave Nakhchivan Autonomous Republic which has no land border with the main territory of the country but has borders with Iran which supplies it with gas.

Conclusion. Azerbaijan is the only country in South Caucasian which fully provides itself with energy resources. It can be a transit country for resources from Kazakhstan and Turkmenistan to Europe. Azerbaijan has independent energy policy which helps her to strengthen its economy. The flows of foreign direct investment into economy of Azerbaijan have grown, several pipelines have been constructed, and still there are some pipeline projects which will go throw Azerbaijan territory. Never the less the country depends on energy exports. Economic diversification is vital to country's future economic growth. Oil and gas refinery industry can be a priority for future development. Thereby Azerbaijan will be able to remove its dependence on oil and gas exports.

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BUSINESS PERSPECTIVES ON ENERGY SECURITY

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Keywords: energy security, energy companies, national oil companies, environmental sustainability, Rosneft, Gazprom, ExxonMobil.

Energy is the basis of both national and global economic development in the 21st century. Its centrality to human existence explains the importance of ensuring secure and sustainable exploration, development and use of energy resources. Approaches to energy security vary depending on the perspective. It is often considered that governments have the ultimate responsibility for energy security which is in line with the original rationales behind the establishment of nation states [1]. The majority of the existing literature approaches energy security from a state's perspective ([2], [3], [4], [5]). Energy security strategies of different countries, even those within the EU, vary. For example, in Denmark the state holds full responsibility for its national energy security whereas in the UK this responsibility is dispersed among a range of actors and national and international firms [6]. Decision-making process in modern democracies is increasingly decentralised. Therefore, energy security cannot be governed solely on the national level simply because of its complex multidimensional nature and a large number of actors involved.

Each process and flow in the energy system is implemented by industry actors, i.e. public utilities, state and private companies. However, very little research has been done to analyse the role companies play in the provision of energy security. Winzer [7] argues that the energy security concept is seriously limited depending on whether it is analysed from a perspective of a private utility, end consumer or public servant. The ultimate goal of any company, even if it is state-owned, is to generate profit for its shareholders, abide by the existing policies and maintain a good reputation. This inevitably reduces the number of energy security risks that companies focus on to those that could directly affect them. Externalities and long-term effects are, therefore, of less importance, unless they have a sufficient impact on the company's revenues, reputation or liabilities [7].

Does this mean that energy companies' interests contradict states' energy security priorities? Stoddard [8] analysed the degree of convergence between energy security risk perceptions of EU actors and energy companies. He pointed to the fact that while the European Commission and energy companies often highlight energy risks in the same overall area, they often focus on different specific but interrelated threats. For example, both the Commission and energy companies, albeit with a different motivation, are concerned with the risks energy systems pose on the environment. However, unlike the Commission that is primarily concerned with the environmental sustainability of the member states, energy companies refer to the related litigation and reputational risks [8].

There are also some significant areas where the Commission's energy security priorities contradict energy companies' perceptions of risk. For example, while the Commission perceives climate change as a threat to EU energy security, European energy companies are more concerned with risks the EU climate change legislation poses to their businesses [8]. Moreover, the EU attempts to increase competition in the domestic markets are at odds with companies' aspirations to dominate them. Likewise, companies' interest in higher energy prices contradicts the EU's goals to provide affordable energy.

Sometimes a company may perceive a state as a source of threat to its business operations [8], e.g. in cases when a state may restrict the company's access to the area of operations (like in the Russian Arctic) or when a state introduces policies that disrupt the

company's operations (such as the sanction regime imposed by the USA against Russian companies in 2014, which prevents ExxonMobil from continuing its joint exploration campaign with Rosneft in the Russian Arctic). In such cases, companies securitise against states, not against actual risks.

National energy securities strategies do not always converge with energy companies' perception of risks. There are significant differences in perceptions of energy security risks among the industry players themselves, in particular between national oil companies (NOCs) and private oil companies. National oil companies and private oil companies have different sources of business motivation and different degrees of accountability. Although both types of companies are seeking to gain profit from their operations, NOCs are less prone to make decisions based solely on the profit-margin indicators. This is because unlike IOCs that are beholden to shareholders, NOCs such as the Russian companies Rosneft and Gazprom can rely upon government funding if the project they are developing is of strategic, political or economic important to the state [9].

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SUSTAINABLE DEVELOPMENT IN THE RUSSIAN ARCTIC: LEGAL PERSPECTIVE

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Keywords: sustainable development, Russian Arctic zone, legal regulation.

Sustainable development has become the cornerstone of the Arctic development [1]. The length of the Arctic shore accounts for 38700 km [2], where 22600 km belong to the Russian Arctic. That is why there is no surprise that Russia plays a key role in the formation of the Arctic legal regime.

The Russian Arctic holds a huge potential in such spheres as home production, mining, transport development and ecotourism. However the effectiveness of business activities is determined by the ability to tackle a number of risks which exist in the Arctic. In the social sphere these are negative demographic trends, an awful state of housing and public utilities, lack of qualified human resources, low quality of life of indigenous people. In the economic area – lack of national technologies, capital consumption, underdevelopment of basic transport infrastructure and energy system as well. Environmental risks include increase in production- and human-induced impact and accumulated environmental damage. One of the main instruments to minimize the above-mentioned risks is a comprehensive legal framework based on the principles of sustainable development. Currently the basis of sustainable development legal regulation in the Russian Arctic comprises a number of policy normative documents:

- *Basic principles of state policy of the Russian Federation in the Arctic until 2020 and further*. This policy document defines the Arctic territories of the Russian Federation and its peculiarities such as extreme climate conditions, local nature of industrial development, low population density, remoteness from industrial centers, low level of resilience of ecosystems and their dependence from human impact. It is to mention that the focus is placed on the geopolitical, geoeconomical and environmental aspects of the national interests which are defined in the Basic principles of state policy of the Russian Federation in the Arctic. The document gives priority to military security, attainment of environmental protection level necessary for a competitive and rational use of natural resources.
- *Development strategy of the Russian Arctic zone and national security protection until 2020*.The development strategy supplements the basic principles of state policy mentioned above. Moreover there are more provision related to the social aspect in comparison to the basic principles.
- The key instrument to implement the development strategy of the Russian Arctic zone is *the State policy of social-economic development of the Russian Arctic until 2020*. The policy represents a cumulative document based on the statements of different industrial state programs related to the Arctic zone as well.

To realize the goals and implement the measures stated in the above mentioned documents a special interagency commission was established – The State commission on the Arctic development. The commission coordinates the activities of different agencies ensuring their cooperation, including national and local authorities.

Despite the presumed leading role of the Russian Federation in the formation of international Arctic legal regime the national legislation of the Russian Federation does not contain a comprehensive national law on the Arctic development [3]. Currently a project of such law exists what cannot but give hope to an establishment of mature and all embracing Arctic national legal regime in Russia. A number of novelties is introduced in the project, for example,

the “zero discharge” principle, the notion of “index development zone in the Arctic” which is understood as a comprehensive planning and social-economic project aimed at the realization of strategic interests of national security in the Arctic by means of simultaneous implementation of geographical and industry mechanisms including joint state and business action. Moreover the law is supposed to coordinate the governance in the Arctic between different state agencies, strategic planning, regular state monitoring of the Russian Arctic. It is to mention that the structure of the law project entirely correspond to the principles of sustainable development incorporating ecological, social and economic aspects in its body.

In general, existence of two approaches in the legal regulation of the Russian Arctic may be acknowledged: sectoral-industrial and comprehensive goal-oriented [4]. Though the industrial approach towards the Arctic regulation in Russia prevails in the present, the importance of comprehensive goal-oriented approach is vital for the establishment of subtle sustainability-oriented regulatory framework. The goal-oriented approach allows to supplement already existing sector and industry oriented normative documents, to elaborate new mechanisms of their effectiveness and to develop an integrated image of arctic issues including ecological, economic and social ones. As for the moment the normative documents in the Arctic regulation which may be characterized as comprehensive and goal-oriented should be supported by a national law and then developed on basis of sustainability principles which may become a precious experience for the formation of international Arctic legal regime as well.

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BASIC TASKS AND PRIORITY LINES OF RUSSIA'S CURRENT FOREIGN POLICY AND DIPLOMATIC ACTIVITY IN THE FIELD OF ENERGY

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Keywords: foreign policy, energy policy, Russia's energy sector.

Twenty five years is a period during which Russia as an independent and sovereign state could solve successfully a great deal of tasks in the field of foreign policy and diplomacy. Russia's cooperation with foreign countries in the field of energy during that rather short period of time was fruitful, nevertheless, the changing political and economic situation imposes new conditions and poses new tasks on our state, which tasks must be resolved to ensure Russia's steady status as a world's leading energy power. Therefore, the energy sector is still the most important first priority of Russia's foreign policy, and its basic tasks and development lines are discussed in this article.

The primary task for Russia's foreign energy policy is now to create on the territory of the Eurasian Economic Union of the common energy markets and to solve the resources and transit pricing problems.

Number two important task is to create within the European space of the legal and political conditions for a smooth transit of the Russian energy resources, and to ensure overcoming the political differences with the EU member states to expand mutually advantageous cooperation in the field of energy. Currently, taking into account the growing consumption of diesel fuel in Europe because of a growing number of motor vehicles equipped with diesel engines, new horizons are opened up for exports of this fuel to the European market. According to analysis of the diesel fuel markets and energy strategies, the most promising for petroleum products supplies through Russian Baltic and Black Sea ports are Germany, Poland, Turkey and Balkan region, and Sweden and the Netherlands are considered as partners in the medium-term and long-term outlook [1].

The third task Russia is facing is to develop the transport infrastructure which could reduce the transit risks and ensure competitiveness of Russian energy. An optimization of the costs connected with production and transportation of energy is impossible without ensuring functions of the existing infrastructure in the sustainable development context. Solving such important tasks for the world as a whole and our country in particular, as the environmental effect of the basic segments of today's energy sector, predicting changes in the energy balance in the short-term and long-term outlook, a possibility of a cleaner use of traditional energy through a reduction of its adverse environmental effect and a possibility of an alternative power generation on the basis of sustainable green energy [2] requires a full-scale weighted approach to the use of energy, providing for an efficient use of the existing infrastructure and its further development in order to optimize power generation and transportation costs. In order to ensure a long-term competitiveness of the Russian energy sector, the transport infrastructure must be developed within the context of such key ultimate objectives of the energy policy and national strategies as the energy safety, that means protection from interruptions in power supply, a maximum economic efficiency, a strengthening of social development, ensuring environmental safety and solving the problem of finiteness of the fossil fuels for future generations [3].

Finally, an extremely important task currently solved by our country is to enhance the efficiency of economic integration with the Pacific region and increasing energy supplies to the growing Asian markets. In particular, energy sector is becoming the most important strategic element of the Russia - China partnership whose development is justified not only by the geographic vicinity of the countries, but also by the complementarity of their economies. E.g.,

PJSC Rosneft Oil Company, together with CNPC, are implementing the project of oil transportation from the fields in East Siberia to China. "Russia-China" oil pipeline of design capacity 15 million ton/year, and maximum capacity 30 million ton, was commissioned in early 2011 [4]. Chinese companies are involved in development of Siberia's gas fields, establishment of infrastructure in Siberia and Far East regions, development of Russia's fuel and energy complex [5]. The forecast of energy consumption in China is demonstrating a higher demand of PRC for Russian natural gas [6]: e.g., in 2014 Russia and PRC signed a contract on supply of 38 billion cu.m natural gas from Russia to PRC through "Sila Sibiri – 1" and "Sila Sibiri – 2" pipelines [7]. It should also be noted that the two countries are still interested in implementation of joint projects in the two countries' oil sectors, cooperation in third countries and implementation of power engineering projects in China [8].

The tasks discussed are determining the general range of problems and continuity of Russia's foreign policy in the field of energy. Nevertheless, when solving such tasks in the conditions of the existing transformations and uncertainty in the global and regional markets, our country is facing new challenges that require a timely and efficient response.

A new priority is to develop mutually advantageous partnerships and involvement of foreign partners into all links of the production chain, from upstream to downstream, to power generation and marketing, particularly at third countries' markets.

The second important line is to increase export of energy technologies, implementation of joint projects with the leading companies in third countries.

In addition, it is obviously necessary to strengthen actively a cooperation with the world's leading organizations carrying out their activities in the field of energy, including OPEC, Gas Exporting Countries Forum. A considerable potential should be mentioned, as regards Russia's cooperation with BRICS member states, good opportunities also exist, as regards cooperation within SCO.

It should be noted in conclusion that, despite the efficiency of Russia's foreign energy policy and diplomacy during twenty five years of existence as a sovereign state, the energy diplomacy is currently facing a number of new tasks depending on a full-scale implementation of the priorities of Russia's foreign policy in the energy sector.

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SIGNIFICANCE OF A CONTRACT AND CONTRACTUAL REGULATION WITHIN A MARKET ECONOMY DEVELOPMENT

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Advanced economy is characterized by a high degree of complexity and uncertainty in all of its aspects – industrial, investment and other, significant increasing degree of the risk. As reported, these characteristics can't be considered as its drawbacks, they are its immanent attributes that guarantee market ease flexibility and force market participants to an active search for more efficient solutions.

With an eye to avoid undesirable and devastating effects of a decentralized market economy, there should be formed appropriate institutions in economy that are capable to help market participants to minimise market uncertainties, narrow a gap between expected and actual results, ensure stability and coordination of market participants' actions. Naturally a state can guarantee such state of affairs by elaboration of uniform and universally binding rules of conduct for market agents. In these conditions rises a social value of a contract, which is a considerably stable structure that has been used for several thousands of years irrespective of socio-economic order of one society or the other as a legal form of relations realization within the stream of commerce. More significance gains a necessity for a wider use of its regulatory capabilities. Enshrined in law the principle of dispositivity and freedom of contract provide business entities with an opportunity to freely, on their own initiative, independently and according to their own interests choose variants of appropriate behavior for achieving their goals. Thus, for market participants there are formed conditions for realization their opportunities for self-organization, self-regulation of contractual relations.

A contract as a market instrument obtains the following organising capacities. Firstly, the parties' entrance into institutionalized contractual links within the scope of commodity exchange by itself must be considered as an organising moment. In market conditions production and exchange of goods are set in motion by personal interest and initiative, active power of market participants. Therefore a contract serves as a ground for obligations legal relations to arise, modify and cease.

Further, harmonization by contracting parties their business ties in the process of establishment of mutual rights and obligations at their own discretion and creative initiative serves as an institutional factor. Conditions of a contract are determined by not so much regulatory prescriptions as the parties' declaration of intent. There is a rise of significance of formation of initiative conditions, which are entirely designed by the contracting parties by themselves. By means of such conditions the parties have an opportunity to take into account special aspects of the economic relation that is being established.

In juridical literature there is an attempt to consider contractual regulation as a form of legal regulation being realized according to a pattern: "conventional rule – juridical fact – legal relationship" [1] that obviously doesn't provide insight into contractual regulation. Other scientists try to explain the functional point of contractual regulation through perceiving it as a form of individual legal regulation, others – place it to subnormative means of social relations regulation.

Consideration of contractual regulation as a form of individual legal regulation will inevitably lead to equating a contract to administrative acts or judicial decisions. Placing a contract to subnormative means narrows down the conception of a contract to a method of exercising of positive law norms and has little in common with actual subject matter of a contract and contractual work practice [2].

In nowadays economy a contract is a main instrument of market relations organisation, and a contractual regulation, in its turn, is an independent legal method of organisation of concrete individual contractual ties of market participants, which exists along with statutory

regulation. Thereby contract law norms create only legal basis of business activities, determine standard models according to which contracting parties taking into account particular circumstances form contractual obligations serving their interests. Thus within the boundaries established by the legislation intentions of the contracting parties form not only necessary for them conditions but also perform regulatory process.

It should not go unmentioned that within a market it is a contract through which into a spontaneous market mechanism are being brought the elements of systematic organization as to the level of business entities by themselves and economy as an integral whole that is being achieved by means of creation a contractual system.

The thesis about the key role of a contractual system in creation of a mechanism for production plans coordination between different firms, originally elaborated in the works of the American scientist J.K. Galbraith [5], gained recognition and further development in works of other foreign scientists. According to the mentioned approach business agents can eliminate uncertainty connected with a market to one another, entering into contracts where they can specificate conditions of the relationships that gives entrepreneurs an opportunity to plan their own production and satisfy the needs of their partners. A network of interrelated contracts creates "vegetative-planned system" that doesn't require centralized, prescriptive, administrative planning. However it doesn't mean that contracts are able to secure coordination of actions of all market participants taken as a whole and guarantee sustainability and effectiveness of economic development for extended perspective. Firstly, it is typically for cooperative producers, secondly, for long-term contracts regulating business ties for extended perspective.

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POSSIBLE EXPLORATION DRILLING IN THE ARCTIC SEAS IN CONDITIONS OF ANTIRUSSIAN SANCTIONS

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In 2014, USA, EU and some other countries imposed sanctions on Russia. The sectorial sanctions are their important part providing for a prohibition on the access to critical shelf technologies in the field of deep-water drilling (deeper than 152 m) and the technologies used in the Arctic shelf projects [1].

The sanctions that are limiting the Arctic shelf operations may be considered as the basic ones.

First of all, Russia is currently considered as having the greatest hydrocarbon potential in the Arctic seas among all Arctic countries, which potential is thought to be equal to 34.2 BTOE by natural gas and 4.9 BTOE by oil [2].

Second, the Arctic area is a strategic region for Russia and the country's existence in near future will largely depend on its social and economic development that may be driven by development of the Arctic shelf.

Third, from the point of today's technical and technological situation, the development of the fields located in ice-free seas at the depths of over 150 m cannot pose any significant technical problems, and deep-water projects have been considered for long in the world practice as those having a depth of over 500 m, and the areas having such depth in Russia's continental shelf are not considerable [3].

It is obvious now that the sanctions period will not be a short one. Therefore, it would be proper to assess their possible effect on exploratory drilling in Russia's Arctic seas.

It is not by accident that exploratory drilling is the subject matter of this study. An overwhelming majority of the projects implemented by the basic mineral developers at Russia's continental shelf, PJSC Gazprom and PJSC Rosneft Oil Company, stay and will stay at this phase over the next 15-20 years.

Exploratory drilling in Arctic seas has a more than 40-year long history, and the total number of exploratory wells drilled in the Russian and US/Canada sectors may be considered as comparable [4].

The USA are considered as having reliable technologies for exploration and development of the Arctic hydrocarbon fields at the depths of up to 100 m [2]. It is also stated that the technologies required for operations at the depths of over 100 m are being developed now. It should be noted that Russia also has the required technologies for exploration and development of Arctic fields [2].

Nevertheless, climate trends in the Arctic Regions can affect significantly the exploratory drilling over the next decades.

The most widely discussed manifestation of global warming in the Arctic Regions is the reduction of sea ice area. It was decreasing quickly by the end of summer period over the recent one and a half decade, with the minimum level achieved in September 2012 (ice area was equal to 3.37 million km^2 against the long-time average annual value exceeding 6 million km^2).

Moreover, a reduction of the average thickness of ice is mentioned over the recent decades of the 20th - early 21st century, mostly because of a reduction of the multi-year ice area and its replacement by first-year ice. The greatest rate of decreasing the average thickness of ice was recorded during the period of 2003-2008.

Barents Sea is the key region in the Arctic climate dynamics. The percentage of Barents

Sea and the west part of Kara Sea covered with sea ice in winter is being decreased steadily. Such a reduction was particularly dramatic in 2005. On the whole, the relative ice area decreased from 50-60% characteristic for the winter periods of 1970-1990's to the today's level of 40% or less [5]. As a result, against the background of the overall steady retreat of ice towards the north, situations occur when the duration of summer drill slot in Barents and Kara Seas will grow dramatically.

Therefore, considerable areas in Barents and Kara Seas may be expected to be open in the coming decade for exploratory activities with the use of traditional offshore drilling units of a low ice class or without such classification [5]. Acuteness of the problems connected with drilling in the ice conditions will thus decrease, together with the overall demand for solutions based on the equipment and technologies designed for operations in the extreme Arctic conditions.

Therefore, the sectorial sanctions imposed by some countries and connected with the development of Russia's Arctic shelf are of a mythological nature, as regards equipment and technologies.

A further reduction of thickness and the spread area of sea ice is expected in the coming decades, regardless of significant year-to-year fluctuations. The Arctic Ocean is expected to become fully free of ice in summer by the middle of the century. So the marginal Arctic seas will have no permanent thick multi-year ice in the coming decade already.

According to foreign assessments, an oil and gas project cycle in the Arctic Regions, from the license issuing date to commencement of production, is between 22 and 25 years [2]. Russia should expect periods of a like duration, e.g., the period between the license issuing date and commencement of production at Prirazlomnoye oil field is 22 years.

Therefore, if an intense exploration activities are already commenced and carried out today, the Arctic resources from the newly developed fields will be able to give a significant return not earlier than in mid-30's. They can be further developed to the middle of the century or later. The Arctic resources may thus be considered as a significant factor of maintaining onshore production in rather a long-term outlook.

The entry into market of the new Arctic fields' hydrocarbons in the USA will coincide with a drop in shale oil and gas production expected by mid-30's. Therefore, they would become the basic factor for maintaining the US production and ensuring energy safety of the USA [2].

The last mentioned fact gives ground to assert that the imposition of sanctions upon Russia's exploration and production of hydrocarbons in the Arctic Regions is connected, without limitation, with the wish to delay development of Russia's Arctic projects and to synchronize them with the US ones. Such a synchronization would warrant establishment of an additional competitive environment for the Russian industry and technologies and sales of the Arctic oil.

Not technical, but financial limitations, i.e. closing global debt capital markets for Russia, can become more important in these conditions for development of the Arctic projects [6].

The only noteworthy argument against the development of Arctic projects is a reduction of hydrocarbon prices. Nevertheless, not only profitability of Russian projects should be used as their efficiency indicator at the initial development phase, but also their effect on the social and economic development of the country and overall geopolitical environment in the world.

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GEOPOLITICAL AND ECONOMIC ASPECTS OF ENERGY DIPLOMACY

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Energy is a key industry for many of the world's nations, economically, socially, and politically. A country's national security as a whole and its energy component in particular depend on the state of its fuel and energy complex. This results in special attention from government agencies to issues of ensuring energy security, including how these apply to international relations. The new technologies introduced in energy industries changed the trend in the development of the world energy complex. Some years ago the international energy markets were influenced mainly by economic factors (90%) and geopolitical factors (10%). Now the situation dramatically changed due to the geopolitical turbulence on global and regional levels. Geopolitics dominates in world energy industry and energy diplomacy. Geopolitical factors determine the situation on the world energy markets. It will not last forever because naturally economic factors should play the major role in energy policy and diplomacy in multilateral and bilateral cooperation. That depends on the geopolitical stability in the world and first of all on the RF-US relations. Looking ahead we may say that the relaxation the situation in some regional conflicts may be very important for the development of bilateral energy relations of Russia with both exporting and importing countries and also in the multilateral formats.

Conclusions.

1. The rapid development of the global energy industry at the end of the 20th and the beginning of the 21st centuries, along with the considerable expansion of international trade in energy resources, equipment and services, have actualized the geopolitical and economic issues in developing a system of world energy supply. We can identify several sets of problems with whose elaboration the energy diplomacy of many countries (including Russia) and international organizations is concerned.

2. Energy diplomacy will play more important role next years to avoid conflict of geopolitical and economic interests and to find the most effective ways for the energy cooperation on the basis of balance of those interests.

3. The energy diplomacy will be more connected with settling problems of international energy security on global and regional levels.

4. The first signs of the probability of improving Russian-American relations after the new administration of US President Trump statements about their foreign policy priorities may lead to a new more stable situation in the world geopolitics and have the positive impact on the more predictable prospects of the world energy.

5. Russia is interested in developing cooperation with most influential international energy organizations (IEA, OPEC, GECF, IAEA, IRENA etc.).

6. Priorities of Russian energy diplomacy on the bilateral include bilateral cooperation with CIS countries, EU countries, China and other Asian countries, Latin American, African and Middle East countries.

7. As for the energy cooperation with USA it is worth mentioning that there is some basis formed years ago (RF-USA Energy dialogue, other mechanisms). But now there are no mechanisms. There is a hope that after the normalization of RF-USA relations on political agenda we will have chances to resume energy cooperation with USA.

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