Role of Fuel and Energy Potential of East Siberia and the Far East in Implementation of Russia's Eastern Energy Strategy

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In first half of 21 centuries development of fuel and energy potential of east regions becomes one of priority directions of development of power of Russia. Thus it is necessary to provide conditions of mutually advantageous development of power taking into account the countries NEA.

Ключевые слова: **Fuel and energy complex, east vector, energy strategy.**

1. EASTERN VECTOR – A PRIORITY DIRECTION IN RUSSIA'S ENERGY IN THE FIRST HALF OF THE 21ST CENTURY

Disintegration of the USSR and formation of Russia as an independent State functioning in the new political and economic environment caused the necessity to revise the previous priorities set in the economic and energy policy of the country.

National interests of Russia call for intensification of its mutually beneficial energy cooperation with Japan, China, Korea and other countries in Northeast Asia[1].

This priority direction of the national energy development is unofficially called "the Eastern vector of Russia's energy policy" and has been sufficiently clearly outlined in the Energy Strategy 2020. Its main idea is as follows:

- fast and large-scale energy development in the Eastern regions of Russia and penetration into the energy markets in Japan, China, Korea and other countries in Northeast Asia should be considered as an important means of timely ensuring the appropriate positions of Russia in this strategically important region of the world;

- creation of a developed energy infrastructure in the form of interstate gas-, oil pipelines and transmission lines in Russia's East and in Northeast Asia will decrease the cost of energy carriers, improve reliability of energy and fuel supply to consumers in different countries and facilitate solving the environmental problems.

Eastern energy policy being part of economic policy is not an end in itself but a means of accomplishment of many principally important goals of federal, interregional and regional levels:

- ***general goals:***

1. *Social* – to improve comfort and quality of life for the population in the Eastern regions of Russia;
2. *Political* – to consolidate and integrate the RF entities, strengthen the unity of economic and energy space of the RF;
3. *Geopolitical* – to strengthen Russia's positions in the global economic system, in the community of countries in Asia-Pacific region, Central and Northeast Asia;
4. *Economic* – to enhance the efficiency of economy in Russia's East and its competitiveness, improve resource provision of the country and accessibility to remote territories, expand an active economic space of Russia, create conditions for attraction of foreign capital, advanced technologies, etc.

- energy goals:

[1] In the international publications and some official documents of Japan, China and Republic of Korea the countries of Northeast Asia include Mongolia, China, North and South Korea, and Japan.

1. To improve *adaptability and reliability* of energy and fuel supply to consumers;
2. To increase national and regional *energy security*;
3. *To improve* territorial production structure of fuel and energy complex (FEC) of the country and particularly its Eastern regions;
4. To increase *environmental security of energy*;
5. To form an *energy-transport infrastructure* (systems of oil and gas pipelines, transmission lines) in the East of Russia and create a *common energy-transport space*, etc.

Until recently Russia for some internal and external reasons was beyond major processes of economic cooperation development in APR. External economic ties between Russia and the APR countries, particularly NEA countries, are incommensurably small as compared to the European countries. For example, foreign trade turnover between Russia and NEA countries in 1995-2000 made up on average 11-12 % of Russia's trade turnover with non-CIS countries (compared to 69-70% between Russia and the countries of Western Europe).

Russia needs a clear strategy of economic and energy interaction between its Eastern regions and Northeast Asian countries.

Eastern regions of Russia (East Siberia and the Far East) with their huge economic and energy potential are in the vanguard of pursuing the national interests of the country in this strategically important region of the world.

2. FUEL AND ENERGY POTENTIAL OF EAST SIBERIA AND THE FAR EAST: STATE OF THE ART AND PROSPECTS FOR DEVELOPMENT

A large fuel and energy basis of the country was created in East Siberia and in the Far East. The regions produce 18.9 % of all electricity produced in the country, 13.2 % of heat, 36% of coal, and refine 11.7% of crude oil.

Though Russia's East possesses unique hydrocarbon resources, currently there is no large-scale oil and natural gas production here: in 2008 oil production accounted for 14.1 m t and natural gas production - 13.5 bn m^3.

In terms of utilizing quality kinds of fuel (natural gas, fuel oil) Eastern regions are far behind European regions of Russia (high-quality fuels make up 15-20% in the fuel balance in these regions against 70-80% in European regions of the country). This causes inadmissibly high level of environmental pollution.

Extremely difficult environmental situation in many cities and industrial centers results in an urgent demand of the Eastern regions for natural gas.

East Siberia and the Far East are rather large potential consumers of crude oil and oil products. For example, oil refining capacities of four refineries in the region (Angarsk, Achinsk, Khabarovsk and Komsomolsk-on-Amur) make up about 30 m t a year.

This generates the need to utilize the local hydrocarbon fields on a large scale.

The fields in the southern areas of Siberian platform and Sakhalin shelf are characterized by the highest concentrations of explored hydrocarbon reserves in East Siberia and the Far East.

The explored oil and natural gas reserves of Siberian platform and Sakhalin shelf alone are indicative of the fact that new industries can be created in the Eastern regions. These are oil and gas industries with an annual production of 80-90 bn m3 of natural gas and 50-60 m t of oil.

Large-scale involvement of hydrocarbon resources from Siberian platform and Sakhalin shelf in the economy of the regions will make it possible not only to fully meet their internal demand for crude oil and natural gas but also to supply large amounts of these hydrocarbons to the NEA countries.

Electric power industry created in East Siberia and the Far East is of great national importance. The regions have above 20% of installed capacity of all Russia's power plants.

The calculations show that reconstruction of operating power plants, completion of construction and putting new power plants into service in East Siberia alone will make it possible to have a sizeable power surplus (according to various estimates - 25-30 bn kWh). This amount of power can be transmitted by high-voltage transmission lines to Mongolia and China and to the Russian Far East, in particular, by interconnecting power systems of Irkutsk region and Sakha Republic (Yakutia).

Construction of high-voltage transmission line "East Siberia – the Far East" will allow the power systems of Siberia and the Far East to be interconnected for parallel operation. This will improve reliability of power supply to consumers in these regions and create the required preconditions for formation of the Eastern "wing" of the global electric power system.

Russia possesses 18% of the world proved coal reserves. Above 45% of explored coal reserves are geographically located in East Siberia and the Far East. Russia can supply hard (including coking) coal and the products of brown coal processing from the Eastern regions to the markets of NEA countries.

3. CURRENT STATUS, PROSPECTS AND CONDITIONS FOR MUTUALLY BENEFICIAL ENERGY COOPERATION BETWEEN RUSSIA AND NEA COUNTRIES

At present the material basis of the Eastern vector of Russia's energy policy is based on several large fuel and energy projects aimed at markets of NEA countries:

– Construction of the oil pipeline "East Siberia – Pacific Ocean" with the capacity 80 million t/year with a pipeline branch to Skovorodino towards China with the capacity up to 15-20 million t of oil per year;

– Approval by the Government of the RF and start of implementing of "Program of creating the unified system of gas production and transport and gas supply in East Siberia and the Far East with potential gas export to the markets of China and other APR countries";

– Studies on the possibility of annual electricity supply to China in the amount of 30-35 billion kWh starting from 2015 with its increase to 60-70 billion kWh by 2020-2025.

An extensive work on execution of a large number of coordinated program documents specifying strategic energy development in Russia's East up to 2030 based on the energy cooperation of Russia with NEA countries has been completed. They are "Energy Strategy of Russia for the period up to 2030", "Strategy of socio-economic development of the Far East and Baikal region up to 2025", "Strategy of socio-economic development of Siberia up to 2020", "Strategy of FEC development in East Siberia and the Far East up to 2030", "Program of development of oil refining capacities in the areas of East Siberia and the Far East", etc.

These documents provide for an essential growth of possible supplies of Russian fuel and energy resources to the markets of China, Japan, Korea and other NEA countries.

Speaking about intensification of the energy cooperation between Russia and NEA countries account should be taken of the following factors:

1. Hydrocarbon resources of Russia in the markets of NEA countries become increasingly more attractive owing to enhancement of investment and other risks in Near East.

2. The gas and oil markets for consumers in Russia's East will be apparently limited enough. By the available estimates the annual demand of these regions for crude oil will not exceed 35-40 million t in 2020-2025.

The natural gas market will depend mainly on the effective demand of consumers and the necessity of solving environmental problems.

The annual demand of the Eastern regions of Russia for natural gas is estimated in 2015-2020 at 20-25 billion m^3.

Since potentialities on oil and natural gas production in Russia's East substantially exceed internal demands, reliable supply of the Russian oil and natural gas to the energy markets of NEA countries is highly probable.

3. By virtue of geographical and geopolitical location in NEA China becomes a convenient transport corridor for delivery of the Russian and Central-Asian natural gas to the markets of NEA countries. China turns into a key player with an unprecedented opportunity to exert influence on both sellers and buyers. In negotiation processes China tries to establish priorities in delivery of Russian energy carriers (oil, gas, electricity) to the country, choose starting points (e.g. Irkutsk Oblast or Sakha Republic (Yakutia)) and routes for main oil and gas pipelines (e.g. bypassing Mongolia), dictate prices of purchased energy resources.

Russia is interested in diversification of sales markets and supply of surplus energy resources to China, Japan, Korea and other APR countries.

4. The price of supplied energy resources is an essential issue in negotiations. It should be understood that there will be no cheap gas in Russia, because it begins to pursue the policy of equalizing prices of energy carriers and adjusting the price relations for individual fuel kinds to the world ones.

5. Besides, the natural gas prices in East Siberia and the Far East will be fixed under the influence of export market state. In this case the natural gas price should not be lower than the costs of its production and transport including taxes and loan disbursement (the self-financing price). Its upper value is the market gas cost in NEA countries minus transportation charges and charges for the right of way over the territory of transit countries (the export price).

The state price policy will have an essential effect on approach of real values of natural gas prices to the upper or lower limit of the range of their change.

6. As is known, the oil and gas fields of the Siberian platform are unique in terms of helium and ethane content. Natural gas of the Siberian platform, for example, contains 0.3-0.5% of helium and 4.6-7.2 % of ethane. Helium resources of the Siberian platform are estimated at 8.5 billion m^3 or above 20% of the world helium reserves.

In the future Russia can be the largest helium exporter. However, it is well to bear in mind that helium extraction and its storage will naturally make the projects on development of gas fields more expensive and as a consequence will lead to rise of natural gas prices.

7. At present the necessity to deliver not only hydrocarbon resources, but products of their advanced processing with higher value added to the international markets is clearly recognized at all levels in Russia. For this purpose it is planned to increase in the Eastern regions of Russia output of oil products and create a specialized industry – gas-chemical industry, whose products are in rather high demand in NEA countries.

8. Implementation of the Eastern energy strategy is a complex problem because of its comprehensive nature, realization on a vast territory, involvement of a great number of Russian and foreign participants in it, highly capital-intensive program measures (especially interstate fuel and energy projects) and close international energy cooperation required for their implementation.

9. In our opinion at least the following five conditions should be fulfilled for advancement of mutually beneficial forms of international cooperation in the energy sphere:

1) Display of the political will, seriousness of intentions of participants to implement a concrete energy project mutually beneficial for every country.
2) Coordination of the economic and energy policies of the central, regional authorities and business in elaboration of the interstate energy projects.
3) Comprehensive system estimation of consequences (benefits) for the countries, regions, energy companies because of implementation of large-scale interstate energy projects, particularly under high uncertainty of

future development, economic risks and global challenges.

4) Creation of mutually acceptable mechanisms for implementation of the interstate energy projects (organizational, economic, legal, etc.).
5) Elaboration and implementation of the interstate projects by the international teams (at all stages: feasibility study, design and practical realization).

10. The necessity has arisen to elaborate a scientifically sound strategy of energy cooperation between Russia and NEA. It should present priority in development of energy resources, priority and stages of their delivery to domestic consumers and for export, evaluate socio-economic consequences of the decisions taken for companies, regions and the country as a whole.

Such a strategy can be worked out only on the basis of international cooperation of research and design institutions, companies, banks, etc. of the concerned countries with active support by the Government and regional authorities.

At present the main outlines of the energy cooperation with NEA are clear enough. The resource base of countries supplying energy resources and the energy markets of consuming countries are well studied. It is necessary to give more attention to the mechanisms for implementation of coordinated efforts of participants (countries, regions, companies), in particular economic mechanisms, legislative and other initiatives aimed at implementation of large-scale interstate fuel and energy projects. Special attention should be paid to the formulas of setting the prices of fuel and energy product. Energy and economic institutes of Russia must and can take a highly active part in solution of this complex and very important problem for Russia.

4. CONCLUSION

1. A new situation in Russia after disintegration of the USSR determines strategic importance of the Eastern geopolitical direction in external economic and energy relations for it.

2. The fuel and energy potential of the Eastern regions of Russia, particularly East Siberia and the Far East, should be considered as an important tool to intensify mutually beneficial cooperation between Russia and NEA countries.

3. Creation of new energy centers in East Siberia and the Far East will contribute to enhancement of energy security of Russia, restoration and expansion of violated energy links among regions, solution of many important federal, interregional and regional problems.

4. A comprehensive long-term strategy of the energy interaction (cooperation) between Russia and Northeast Asia countries and mechanisms of its implementation should be worked out on the basis of fast and scaled energy development in the Eastern regions of Russia.

5. The strategy can be worked out solely by joint efforts of research and design institutes of Russia and concerned NEA countries at permanent attention and support of the national governments, regional administrations, banks, etc. in close cooperation with fuel and energy companies.

BIOGRAPHIES

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