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Formula for energy security

Surging energy prices have fired up some economies' efforts to secure one-sided benefits for themselves. Mr. Putin said recently: "We are witnessing a fierce fight for natural resources, and many conflicts, foreign policies and diplomatic demarches smell of gas and oil."

Fighting for resources

No wonder international fight for natural resources is getting increasingly severe. World energy consumption is growing at the 2% rate (as forecasted by the International Energy Agency), while development of global reserves is not that rapid. For many years, oil discoveries have been less than annual production (figure 1). World oil and gas reserves distribution is extremely uneven: most fields are located in the countries having no appreciable standing in the world production. For instance, the OPEC and former USSR states hold 77.3% of the world's oil and account for only 5.3% in the world's GDP. This is yet aggravated by declining oil production and reserves depleting in the United States and Europe (figure 2).

All this unleashed a fight for the oil and gas still available internationally. Major trans-national companies are seeking to gain control over the petroleum sales channels as well as newly discovered fields and underdeveloped areas like the Caspian basin. Stakes in this game are increasing as fewer fields remain unexplored. Pricing policies and technological competition is no longer at the forefront, replaced by off-market global-scope fight for the world's limited resources.

These circumstances encouraged mass consolidation within the world's oil producing industry. The world saw mergers of such giants as BP and Amoco, Exxon and Mobile, Chevron and Texaco and a host of other major oil and gas companies who expanded activities to mobilize global resources and minimize petroleum production, transportation and processing costs.

Russia's key oil and gas companies, Gazprom, Rosneft and Lukoil, also opt for consolidation. They have been tightening control over domestic resources and leading proactive efforts for taking a slice in oil, gas, and energy assets overseas. These policies may help the companies' in their international competition based on vertical integration. However, expansion into the international market is not going smoothly so far; staking out a claim for giant reserves in Russia required enormous funds. To realize this strategy, major oil and gas companies raised

loans worth a few hundred billion dollars. Related exposures are the price the corporations pay for taking hold of oil and gas reserves.

Security imperative

Increasing competition for resources pushed the energy security problem to the foreground in many developed economies that depend on oil and gas imports. They are trying to reduce their reliance on other states, this is especially the case with unstable political regimes. Such precautions in respect of Iraq, Nigeria and Venezuela are justified.

However, the developed countries cannot boast having a lot of possibilities to attain energy security. Energy saving plans, resting on basic technology, were largely fulfilled back in the late 1980s. Search for alternative sources has not brought any sound results so far and gives little hope for future success. In 2005, the United States adopted an energy saving program that stipulated funding of ethanol production using corn, but ethanol proved an inefficient fuel (in terms of general production costs). So the United States plans to further explore existing oil fields or develop new ones - in the National Petroleum Reserve or in outer continental shelf areas – despite cost-ineffectiveness.

All this action at times reminds panic in the face of a looming energy crisis. Not taking into consideration lobbyism by interested groups, the fear of this threat can be easily explained: the developed countries' governments do have a reason for worries. There is uncertainty about future oil supply, especially in Arab countries. For many years, their governments used to overstate their proven reserves to win higher production and exports quotas under OPEC agreements. According to some estimates, the Arab countries' reserves may have been reported twice the available in reality. Absence of reliable information is a much greater evil than wrong expert estimates.

Researchers' and analysts' predictions as to when the world will pass the oil production peak vary greatly. In the United States oil production peaked (passed the so-called Hubbert's peak named so after M. King Hubbert, a geophysicist who accurately predicted the beginning of decline in oil extraction in the United States in 1956) back in 1970 when extraction dropped 47%. Globally, the Hubbert's peak is said to occur in the early 2010s or mid 2030s. To some extent, the fact we do not know about the planet's oil and gas supply is a problem even more serious than the limits of exploitability of gas and oil reserves.

The other side of this problem is unilateral actions undertaken by states possessing energy resources. Their strategy comprised in retaining state control over national resources by all means is called 'resource nationalism'. It is often ineffective, and so are attempts of importing countries to resolve the energy security issue on their own. Specifics of the global energy security issue are that states' unilateral action is unlikely to bring any positive results.

Chain reaction

Net consumption of hydrocarbons in the developed countries' GDP is relatively small (figure 3), but this is not a crucial parameter. Energy dependence of the developed economies is determined by a tight relationship between production funds and energy consumption rather by their parts in overall production. Proportions of energy and capital factors cannot vary substantially in compliance with changes in their relative prices. In the theory of production in economics this characteristic is called factor complementarity, in this case it is energy and capital complementarity. Alone, this capital is not productive, it only works when secured with energy (a car with an empty tank is just a pile of items).

Thereby two problems loom. The first is appearance of shallow places that greatly concerns western economists and politicians. The world market has not seen any signs of chronic oil or gas shortages so far: only short-time negative shocks in demand occurred, but they would be promptly relieved. Nevertheless, the United States plans to double its strategic oil reserves – like other developed states.

These reserves may help mitigate short-term consequences of oil shortages in future. There is another, much more serious and long-lasting problem related to energy and capital complementarity. Insufficient supply of energy generates surplus of production capital and growth in relative oil prices. This results in declining return on capital (a car not fuelled with gasoline brings either zero or negative (taking into account parking charges) return). Return on capital tending to fall discourages households from saving.

High rates of consumption faced by the developed countries have been the vehicle of the world's economy. In a way, this global growth model is helped by oil dependency through the following chain of relations: insufficient oil supply – low return on capital – high consumption rates – low capital dynamics. This process is partly compensated by high saving rates in some Asian economies but it is likely to fall over time, too.

The model of global growth based on consumer demand in the circumstances of oil reliance is shallow over several reasons. In particular, with this model, the rates of capital accumulation are much lower than they should be. It means all countries, both the developed and developing, will be economically damaged in the long run. Russian energy resources constitute one of the underlying elements of the global growth, therefore they are so important for western economies.

Investment choices

The issue of large-scale investing in Russia's new oil fields such as Eastern Siberia, Far East and Arctic shelf remains unsettled. At this point, interests of the developed importing countries and Russia diverge. Development of new fields and building an infrastructure will take not less than a decade. To minimize risks, energy importers would like new field development to start as soon as possible. This will give them a guarantee of their energy security. The reasonable question however is who is going to pay for the explorations.

Russia should not take hasty decisions regarding large investments. The required money injections – some hundred billion dollars – may far exceed the Soviet Union expenses for exploration of Western Siberia's fields in 1960-70s. Where find money to finance oil and gas field development in poorly accessible and remote areas? The major part of Russia's oil and gas royalties used to be appropriated to the Stabilization Fund until recently. Financing such projects by the Russian oil companies would entail the budget losing inflows from oil and gas production. Privileges for natural resources tax shall apply. This concerns fields in Eastern Siberia and northern shelves. However, these measures are apparently insufficient for commencing large-scale development. With oil extracting companies receiving a minor part of petroleum royalties and the lion's share of them going to the state, the profit appropriation plan needs to be totally reconsidered to the extracting companies' advantage. Along with companies' own investments, several hundred billion rubles of the government money will be required to create social infrastructures in the new extraction areas. The budget will hardly sustain such a load; it will undermine the country's macroeconomic stability and the government's plans for further implementation of social priority tasks.

Russia's risks

Risks of Russia's economy and public finance related to the world oil prices are well known. But in the context of global energy security key risks are found in the field of major investment decisions.

In mid-term and long-term perspectives, oil extraction is a risky business. As a rule, companies do not have reliable preliminary data about the supply, this information reveals when exploration and investing are in progress. On average, around 80% of drilled holes turn out 'dry' when traditional investigation and drilling techniques are used. Besides, exploration of new oil producing regions requires creation of production and transport infrastructure, i. e. huge financial expenditures.

With high risks and fixed production costs, the market price cannot always be seen as a reliable reference when deciding whether invest or not invest in a project. Comprehensive estimation of a project should include the so-called waiting option taking into account possible additional gains from rising oil prices in future. Deferring large-scale investments reduces the possibility of losses and is rewarded with higher profits. With this in mind, Russia should not hurry to start large-scale developments of fields in Eastern Siberia and Far East.

Estimates of the waiting option only have point if there is a long-lasting positive trend in price dynamics. Historical data on oil prices in real terms do not prove this supposition so far (figure 4). If there is no certainty about a long-lasting price trend, any gains from waiting further growth in prices will be unappreciable, however mid-term risk factors should be still taken into consideration. This is above all dependency of demand for energy resources from the world economic cycle. Another factor is competition from the side of the OPEC countries for whom the stated expenses for exploration of new fields and resource extraction are much lower compared to Russia. Ignoring considerable competitive

advantages of Arab economies in oil extraction, Russia may be hurt the way the USSR was hurt in the 1980s. While the OPEC states reduced extraction of oil as oil prices were plummeting, the Soviet Union was forced to uphold a stable production level (figure 5). Irrational policies of the Russian leadership were dictated by a necessity to plug holes in the budget at any cost and expand imports to mitigate the deficits caused by the command economy.

As oil and gas exporter, Russia has been confronted with another long-term risk factor which is the possibility of a great technological breakthrough: no matter when and in what way, it may happen so that a fundamental alternative might be found to oil as a basic energy source. With all pessimism regarding success in finding alternatives, the possibility of a radical technological shift exists. The higher are oil prices, the higher is this possibility (the OPEC states have been long considering the developed countries' innovational research which curbs them from letting oil prices grow too fast).

Energy thrombosis

Interests of energy importing countries and Russia's interests differ greatly. The former need new fields to be developed – this will reduce oil prices, prevent supply shocks and secure robust global growth. Russia should be very cautious and avoid taking risks even if oil and gas prices keep rising.

These contradictions will not disappear on their own, especially if the key players continue their self-centered strategies in energy sphere. Risk exchange between the energy importing and exporting states may be an option. It means that the former will take a part of risks related to gas and oil production, while the latter will give their financial support to global production. This exchange will be mutually beneficial and realizable in market conditions, through financial mechanisms allowing participation in foreign company ownership and management.

However, this approach has been impeded in the recent years by restrictive measures aka 'financial protectionism'. Barriers have been put on the way of strategic and portfolio investments in large companies that are allegedly vital for national security. Governments of such importing states employ the threat of leak of confidential information from technologically advanced companies as an excuse for banning such deals. In their turn, the governments of exporting countries including Russia are seeking to retain control over oil and gas extraction and transportation.

The today's policy of the Russian government meets the interests of Russia's key oil and gas companies, yet its efficiency for the national economy is somewhat doubtful. Russian oil and gas sector influence on the global growth is likely to become stronger over time. It is all about how smartly Russian authorities will utilize the growing possibilities for global influence. Unwise looking to one-sided benefits will damage Russia because of the worldwide dropping of return on financial assets, reduction of investments into Russian economy and, eventually, fall in the country's population incomes. Oil and gas royalties will enrich the domestic oil and gas sector but are not likely to benefit most households.

Now it is clear that keeping foreign competitors away from the domestic resources, just like increasing foreign oil and gas assets through fundraising,

does not diversify, but only aggravates Russian economic risks - remember projects related to oil production in Kazakhstan, Libya, Venezuela, and large-scale European projects. With the state support, Russia's international expansion with a view to energy dominance may last forever, but it makes sense to stop at a certain stage. Further gaining of energy assets overseas requires huge financial inflows and taking additional, not always reasonable, risks by the state.

Russia's asset portfolio is overloaded with the domestic oil and gas sector related risks, not the best ones. The state needs to minimize these risks, all the more so because the situation at the world's stock markets does not favor Russia. In the past year and first quarter of 2008, the Russian Trading System oil and gas company index dropped 6.7% with oil prices growing 81% over the same period. Should oil prices fall, Russian oil and gas quotes may slump sharply – our newest history has seen such examples. By the end of 1998, Gazprom stocks dropped eight times compared to the pre-crisis peak with world gas prices falling only 20% (November 1998 against June 1997).

In this situation, the state probably should offer its excessive risks in exchange for risks it is lacking. For instance, Russia could exchange its parts in energy companies and projects while they are high valued for stakes in the world's best high technology companies. Along with the largest oil and gas companies, the state assets portfolio can be represented by stakes in EADS-Airbus, Boeing, IBM, Siemens, etc (companies can be different). To mitigate global risks, Russia should consider investing in infrastructure and other industries that do not greatly depend on the world economic cycle. Another sector where the state can strategically invest is the financial segments in the developed countries, which have become much cheaper over mortgage and banking crises. However, if the situation on the energy resource market changes dramatically, Russia will miss the moment when it could sign profitable deals. Assets should be sold while their price remains high – this simple rule underlies effective management of the state financial portfolio.

Russia is lagging behind its rivals where it concerns asset management. Arab investment funds that purchase high-tech and financial assets, let alone Norway with its Global retirement fund comprising 3,500 companies worldwide, have been long making strategic deals. One of this foundation's long-term objectives is gradual transformation of oil extraction risks into manageable financial risks. So, for efficient multilateral resolving of the energy security issue, a risk exchange is required between energy importing and exporting states. To attain this, they should lift barriers on the way of strategic investments in key sectors of the economy. Naturally, state control over Russia's oil and gas should be retained, the effective laws and rules including state ownership of natural resources should prevail. In particular, the right for field exploration and resource extraction by foreign companies should stipulate investment for creation of transport and social infrastructure. With efficient management of national assets, energy security issue can be solved globally without hurting Russia's interests.