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## **THE GENERAL PLAN FOR A GAS AND OIL COMPLEX IN EAST SIBERIA AND THE REPUBLIC OF SAKHA (YAKUTIA) AND ITS SIGNIFICANCE FOR RUSSIA'S SOCIOECONOMIC DEVELOPMENT AND ENERGY SECURITY**

Authors: **Alexei Kontorovich**, RAS member, director of the A.A. Trofimuk Gas and Oil Geology and Geophysics Institute, Siberian Branch of the Russian Academy of Sciences (RAS), chairman of the RAS Academic Council for Geology and Development of Oil and Gas Fields, member of the Presidium of the RAS Siberian Branch; **Vladimir Kashirtsev**, RAS corresponding member, deputy director of the A.A. Trofimuk Gas and Oil Geology and Geophysics Institute, RAS Siberian Branch; **Andrei Korzhubaev**, D.Sc. (Econ.), a leading researcher of the A.A. Trofimuk Gas and Oil Geology and Geophysics Institute, RAS Siberian Branch, department chief of the Industrial Production Economics and Organization Institute, RAS Siberian Branch; and **Alexander Safronov**, RAS corresponding member, director of the Oil and Gas Institute, RAS Siberian Branch, president of the Presidium, Yakutian Science Center, RAS Siberian Branch, member of the Presidium, RAS Siberian Branch.

Geologists have worked hard for decades trying to prove that East Siberia and Yakutia (now the Republic of Sakha) were rich in oil and gas. Extensive geological explorations in the second half of the 20th century, in the 1970s and 1980, in particular, justified their efforts. The region, which geologists call the Siberian platform, has been found to contain scores of oil and gas fields, some of them large and unique in their own way, for example, at Kovykta, Chayanda, Talakan, and Kuyumba, to name just a few.

According to forecasts of the RAS Siberian Branch, the region is full of opportunities for new discoveries to be made and more resources to be tapped. The Russian government has given the go-ahead for a major new oil and gas production area to be developed here in its executive documents (such as the Siberia Economic Development Strategy, approved by the government's Directive 765-R on June 7, 2002; Russia's Energy Strategy, Directive 1234-R of August 28, 2003; and the government's Order of March 13, 2003). A spate of new discoveries has been made in the northeast of

the Siberian Federal District, the Turukhansk district of the Krasnoyarsk Territory, and the Taimyr (Dolgano Nenets) autonomous district.

Estimates suggest that annual oil production in Siberia could be brought up to between 100 and 105 million tons by 2020 and from 120 to 132 million tons by 2030, and that of gas, to between 70 and 80 billion cubic meters a year by 2020 and 75 to 85 billion cubic meters a year by 2030. Provided there is a steady effective demand for gas at home and abroad, and reasonable prices, too, significantly more natural gas can be produced in the region (up to 160 or even 180 billion cubic meters a year).

Development of new oil and gas fields will help meet a number of major national goals.

- In the first place, these hydrocarbon-producing complexes will contribute to the growth of gross regional product (GRP) and the country's GDP, in general. The RAS Siberian Branch estimates that implementation of the program will help boost GRP per capita to \$18,400 (in 2005 prices) in 2020, and \$33,300 (in 2005 prices) in 2030 from \$3,500 in 2005.
- Second, the new hydrocarbon-producing complexes will speed up growth in living standards and quality of life in East Siberia. Average wages in the Krasnoyarsk Territory and Irkutsk Region are to go up to 23,000 rubles a month from 5,000 rubles a month now.
- Third, the experience of the West Siberian oil and gas complex suggests that oil and gas industries in East Siberia will help improve the demographic situation in the region, send birthrates up, and reverse migration flows. Again, according to estimates, the population in the region in the years between 2025 and 2030 will surpass the highest-ever peak registered in the late 1980s. As a result, the region will fulfill yet another major task it has been set by the nation's president, namely, improving the demographic situation as mortality figures are expected to go down as a result of rising living standards and life quality, an effective migration policy, and climbing birthrates.
- Fourth, development of a new oil and gas producing complex and gas pumped to industrial centers in East Siberia will improve the environment, in particular, in areas around Lake Baikal. Emissions of carbon dioxide from coal-burning industrial facilities in the Russian Federation are put today at 387 million tons a year. The Irkutsk and Chita regions, and the Republic of Buryatia surrounding Lake Baikal are emitting around 50 million tons of carbon dioxide a year. After the heat and power generating facilities are converted to gas, carbon dioxide emissions in these territories could be reduced by approximately 20 million tons a year. Emissions of inorganic dust and sulfur oxides will also be reduced by 35% to 45%.
- Fifth, the unique properties of East Siberian gas and oil will stimulate construction of large high-tech enterprises to manufacture large quantities of polymer materials, in using which Russia lags far behind the world's leading countries, and to build a helium-producing center of global significance. The Krasnoyarsk Territory and Irkutsk Region are best-placed for this project, to be followed by the Republic of Buryatia and the Chita Region. These new industries

could significantly invigorate the economies of these territories and improve the social climate.

- And sixth, the East Siberia oil and gas complex will facilitate fulfillment of a critical geopolitical and economic objective facing Russia today, in particular, moving into the Asia-Pacific energy market and starting to export large quantities of oil and natural gas to China and other Pacific Rim countries.

Building a transport infrastructure and stepping up geological exploration are what is needed most to translate the idea of an East Siberia oil and gas complex into life.

Work started in late last April, under a presidential order and government directive, to build a strategic oil pipeline from East Siberia to the Pacific coast, which will carry 80 million tons of oil a year at full capacity, beginning with 30 million tons of oil a year in 2008, when its first leg is expected to go on stream.

Construction of the first leg started simultaneously at Taishet, northern Irkutsk region, and Skovorodino, in the Amur Region further east, giving the northern shore of Lake Baikal a wide berth, far beyond the drainage area of the lake, across terrain known for its low earthquake risks and high promise of more oil and gas to be tapped on the way, now or in the future. A highly controversial project, it took the Russian president to nail it down in its present, environment-friendly format. The pipeline will run roughly parallel to the existing railroad, built in the 1980s and lying in mothballs ever since, from Taishet to Ust-Kut, where it will curve up to northeast, along the left bank of the Lena River at a safe distance from the waterway, until it reaches the oil fields at Talakan, a detour that will, however, help cut exploration and construction costs. The pipeline route will then skirt Lensk from the north, cross the Lena at Olekminsk, and head straight east to Aldan, where it will swerve south, bypassing Neryungri, toward Tynda and further down south to Skovorodino. The second leg of the pipeline is, in fact, two legs – one, the longer of the two, is to end up in Russian Pacific seaports, and the other, branching off from the mainline at Skovorodino, will cross into China. The Lena will be more than just another river – it will be used to carry shipments of equipment, pipes, cement, and all that takes to build a modern pipeline. Some shipments will be brought in by rail, and even air, all of which will require roads and much else to be built.

The route will run across landscapes studded with oil fields, many already explored and waiting to be tapped at short notice, and more still to be explored in a short run, certainly a lure to investors to pump their money into oil and gas explorations and development, justified in their hopes of getting fast returns from both. Besides, this choice of route will help slash road infrastructure costs, draw the project's payback point nearer, and lower the costs of bringing oil from East Siberia and Yakutia to the Skovorodino fork.

From the outset, much of the oil pumped into the first leg of the pipeline will come from West Siberia, which has enough of the stuff to spare, but it will gradually taper off as oil wells in East Siberia and Yakutia are hooked up to the pipeline system. There is still much work to do, though, before new oil production centers arise here, in particular:

- dealing with organizational issues, including ownership problems to be sorted out, to complete evaluation and exploration of oil fields at Yurubcheno-Tokhoma, Kuyumba, and Chayanda, and issue licenses to operators at the Chayanda oil field;
- developing a subsoil development licensing program and license agreements so that work could start without undue delay to sink exploration wells and step up development of promising oil fields with the ultimate aim of raising oil output in East Siberia and Yakutia to 80 million tons a year;
- stepping up the construction of the supply oil pipeline UTZ-Karabula-Poima; and
- finding ways of disposing and shipping out free oil gas, using all free gas components, and re-examining the possibility of building oil, gas and hydrocarbon products pipelines within the same route corridor, which could cut project costs by at least 10%.

Since the overwhelming majority of hydrocarbon fields in East Siberia contain oil or gas, the new oil and gas fields will best be developed within the framework of a single national program.

Many people insist on starting oil and gas production immediately, leaving utilization of ethane, propane, helium, and disposal of casing-head gas for some time in the future. Burning these precious hydrocarbons right on the well is like burning banknotes, if we appeal to our great countryman, the world-famous chemist Dmitry Mendeleev, who certainly knew what he was talking about. Nor would Russia stand much to gain exporting raw gas, which importers in other countries would waste no time processing on facilities they would build, leaving us with no incentive other than continuing to pump it raw, without thinking how much added value we would miss or how large an economic harm we would cause ourselves.

Others think differently. On these lines, for example. If you can't take out and process East Siberia's gas, leave it where it is now, until your economy is up to the challenge. The idea looks logic, from the outside. But actually it is not. Science and industry in Russia have the know-how and technologies to make high added value products from gas. Putting off development of new gas fields indefinitely would restrain economic development of East Siberia and the Far East, reduce the GDP growth rates, lower the living standards and quality of life, and would deprive the domestic producers of export markets. This we can't afford.

And the last point. The project itself is threatened from yet another direction. A few regions and subsoil developers are coming up with their own plans of mineral development in East Siberia and Yakutia, giving precedence to regional or corporate interests, at the expense of federal interests. If accepted, this approach would certainly harm federal interests and, eventually the interests of the regions and corporations themselves. Development of the region's resources under a single coordinated program would alone create conditions for long-term, sustainable operation of the oil and gas industries in East Siberia and Yakutia. A program of this sort must seek a sensible balance between the federal interests and those of the regions and corporations.

These are the principles, which a program for developing the oil and gas resources of East Siberia and Yakutia must be based on.

An interdepartmental working group under the RF Ministry of Industry and Energy is working on a program to develop a single system in East Siberia and the Far East to produce, pipe, and deliver gas to consumers in China and other Pacific RIM

countries, and to have Gazprom in charge of program coordination by the Russian government's decision.

The program is basically aimed at building an efficient gas industry in the region and, as a result, laying the groundwork for dynamic socioeconomic growth of East Siberia and the Far East and improvement in living standards. We are solidly behind the key components of the program, which give priority to the rising demand of Russian consumers, optimizing the fuel and energy balance in the regions of East Siberia and the Far East; developing gas-processing facilities in the area, manufacturing chemical products from gas, and producing helium; opening a single export conduit, and getting bargain prices for Russian gas exports. The way of doing all this at a time are offered in a program developed by Gazprom.

And yet, there are a number of important considerations such as the need to tie in the interests of socioeconomic development of East Siberia and Yakutia with an all-out effort to enhance the economic effect of resources, including hydrocarbons, developed in the country's eastern regions. Shelving full-scale development of oil fields at Chayanda and Kovykta, which are unique for their size, for an indefinite time into the future, putting off construction of facilities to convert hydrocarbons into chemical products, and downscaling gas networking projects, which all is, in simple terms, suspending socioeconomic development of Russia's easternmost fringes, goes against the strategic benchmarks set in the presidential directives.

Natural gas in East Siberia and Yakutia is "locked in" on the domestic market. Reasonably enough, gas from the Sakhalin shelf, could most profitably be exported in liquefied form, and the most sensible way of exporting gas to China and South Korea from East Siberia is by pipeline. This two-track approach would stimulate economic development of both regions. The existing project says nothing about gas networking in two large areas east of Lake Baikal – the Republic of Buryatia and the Chita Region, which is certainly a drag on their socioeconomic development.

The draft program calls, logically enough, for processing gas to produce ethane, propane-butane mix, and helium, but moves the start of gas processing for the needs of the chemical industry back to 2020, while gas piping is slated to begin in 2008. It appears, though, that the list of priorities must focus of the following immediate objectives:

- switching attention from raw gas pumping to gas processing, gas-based chemical industry, and helium production; and
- admitting in unambiguous terms to ourselves that before we pipe any gas to other countries, we are going to strip it of ethane, propane-butane mix, and helium, unless we want the importers to do this for us at a price and push Russia out of world markets for these products.

At present, major factors restraining deliveries of huge quantities of piped gas to other Northeast Asian countries are:

- (1) lack of official assurances from the governments of China, Korea, and Japan, and also from their authorized operators, such as large gas companies, that they are going to buy steady quantities of Russian gas;

- (2) absence of a firm and unequivocal policy on their part regarding the pricing formula they are ready to follow buying Russian gas under long-term contracts; and
- (3) lastly, absence, on their part, of a clearly stated and transparent timing of Russian gas deliveries.

We need exact answers to these questions for three reasons:

- (1) infrastructure to receive, distribute, and use up significant quantities of Russian gas on a scale comparable with that existing in Western Europe and in North America is yet to be deployed in all Northeast Asian countries claiming to want Russian gas;
- (2) demand for gas continues to rise in Europe, which is forced by growing environmental problems and fluctuating oil prices to turn to gas as replacement for oil, with European governments clamoring for more gas supplies from Russia and other CIS countries; and
- (3) during the talks on oil exports from Russia, the governments of Northeast Asian countries committed themselves to exact quantities and pricing formulas for oil imports, freeing Russia's hands to start building its biggest yet oil pipeline, from deep inside East Siberia to the Pacific seaports; and in the case of strategic gas pipelines, guarantees of this kind are absolutely a must before gas pipelines start fanning out into different Northeast countries.

New oil and gas production centers of world standing can reasonably be built within the framework of the single national oil and gas program. And more, East Siberia and Yakutia offer a turning point to start converting their oil and gas into high added value products for the following reasons:

- their hydrocarbon resources are widely spread out territorially and have uncommon properties (which applies to gas most of all);
- the projects, if undertaken here, have an enormous social and geopolitical significance and require huge capital inputs;
- they have an unfamiliar pattern of refining and conversion centers, with consumers, including foreign markets, to be reached in different directions; and
- an integrated transport infrastructure will have to be built.

A national project, integrated from within and systemically organized, will be needed to build an oil and gas complex in East Siberia and Yakutia by pooling the efforts of the central government, the regions concerned, and the committed business community. To keep the prospective oil and gas complex in balance from the start, it is important to:

- build oil and gas piping systems at one time and in lockstep;
  - develop transport, power, and social infrastructures;
  - develop gas processing and helium production industries;
  - build tank farms for helium concentrate, product pipelines, and other facilities;
- and
- build commercial facilities to process gas into chemical products in large quantities and at high added value, and abandon crude exports as a way to stimulate economic growth.

A gas pipeline appropriately called “Altai” to move large quantities of natural gas from West Siberia, across the Altai Mountains, to China’s western regions is yet another key project, first advanced by the Russian president, to push into Pacific Rim energy markets. Piped gas may begin flowing sometime between 2012 and 2015 across the territories of Russia’s Altai Territory and the Republic of Altai to the Xinjiang Uygur Autonomous Region, where it will be received into the West-East pipeline running all the way to China’s eastern coast. This project will require the gas pipeline, now under construction between Barnaul and Gorno-Altai on the Russian side, to be extended to Kosh-Agach, via Kanas, Burchun, and Karaman, to Urumqi, the Xinjiang capital, parallel to the Altai-China highway, which is still on the drawing board. According to information provided by the Altai-China Highway Project Authority, the best route for the road is across the Ukok Plateau, which offers no technically formidable barriers to either the highway or the pipeline. Over time, as the pipeline picks up capacity, more pipe runs will have to be added to the existing route arising at Urengoi and going down to Surgut, Kuzbass, and on to the Altai, to be ultimately emptied in China. It will be appropriate to build branch lines to take piped gas into the networks to be developed in the Altai Territory and the Republic of Altai to encourage local consumption and distribution, and to stir up demand among households and industries, even by subsidies from the federal budget.

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Once completed, these giant projects – East Siberia, West Siberia, and Sakhalin – will help stimulate socioeconomic growth in the country’s east, supply the eastern regions with enough oil, gas, and petroleum and chemical products, and diversify export markets by delivering large quantities of crude and added value products to Pacific RIM countries, including the U.S. Pacific coast. These projects will serve Russia’s best economic and geopolitical interests, firm up its territorial integrity, and reinforce its national security.