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1. UKRAINE AND RUSSIA: INTERIM RESULTS AND PROBLEMS OF BILATERAL COOPERATION

Separation of Ukraine-Russia bilateral relations in the energy sector is rather conventional, since they objectively fit into the relations of both countries with a third party – first of all, countries of Europe (in particular, the EU) as consumers of energy resources transported across the territory of Ukraine. Therefore, both from the viewpoint of the process chain (producer – transit state – consumer) and from the economy viewpoint (seller – provider of transportation services – buyer) those relations should be viewed in a trilateral format.[1] More than that, it may be argued that problems stockpiled in that sector of relations between Ukraine and Russia and in Europe in general may be solved solely in such trilateral format.[2]

On the other hand, since early 2000s Russia has been insistently pursuing a policy translating relations with partners in the energy sector into a bilateral format where it is usually stronger and uses that advantage to defend and promote its interests and/or the interests of its state monopolies and separate financial-industrial groups. That is why there are grounds to view the Ukraine-Russia relations in the energy sector as bilateral, but with account of presence of a third party there, first of all, the EU, as Ukraine declares its integration in it and is now engaged in formulation of common norms and rules of the European energy markets.

This section briefly outlines interim results and problems of the Ukraine-Russia relations in the oil, gas and nuclear sectors – more interrelated and interdependent than other domains of the energy sector.

1.1. INTERIM RESULTS OF BILATERAL COOPERATION IN OIL, GAS AND NUCLEAR SECTORS (1991-2009)

The energy sectors of Ukraine and the Russian Federation are closely interrelated and to a large extent interdependent being a natural result of their long-standing development within the framework of the common business and economic system of the former USSR. After the breakup of that system both states inherited some (first of all, spatially determined) parts of the once integral system.

The Russian Federation mainly got large reserves of hydrocarbons (the world largest proven reserves of natural gas, seventh largest reserves of oil) and powerful industrial complexes for their extraction, the bulk of the transcontinental pipeline infrastructure, and all facilities of the complete nuclear fuel cycle, production of reactors and other NPP equipment, the overwhelming majority of Soviet nuclear technologies and research projects, in particular, of new generation reactors' development. At the same time, the Russian Federation lost direct access to the main consumers of Russian hydrocarbons – European countries, and to large deposits of uranium that remained in Kazakhstan, Ukraine and Uzbekistan.

Ukraine got main transit gas and oil pipelines, large underground storages of natural gas, NPPs, large deposits of uranium (the sixth largest in the world, the third in Europe) and zirconium (the third largest in the world, the first in Europe), uranium and zirconium ore processing facilities, research facilities and technologies of production of nuclear-pure zirconium and hafnium, enterprises of nuclear power engineering and instrument-making industry, vast scientific-technological potential of development of the nuclear fuel cycle elements.

At the same time, Ukraine inherited big industrial complexes consuming large quantities of hydrocarbons

[1] As this was done, in particular, under one of the previous projects of Razumkov Centre. See: The EU-Ukraine-Russia gas triangle. Razumkov Centre analytical report. – *National Security & Defence*, 2002, No.3, p.2-43.

[2] These words primarily refer to the oil and gas sector and relations of Ukraine, Russia and European countries in it.

as raw materials and fuel (petrochemical, oil refining, metallurgical industries, etc.) – while developed Ukrainian fields of hydrocarbons had actually been exhausted by that time.

That situation naturally led to interdependence of the two countries' energy sectors (first of all – oil, gas and nuclear sectors) and could facilitate development of mutually advantageous, equal cooperative ties between them.[3]

Instead, the energy sector became one of the most secret, non-transparent and corrupt in the economies of both countries. There (and in allied sectors) the wealth of many presently known financial-industrial groups and separate persons was made, they still see a spread practice of various preferences, benefits, selective access of some economic actors to profitable contracts and/or commercially attractive energy facilities, deposits of raw materials, infrastructure, etc.

Bilateral Ukraine-Russia relations in the energy sector became similarly non-transparent and corrupt, as witnessed by the absence of an effective accounting and control system, and the practice of involvement of various mediators in contracts of energy resources supply, secret arrangements, exchange of preferences (for instance, cheap gas in exchange for preferences to Russian capital at privatisation of Ukrainian enterprises), etc. Interests of national FIGs and separate persons on both sides got a "political cover" in interstate negotiations, arrangements and agreements, leading to strong politicisation of business and economic issues proper.

In the end, both countries in 1990s adopted export-oriented economic models resting on low-tech patterns whose competitiveness relied on cheap raw materials and understated cost of labour. The energy policy of both states was fragmented, strategically vague, formulated actually to serve the interests of influential FIGs in different sectors and provided a mechanism of their attaining.

The situation began changing in early 2000s. On the one hand, economic growth began in both countries (on the basis of the above-mentioned obsolete economic models through), on the other – with Putin coming to power, Russia saw tough centralisation of power and establishment of control over separate FIGs and state natural monopolies. **The energy policy was centralised, too, in the government's hands turning "a tool of implementation of the home and foreign policy" – as provided in the *Energy Strategy of Russia through 2020* adopted in 2003.**

Such centralisation and control do not mean that the energy sector and international relations of Russia in the energy sector got rid of corruption, practice of secret arrangements and use of business and economic issues, which purchase and sale of energy resources actually are, for achievement of political and geopolitical goals. On the contrary, that practice was extended to European countries dependent on deliveries of Russian hydrocarbons (so-called "Schroederisation" of Europe).

In relations with the EU and European countries Russia preferred bilateral formats of cooperation in the energy sector, having refused from participation in multilateral documents (the European Energy Charter Treaty) and negotiations with Europeans about extension of market principles and European norms and rules to East-West relations (talks about the Transit Protocol attached to the European Energy Charter).

In 2000s Russia adopted a number of fundamental documents that set out the Russian Federation course towards restoration and strengthening of its role on the world scene, leadership in the CIS (CIS as an area of "privileged interests") and influence in the Eurasian space.[4] What strikes the eye is the evolution of the Russian foreign policy stand formulated in annual addresses of the Russian President to the Federal Assembly of the Russian Federation. Namely, the post-Soviet space (CIS) is always viewed there as one of the main priorities of the national foreign policy: the 2001 Address stressed that "the Russian Federation is the core of integration processes in the Community", the 2005 Address went farther to speak of the "civilising mission" of the Russian nation on the Eurasian continent, the 2007 Address stressed that "Russia plans to further play a proactive role in the processes of economic integration in the CIS space, and wider – in the entire Eurasian space".[5]

Since 2000, Russia has also been actively pursuing a policy of minimising its dependence in export of energy resources on neighbouring countries through diversification of transportation routes. And the *Energy Strategy of the Russian Federation through 2030* adopted in 2009 made emphasis on creation of a single Europe-Russia-Asia energy space and guarantee of Russia's domination there in the result of Russia's establishment as the key centre of the pipeline infrastructure management being an element of the energy bridge between Europe and Asia.

By and large, in 2000s, Russia's policy towards Ukraine became tough, target-minded and pragmatic. The Russian leadership actively uses political and diplomatic tools, Ukraine's "gas dependence" to influence Ukraine's foreign policy course, strengthen the "pro-Russian dimension" in home political processes and keep Ukraine in the sphere of its influence.[6]

Meanwhile, Ukraine saw (and continues to see) struggle for power and/or division and re-division

[3] That interdependence was aggravated by the fact that both Ukraine and Russia were recovering after the deep transformational crisis of 1990s using the export potential of large industrial complexes created yet in the Soviet times and therefore lo-tech and highly energy-intensive: Ukraine – mainly at the expense of metallurgical enterprises; Russia – at the expense of export of raw materials, first of all, hydrocarbons and products of their processing with low added value.

[4] Naval Doctrine of the Russian Federation through 2020 (adopted in 2001); Concept of Participation of the Russian Federation in Assistance to International Development (2007); Concept of the Foreign Policy of the Russian Federation (adopted in 2008); Strategy of National Security of the Russian Federation through 2020 (2009); Military Doctrine of the Russian Federation (2010), etc.

[5] See: *Annual Address of the President of the Russian Federation to the Federal Assembly of the Russian Federation*. – *Russkiy Arkhipelag* website, *http://www.archipelag.ru/agenda/povestka/message/*.

[6] For more detail see: Ukraine-Russia: from crisis – to effective partnership. Razumkov Centre analytical report. – *National Security & Defence*, 2009, No.4, p.2-42.

of assets and property, including in the energy sector. The energy sector (and therefore, energy and national security) remain hostages to rivalry of big FIGs, their business interests. By contrast to Russia, it has not formulated a more or less clear strategy of socio-economic development of the country and, respectively, its energy component. The *Energy Strategy of Ukraine through 2030* adopted in 2006 from the very beginning had no firm basis and effective mechanisms of achievement of its objectives (that, in their turn, were too ambitions and unrealistic).[7]

Meanwhile, all governments that ruled the country after the adoption of that *Strategy* little cared about its implementation: over that period, no regular report of attainment/non-attainment of its goals and priorities has been made; none of the state programmes passed in pursuance of its objectives was implemented; the issue of the *Strategy* revision, elaboration and/or update in line with changes in the domestic and outside situation was not officially raised; both national and international documents were drawn up and signed (approved) without due regard to and coordination with the *Strategy* provisions (for comparison of provisions of the *Energy Strategies* of Ukraine and Russia see *Annex 1* to this Report).

In particular, nothing has been actually done to develop new domestic fields of hydrocarbons and create facilities for fabrication of nuclear fuel, to diversify sources and routes of their supply (the Odesa-Brody oil pipeline has not been used for the designed purpose). **As a result, as of the end of 2009, Ukraine met domestic demand at the expense of domestic extraction of oil by 25% of total consumption, of gas by 30%, and depended on imports of Russian oil by 65%, gas – 70%; nuclear fuel – 100%** (less the nuclear fuel of the US *Westinghouse* company, at that time used in the research mode at power unit 3 of the South Ukrainian NPP).

Summing up, it may be said that as of the end of 2009, Russia's stand towards Ukraine was quite evident:

- **utmost reduction of dependence on transit of hydrocarbons across Ukraine by means of diversification of routes of their supply (construction of pipelines bypassing Ukraine);**
- **utmost reduction of Ukraine's ability to diversify sources and/or routes of supply of hydrocarbons and nuclear fuel; in particular by obstructing operation of the Odesa-Brody pipeline in the straight mode to bar Ukraine's access to the Caspian oil;**
- **establishment of control over Ukraine's GTS (including underground gas storages) and gas fields on the Black Sea shelf in one or another form;**
- **prevention of NPP construction and production of nuclear fuel in Ukraine on a technical and technological basis alternative to Russian; isolation of Ukraine in the nuclear sector from any third party.**

As regards the Ukrainian energy policy, it remained fragmented, situational, dependent on changes of governments and associated FIGs and separate persons, and unable to compete with a centralised, united and strong position of Russia and its powerful influence. That weakness is also manifested at the present stage of the Ukraine-Russia relations, when attainment of some goals in one sector requires a disproportionately high price in another one.

In the end result, in the Ukraine-Russia relations, the energy sector became a political rather than economic factor, and relations in the gas sector in fact shape the Ukraine-Russia relations as a whole.

1.2. NEW TRENDS IN UKRAINE-RUSSIA RELATIONS IN OIL, GAS AND NUCLEAR SECTORS

The current year of 2010 started a fundamentally new stage in the Ukraine-Russia relations in the energy sector, that may either gain a civilised form or end with takeover of the Ukrainian energy sector (first of all, the Ukrainian GTS, including underground gas storages, and the nuclear sector) by Russian monopolies.

The first scenario may so far be deemed possible, but for its implementation Ukraine needs not only the political will of executives, but also assistance (or at least effective interest) from the EU. Furthermore, its implementation notoriously runs for time – given the promptness of Russia pushing initiatives of merger of energy sectors of the two countries.

Unfortunately, the second scenario is more likely. This assumption rests on serious grounds.

***First*, Ukraine has long and rather firmly been "linked" to the Russian Federation and its monopolies. Namely:**

in the oil and gas sector, long-term contracts have been made (for 2009-2019):[8]

- of Russian gas transit across Ukraine (the contract contains no guarantees of the Russian party as to the transit volumes) and of gas purchase and sale between *Naftohaz Ukrajiny* NJSC and *Gazprom* OJSC, whereby the Ukrainian company is to annually buy up to 40 BCM of gas, being one of the highest volumes among European countries;

in the nuclear sector:

- NNEGC *Energoatom* and *TVEL* company made contracts of fresh nuclear fuel supply for two power units (K2/R4) over the entire service life of both units (till 2034); a long-term contract of nuclear fuel supply to Ukrainian NPPs after 2010 has been made;[9]

[7] Noteworthy, the Verkhovna Rada Resolution No.2455 of 24 May 2001 following the parliamentary hearings held on April 18, 2001, provided for development and adoption of the Energy Strategy of Ukraine through 2030 yet in the 4th quarter of 2001. However, it was drawn up and adopted only five years later.

[8] Or, rather, annexes to the Contract of natural gas supply between *Gazprom* OJSC and *Naftohaz Ukrajiny* NJSC of January 19, 2009, signed in Kharkiv on April 21, 2010.

[9] So far, there has been no official public information about the parameters or even terms of the contract validity. Media reported preliminarily agreed contract terms whereby *TVEL* would supply nuclear fuel to Ukrainian NPP for 15 years – from 2011 till 2025. See: TVEL: Moscow and Kyiv did not amend the contract of nuclear fuel supply to Ukraine – RBC, April 12, 2010, *http://www.rbc.ua* (*in Russian*).

- *Atomstroyexport* company won tenders for construction of two power units at the Khmelnytskyj NPP; *TVEL* company – a tender for selection of technologies for establishment of a nuclear fuel fabrication plant in Ukraine.

***Second*, the Russian party actively pushes new initiatives of cooperation, mainly in the form of merger of assets of those sectors of both countries. For instance, in April, the Russian Prime Minister Putin proposed:**

- **in the nuclear sector –** to unite Ukrainian and Russian assets in nuclear power engineering by creating a holding encompassing united generation, machine-building for nuclear power engineering and the fuel cycle;[10]
- **in the oil and gas sector –** to unite *Naftohaz Ukrajiny* NJSC and *Gazprom* OJSC in one company.

Preliminary assessment of Russian initiatives

1. The Russian-proposed option of participation in the Ukrainian GTS management – through merger of assets of *Naftohaz Ukrajiny* and *Gazprom* companies is risky for Ukraine (due to the possible future loss of the GTS and transfer of control of the economy to another state) and unacceptable from the viewpoint of development prospects may be viewed as the second (and possibly the last) step after the "gas-fleet" agreements towards refusal from the European integration (Ukraine's accession to the Energy Charter envisages segmentation of *Naftohaz Ukrajiny* as a vertically integrated company and rejection of investments by monopoly states).

2. The Ukraine-Russia long-term gas agreements and contracts affect the pricing system in Ukraine. For the Russian *Gazprom* concern, high prices on the Ukrainian gas market somehow offset losses on the European market. The long-term contract between *Gazprom* and *Naftohaz Ukrajiny* companies made on January 19, 2009, by its basic price and supply conditions appeared much worse than contracts with European companies. The Kharkiv Agreement made in April, 2010, did not let Ukraine secure a fair market price by economic means and tied purely economic issues to political. This helped the Russian leadership to make a big step towards its strategic political goal – final transformation of Ukraine from a foreign policy actor into an object of Russian influence. To remove asymmetry laid down in long-term contract of gas purchase and sale the Ukrainian party insists on amendment of unfair pricing parameters embedded in it, but those attempts have produced no desired effect so far.

3. Due to the absence of a forward-looking, realistic strategy of the oil and gas sector development, consistent with long-term plans of socio-economic development, and because of the lack of own funds and required investments in GTS development, Ukraine's Government has limited mechanisms of effective influence on the situation with bypass oil and gas transportation routes *North Stream*, *South Stream* and BPS-2, posing a direct threat of loss of the transit potential for Ukraine.

4. Diversification projects (aimed at replacement of sources and suppliers of energy) in Ukraine are poorly introduced and implemented, which puts Ukraine's energy security in a precarious situation.

5. Development of the Ukrainian nuclear power engineering is hindered by the absence of the national nuclear fuel cycle, discriminatory tariffs of electricity generated by NPPs, ineffectiveness of the wholesale electricity market.

MERGER OF *NAFTOHAZ UKRAJINY* NJSC AND *GAZPROM* OJSC

On April 30, 2010, the Russian Prime Minister Putin put forward the proposal of merger of *Naftohaz Ukrajiny* NJSC and *Gazprom* OJSC in one company. In his turn, *Gazprom's* CEO Miller expressed readiness to provide investments necessary for modernisation of the Ukrainian GTS.

The Russian party reported readiness to let Ukraine extract gas on the territory of the Russian Federation (the field that can give up to 30 BCM/year) on the condition of establishment of a JV by *Naftohaz Ukrajiny* NJSC and *Gazprom* OJSC and Ukraine's contribution of the GTS and gas of the Palas structure on the Black Sea shelf to it.[11]

Recently, it has been reported that Russia faced problems with the *South Stream* project implementation, so that its interest in the Ukrainian GTS (and, respectively, control of it) goes up. Some experts believe that such situation may let Ukraine secure more beneficial conditions of the JV establishment (for instance, Russian contribution of one of Urengoi fields).

In September, 2010, the Russian-Ukrainian Joint Venture "International Consortium for Management and Development of Ukraine's Gas Transportation System" LLC (established in 2004, operation suspended in 2007) resumed its work. After that, the consortium shareholders decided to push for a legislative initiative of amending Article 7 of the Law of Ukraine "On Pipeline Transport" to allow foreign states to take part in the gas transportation system management. The Ukrainian Government approved relevant amendments to the legislation, pending submission for consideration to Ukrainian Parliament.

At a meeting of the Minister of Fuel and Energy of Ukraine Boyko and *Gazprom* OJSC CEO Miller on December 1, 2010, they agreed to set up two joint ventures: for gas extraction from coal beds on the territory of Ukraine and for development of the Palas structure on the Black Sea shelf.[12]

Those agreements can hardly be implemented since *Gazprom* is primarily interested in expansion of the Ukrainian market for gas extracted at its Russian fields, not in investments that will lead to reduction of export volumes.

Most probably, the main goal of *Gazprom* OJSC in the conditions where the world leading oil and gas companies show readiness to invest in prospecting and development of hydrocarbon fields in the Ukrainian sector of the Black Sea shelf, shale gas, coal methane, is to **rule out any reduction of the Ukrainian economy's dependence on Russian gas imports**.

[10] Russia proposed to Ukraine to join assets in nuclear power engineering. – *Lenta.Ru* internet publication, *http://www.lenta.ru/news/2010/04/27/atomic* (*in Russian*).

[11] According to reports, Russia offered as its contribution to the JV the Astrakhan field (where *Eni* and *Total* companies could not extract gas due to the high sulphur content) and some fields on the Yamal peninsula whose development will require large investments and where the prime cost of gas extraction is fifty percent higher than at the Urengoi field. See: Gavrish O., Grib N. Feeling of unification. – *Kommersant Ukraine*, October 14, 2010, *www.kommersant.ua* (*in Russian*).

[12] *Source:* Press release of Information Department of *Gazprom* OJSC, December 1, 2010. – *Gazprom* OJSC website, *http://www.gazprom.ru*.

6. Russia has (and plans to strengthen) a monopoly position in key elements of nuclear power engineering: reactor-building, supply of fresh and processing and storage of spent nuclear fuel. Such situation gives rise to energy (and indirectly – environmental) insecurity, a disadvantageous for Ukraine pricing policy at conclusion of relevant contracts.

7. In absence of a clear stand of Ukraine, Russia pursues an aggressive policy of ousting competitors from the Ukrainian market, which not only compromises Ukraine's energy security, but undermines its image of a reliable, predictable partner.

8. The latest developments prompt the conclusion that Russia is trying to impose more beneficial for it conditions of cooperation and instead of developing Ukrainian enterprises seeks their subordination or technological elimination (as witnesses by the sale of shares of Kyiv's *Enerhoproekt* and Sumy-based Scientific Research and Design Institute of Nuclear and Energy Pump Building, to be followed by privatisation of Kharkiv's *Turboatom*). Previous Ukraine-Russia agreements made on the intergovernmental (e.g., the agreement of encouragement of *UkrTVZ* operation) and interbranch levels are not implemented almost in their entirety, which affects the creation of domestic nuclear fuel cycle elements in Ukraine.

Russia's true goals concerning Ukraine are formulated in the Programme of effective systemic use of foreign political factors for long-term development of the Russian Federation drawn up by the Russian Foreign Ministry and on February 11, 2010, submitted for consideration to the Russian President.[13] **The Programme presents one of the lines of comprehensive modernisation of Russia and aims to employ required resources from abroad** for "enhancement of the balancing role in international affairs and the potential of [Russian] influence on transformation of the global governance system, effective promotion of long-term goals of the country development". **The Programme assigns Ukraine the role of a resource base**, proposing, in particular:

- to actively involve Ukraine in the orbit of economic cooperation with Russia, avoiding appearance of Russian enterprises in strategic branched, especially advanced industries (aircraft building, transport, rocket and space, energy sectors, etc.), in technological dependence on Ukrainian counterparts;
- to view Russia's participation in the Ukrainian gas transportation system (GTS) operation as a strategic task, to make the Ukrainian counterpart to perform agreements establishing the International Consortium for Management and Development of Ukraine's GTS;
- to secure the use of the Odesa-Brody oil pipeline in the reverse direction, which will limit Ukraine's access to the Caspian oil;
- to expand interaction with Ukraine in nuclear power engineering, to secure conclusion of long-term contract of delivery of nuclear fuel produced in Russia to Ukrainian NPPs;
- to expand Russian investment presence in Ukraine, to secure acquisition of controlling blocks of shares of big Ukrainian enterprises by Russian investors.

In the conditions of remaining strong energy dependence on Russia, loss of the gas and nuclear sectors by Ukraine poses a serious threat to its state sovereignty, since merger of those sectors, given the difference in their scale (capitalisation of the relevant Russian monopolies is much higher than of Ukrainian), in fact means their takeover by Russian monopolies.

1.3. MAIN PROBLEMS OF UKRAINE AND UKRAINE-RUSSIA RELATIONS IN THE ENERGY SECTOR

We have to state that the main problems of Ukraine are of the domestic origin, going beyond the scope of the sector and encompassing all domains of life of Ukrainian society. Namely:

- **low quality of state institutes, improper governance**. Corruption, merger of power and business, continuous rivalry of business/political groupings for power and assets; inability (or reluctance) of the authorities to more or less clearly outline not only the strategy of socio-economic development of the country and its foreign policy priorities, but even the national interests of the country; divergence of declarations and real goals; the investment climate that discourages, not encourages truly foreign (not offshore) investors; non-publicity and non-transparency of business and power, resulting in their uncontrollability for society and lack of trustworthy unbiased public information on any issues, especially dealing with such profitable sectors as energy. This results in the absence of a development strategy, lack of political will to change and actual exclusion of continuity and consistency in the activity of the ruling teams;[14]
- **energy intensity of the Ukrainian economy**. The national economy remains resting on lo-tech patterns and cheap resources (including labour), and therefore, the most energy-intensive in the world.[15] As of 2009, the index of energy intensity of Ukraine's GDP equalled 0.5 tons of oil equivalent per $1,000 of the GDP, which more than 2.3 times exceeds the world average and more than three times the index of developed economies.

Exactly this makes the foreign policy of this state extremely sensitive to Russian interests. Without a fundamental increase in the energy efficiency, Ukraine's economy has no chance to seriously reduce Russian influence on its policy by using the factor of energy dependence.

Hence, solution of those particular problems should precede settlement of problem issues in the energy sector proper or at least go on alongside with it. Decisively important here are formulation of a clear strategy of socio-economic development of the country and its foreign policy priorities, and curbing corruption.[16]

[13] For the Programme contents and analysis see website of *Russkij Newsweek* magazine, *http://www.runewsweek.ru/country*.

[14] In particular, since the *Energy Strategy* adoption, four governments have changed in Ukraine, which leads to the loss of continuity in formulation and implementation of the state policy in the energy sector, consistency in control of implementation of state programmes, change of priorities and partners, especially in terms of diversification of energy sources, specified as the main priority of the *Energy Strategy*.

[15] Except Kazakhstan that, however, over the past 10 years has been demonstrating one of the world highest rates of oil extraction growth.

[16] For Razumkov Centre's proposals of settlement of those problems see: Political corruption in Ukraine: actors, manifestations, problems of countering. Razumkov Centre analytical report. – *National Security & Defence*, 2009, No.7, p.40-42, 71-72; Ukraine-Russia: from crisis – to effective partnership. Razumkov Centre analytical report. – *National Security & Defence*, 2009, No.4, p.27, 37-42; Ukraine on the world scene: present and future. Razumkov Centre analytical report. – *National Security & Defence*, 2010, No.2, p.12-17.

There are at least two key problems of Ukraine-Russia relations in the energy sector:

- **non-publicity, non-transparency and actual uncontrollability of the national energy sector and processes taking place in Ukraine-Russia bilateral relations in the energy sector**. This was especially manifest in the situation with signing of the so-called Kharkiv agreements, or "gas – fleet" agreements (Insert "*Kharkiv agreements*").

Non-transparency of said sectors and relations also affects Ukraine's relations with the EU and even more, the whole European energy security system, barring, first of all, the creation of trilateral instruments and mechanisms for prevention of supply crises and prompt response to them. For instance, during the 2009 gas crisis it appeared that any steps or actions of the EU lacked unbiased and trustworthy information to rely on, both purely technical and dealing with relations between the supplier and the transit state (and consumer) of the Russian gas, the legitimacy of their positions and intentions in the actual dispute;

- **absence of regulatory documents coordinated and accepted as binding simultaneously by the EU, Ukraine and Russia (absence of agreed "rules of the game).** In fact, the European Energy Charter of 1991 was the only document providing common rules for the EU, Ukraine and Russia (and the entire Eurasian gas space), but Russia, having signed the Energy Charter Treaty, for a long time refused to ratify it, and in August, 2009, cancelled its signature under the Treaty (Insert *"European Energy Charter"*). Furthermore, the parties have failed to coordinate the second protocol to the Energy Charter – the Transit Protocol that naturally was of particular interest for Ukraine. However, Russia itself did not agree with the EU requirements of free access to the pipeline infrastructure and quit talks about the Protocol.

KHARKIV AGREEMENTS

On April 21, 2010, the Agreement between Ukraine and Russia on issues of the Russian Black Sea Fleet stationing on the territory of Ukraine and an annex to the contract of natural gas supply between *Gazprom* OJSC *and Naftohaz Ukrajiny* NJSC of January 19, 2009, that gave Ukraine a 30% discount on gas, were signed in Kharkiv. In that way, the gas price was exchanged for extension of the Russian Black Sea Fleet stationing in the Crimea till 2042.

1. The Agreements were prepared in an unprecedentedly secret manner. The documents were drawn up behind the scene, not publicly reviewed at a sitting of the Cabinet of Ministers, most of the Government members actually saw them after signing. Ukraine's National Security and Defence Council has not met on that occasion either.

Ratification of the Agreement between Ukraine and the Russian Federation on issues of the Russian Black Sea Fleet stationing on the territory of Ukraine in the Verkhovna Rada of Ukraine **was hastily pushed in violation of parliamentary procedures, without regard to the opinion of the parliamentary opposition and public protests.**

The decision of ratification was taken despite the conclusion of the Main Scientific Expert Department of the Verkhovna Rada of Ukraine Staff that stressed that the Law on the Agreement ratification could not be passed without prior review in the Constitutional Court for correspondence to the Constitutional provisions and **recommendations of the Foreign Affairs Committee and the European Integration Committee** to reject it and refer to the Constitutional Court.

The ratified Agreement also contradicts to the basic Agreement between Ukraine and the Russian Federation "On the Status and Conditions of the Russian Black Sea Fleet Stationing on the Territory of Ukraine" that was not denounced, but unlawfully extended, and the Law of Ukraine "On International Treaties of Ukraine".

Such a manner of decision-making by the Ukrainian ruling regime results in their questionable legitimacy, which later may give grounds for their revision and give rise to a conflict situation in Ukraine's relations with Russia.

2. Having signed the agreements, Russia secured achievement of one of the provisions of the *Naval Doctrine of the Russian Federation through 2020* adopted in 2001 – on keeping the city of Sevastopol as the main base of the Russian Black Sea Fleet. The same is proven by the words of the Russian Prime Minister Putin who said that Russia had agreed to the agreement signing for three reasons: "First, issues of strategic nature. The Russian Navy is traditionally present in the Crimea and Sevastopol. And we believe that the Russian Federation is interested in its presence there for further sufficient time.

Second – it strengthens confidence between the two countries. These are not just states. It seems that there are 17 million people in Ukraine officially recorded at census as Russians. And everyone probably practically speaks Russian. That is why it is very important to maintain such level of confidence in our interstate relations, including the military component".

The third reason is presented by "some support for Ukraine itself… Because those $34 billion a year which Ukraine underpays to Russia and which the Russian budget is short of – this is our contribution in support for the economy of a friendly for us state. We consider it as investment in the future… of the Russian-Ukrainian relations".[1]

3. Instead, for Ukraine, the "gas – fleet" agreements not only bring a very doubtful economic effect, but pose a number of threats. First of all, they present an unprecedented, asymmetric politico-economic barter – exchange of imaginary economic preferences in the Russian Federation for strategic geopolitical concessions on the part of Ukraine.[2] This refers to: (a) strengthening of the Russian military-political, informationhumanitarian influence in the Crimea and entire Ukraine; (b) growing risks of conflicts and destabilisation of the situation on the peninsula; (c) wider opportunities for intelligence and counterintelligence activity of the Russian Federation on the territory of Ukraine; (d) lost opportunity to make Sevastopol a large trade port, the Crimea – a recreational and tourist area; (e) complication of settlement of disputed issues of the Russian Black Sea Fleet stationing in the Crimea, in particular – loss of an opportunity to set arm-length market rent for stationing of the Russian military base.[3]

[1] See: Azarov speaks of existence of arguments for revision of the gas agreement with Russia. – UNIAN, September 1, 2010, (*in Ukrainian*).

[2] For analysis of economic "benefits" for Ukraine from the gas price reduction and economic consequences of possible denunciation of the Agreement see Section 2 of this Report.

[3] For more detail see: 100 days of the new authorities: what model of governance is being formed? – Kyiv, Centre for Political and Legal Reforms, Institute of Economic Research and Policy Consulting, Razumkov Centre, 2010, p.50.

EUROPEAN ENERGY CHARTER

Signed by Governments of 45 countries of Europe (including Ukraine and Russia), Asia, and America on December 17, 1991. **The document's status – political declaration** of international cooperation in the energy sector on the principles of market economy, mutual assistance and non-discrimination (the Charter actually determines the principles of cooperation in the energy sector between the West and East after the USSR breakup). As of the beginning of 2009, the Charter and its Treaty were signed by over 50 countries of the world.

The Energy Charter Treaty (ECT) and the Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects are legally binding documents signed in 1994 and aimed at creation of an open gas market of all signatory countries. Effective since 1998.

The Treaty and the Protocol were ratified by Ukraine on February 6, 1998; effective for Ukraine since January, 1999.

Russia had long refused to ratify the Treaty (due to its rejection of the requirement of free access of market actors to the pipeline infrastructure), and in August, 2009, cancelled its signature under the Treaty.

Since 2000, talks had been underway about the **Transit Protocol,** but due to differences between the EU and Russia the draft text was not agreed. In 2008, Russia quit the negotiations.

However, **without the Transit Protocol there are no effective binding mechanisms to coordinate interests of suppliers, transit states and consumers of energy resources in the most sensitive segments of their relations: prices and tariffs; security of supply; competition among suppliers and transit states; the right to choose the supplier and/or the transit state, etc.**

1.4. CURRENT SITUATION AND WAYS OF PROBLEM SOLUTION

The current situation in Ukraine and in the oil and gas sector of the national economy, apart from the above factors and circumstances, is shaped by the processes now taking place on the European energy market and trends in relations between the EU and Russia. Such processes and trends include, in particular, possible modification of the Energy Charter with account of Russian proposals (Insert "*Third Energy Package of the EU and Russian proposals*"; Ukraine's accession to the Energy Community Treaty (Insert "*Energy Community*"); plans of creation of trilateral mechanisms ensuring European energy security.

Ways of solution of problems of the Ukrainian energy sector and Ukraine-Russia relations in the energy sector.

1. In the current situation, with account of developments in the European energy policy, it seems reasonable to impose a one-year moratorium on implementation of initiatives of merger of assets of the Ukrainian and Russian oil, gas and nuclear sectors; **use that time for detailed and comprehensive analysis (also involving independent and international experts) of benefits, risks and effects of such merger** from the viewpoint of Ukraine's national interests and national security, strategic prospects of its socio-economic development and achievement of foreign policy priorities; **arrange subject parliamentary hearings upon the results of such analysis, following which, concrete decisions may be passed**.

2. Meanwhile, Ukraine should use the opportunities opened up in connection with (*a*) its accession to the Energy Community Treaty; (*b*) plans of creation of trilateral mechanisms of ensuring European energy security (in particular, a system of prevention of energy crises and prompt response to their effects, a system ensuring security of energy resources transit, etc.), more than once announced by some state leaders and EU officials; (*c*) participation in negotiations of the Energy Charter modification that reportedly may commence shortly.

(*a*) Accession to the Energy Community Treaty. Ukraine should ratify the Protocol of its accession to the Treaty to join the common legal space with the EU in the energy sector, which will promote competition and security of gas supply for domestic consumers, long-term reliability of its transit to the EU countries, raising investments and strengthening of its position in relations with Russia in the energy sector.

(*b*) Plans of creation of trilateral mechanisms of ensuring European energy security, in particular, a system of prevention of energy crises and prompt response to their effects.[17] **Ukraine has already put forward an initiative of creating a mechanism of energy crises prevention in a trilateral format** (in January, 2010, during the Ukrainian Foreign Minister's visit to Spain that had just assumed the EU presidency). The Spanish Foreign Minister is known to further discuss that proposal with his Russian counterpart in Moscow, where it was highly praised.

Ukraine should promote that initiative, recruiting for its support other countries that potentially can transit energy resources from the Caspian region and Central Asia (Bulgaria, Georgia, Romania, Slovakia, Turkey, etc.) **and countries interested in supply of their energy resources to Europe by routes alternative to Russian** (Azerbaijan, Kazakhstan, Turkmenistan).

(*c*) Talks of the Energy Charter modification. Ukraine should do its best to ensure its participation and an active (strong common) stand in that process, insisting on introduction of uniform rules of relations in the energy sector based on transparency, mutual benefit, absence of critical dependence on partners, their equal rights and mutual respect.

It also seems reasonable that Ukraine puts forward an initiative of involving in those talks other states – potential suppliers of hydrocarbons to European countries (Azerbaijan, Kazakhstan, Turkmenistan).

In any case, it should push the initiative of setting up a trilateral platform for continuous dialogue of suppliers, transit states and consumers, the EU-Russia-Ukraine "triangle being one of its possible formats.[18]

17 For more detail see: "*Ukraine, Russia, EU – prospects of cooperation in energy security domain*" (interviews) published in this journal, in particular, the opinion by Honchar.

18 See: *Ibid*.

THIRD EU ENERGY PACKAGE AND RUSSIAN PROPOSALS OF THE EUROPEAN ENERGY CHARTER MODIFICATION

In April, 2009, **the Russian President Medvedev put forward the initiative generally titled Conceptual approach to a new legal framework for international cooperation in the energy sector (goals and principles)**. The new legal framework was to replace the European Energy Charter and other multilateral international acts and envisaged harmonisation of relations and growth of interdependence between producers and consumers of energy resources and transit countries. The conceptual approach also contained the proposal of solving global energy security problems through the establishment of a collective security system – possibly under the UN auspices.

Furthermore, it substantiated the need of development of long-term energy balances of demand/supply in order to back long investments in the energy sector (and, possibly, to preserve *Gazprom's* usual practice of long-term agreements of natural gas supply).

The Ministry of Energy of the Russian Federation acting on the Government's commission and in pursuance of the Conceptual approach… is currently drafting the **Convention of international energy security**, to be released shortly.[1]

In July, 2009, the European Parliament and the Council of Europe approved the so-called Third Package of documents that established the key principles of the third stage of the EU energy markets' liberalisation. Those principles include limitation of investments in the EU energy infrastructure by monopolies from third countries that did not provide for separation of extraction, transportation and supply functions. Implementation of that principle was intended to oppose *Gazprom* OJSC expansion on energy markets of the EU countries and in fact presented the EU response to the Russian-Ukrainian gas conflict in January, 2009.

Furthermore, that principle actually ruins the long-term strategy on the investment market. In particular, according to *Gazprom's* Deputy CEO Aleksandr Medvedev, the Third Package debars the company from access to management of transport assets on the EU territory and deprives suppliers of a possibility to manage gas transportation assets and devaluates investments made by them in those assets. Without that, gas suppliers will not be willing to invest in their construction and will go to other markets.[2]

The Russian Prime Minister Putin speaking at the 4th economic forum of *Sueddeutsche Zeitung* newspaper sharply criticised the Third Package having called it "predatory", since it would not allow Russian companies to make investments in the EU energy infrastructure development. Since the Community member states, according to the Third Package provisions, are obliged to meet the energy market regulation rules set by it before 2013, Putin believes that *Gazprom* OJSC will have to sell its interest in the *North Stream* gas pipeline and in *Lietuvos Dujos* company (Lithuania). Therefore, implementation of the Third Package requirements may bury the Russian gas concern's plans to establish control of as many as possible EU energy infrastructure facilities.[3]

On October 14, 2010, André Mernier, Secretary General of the Energy Charter Secretariat, reported the European readiness to discuss President Medvedev's proposal concerning the Energy Charter modification. And since talks will cover transit issues, Mernier has proposed that Ukraine joins the talks.[4]

It was reported that the Russian party had also welcomed Mernier's words, and talks might start shortly. Commenting on the situation, Aleksandr Medvedev expressed hope that *Gazprom* OJSC could "make a contribution to finalisation" of the Third Package.[5]

Hence, for Russia, the Charter modification may mean an opportunity to adjust (retard) liberalisation of the EU energy markets, since, in particular, in case of full liberalisation of the gas market it will be dominated by spot and exchange contracts, which will deliver a serious blow on the *Gazprom* OJSC competitiveness.

For Ukraine, participation in the Charter modification talks may mean an opportunity:

- to defend its interests in ensuring security of gas transit and deliveries to the domestic market through creation of conveniences to raise investments in GTS overhaul and modernisation and introduction of an effective mechanism to minimise risks of interruption of imported gas supply;
- to defend its position on the problem of preservation of the volumes of transit across its territory, to secure its status of the leading gas transit state in Europe.

Meanwhile, there are no serious reasons to hope for active Russian support for the proposal of Ukraine's involvement in negotiations. Despite official declarations of harmonisation of relations among producers, consumers and transit states energy resources, rather high Russian officials more than once spoke of a secondary role of transit countries both in the process of energy resources supply and, respectively, in international talks of formulation of rules of the game at world and regional energy markets. For instance, commenting on the Russian proposals of amendment of the Transit Protocol in 2009, an aide to the Russian President Dvorkovich said: **In the energy policy, there are two decisive actors: the producer and the buyer, while transit countries perform a service function, and transit should not be made an independent actor.** [6]

1 Theses of the draft Convention see at: Shtilkind T. Existing energy arrangements and mechanisms, and other in the energy security. – Vilnius, 13 September 2010, *http://www.osce.org/documents/eea/2010/09/46032_ru.pdf*.

2 See: Grib N., Yegikyan S., Gavrych O. Charter said, "you must". – *Kommersant Ukraine*, October 15, 2010.

3 Defender of Russian. – *Vedomosti*, November 29, 2010, *www.vedomosti.ru* (*in Russian*).

4 See: Presentation by Ambassador André Mernier, Secretary General of the Energy Charter Secretariat "Energetika XXI: economy, policy, ecology". – St. Petersburg State University, October 14, 2010, website of the Energy Charter Secretariat – *http://www.encharter.org*.

5 See: Grib N., Yegikyan S., Gavrych O. Charter said, "you must"…

6 See: *Ibid*.

ENERGY COMMUNITY

The Energy Community Treaty was signed on October 6, 2005, and entered into effect on July 1, 2006. Its parties are 14 EU countries, Albania, Bosnia and Herzegovina, Kosovo, Macedonia, Serbia, Croatia, and Montenegro.

The Treaty's goal is to create the world largest common gas and electricity market in the North-Eastern Mediterranean on the basis of introduction of the EU Directives in the sector of gas, power engineering and environmental protection, including implementation of the Kyoto Protocol.

The main assignment of the Community is to create a common regulatory space in the energy sector with the purpose to enhance security of energy resources transportation, encourage competition on electricity and natural gas markets.

Main goals:

- to create a sustainable and regulated market structure fit to raise investments;
- to create a common regulatory space for trade in energy resources;
- to enhance the security of energy resources supply;
- to promote competition on energy and gas markets of the Treaty member states.

On November 17, 2006, Ukraine got the observer status (other observers at that time were Georgia, Moldova and Turkey).

On December 18, 2009, the Energy Community Council of Ministers approved Ukraine's accession to the Energy Community Treaty – provided that the national legislation in the gas sector is brought in compliance with the EU legislation (in particular, on the gas market establishment). A similar decision was passed with respect to Moldova.

On July 8, 2009, Ukraine's Parliament passed the Law "On Fundamentals of Operation of Market of Natural Gas", which paved the way for signing of the Protocol of Ukraine's accession to the Treaty on September 24, 2010.

On December 15, Parliament ratified the Protocol, making Ukraine a member of the Energy Community.

ANNEX 1

ENERGY STRATEGIES OF UKRAINE AND RUSSIA: GENERAL PRINCIPLES AND APPROACHES (EXTRACTS)

Energy Strategy of Russia through 2030 Approved by the Government of the Russian Federation Resolution No. 1715 of November 13, 2009 (to replace the Energy Strategy of Russia through 2020 approved by the Government of the Russian Federation Resolution No. 1234 of August 28, 2003)[1]	**Energy Strategy of Ukraine through 2030** Approved by the Cabinet of Ministers of Ukraine Resolution No. 145 of March 15, 2006 (As amended by the Cabinet of Ministers of Ukraine Resolution No. 507 of March 26, 2008)
Presence of the basis for the Strategy development – programmes (concepts) of long-term socio-economic development of the country, political doctrines (concepts, directives) in the energy sector	
Concept of long-term socio-economic development of the Russian Federation through 2020 (approved by the Government of the Russian Federation Resolution No. 1662 of November 17, 2008).	There have been no long-term programmes of socio-economic development of Ukraine at the time of the strategy development.
"On guidelines of the energy policy and restructuring of the fuel and energy sector of the Russian Federation through 2010" (approved by the President of the Russian Federation Decree No. 472 of May 7, 1995).	Absent at the time of the strategy development and at present.
Main goal (objectives)	
Main goal – creation of an innovative and efficient energy sector of the country adequate to the growing economy needs of energy resources and to foreign economic interests that will provide the required contribution to socially oriented innovative development of the country.	**Objectives:** • creation of conditions for continuous and sound satisfaction of demand for energy products; • identification of the ways and creation of conditions for safe, reliable and sustainable operation of the energy sector and its utmost efficient development; • guarantee of energy security of the state; • reduction of the technogenic load on the environment and provision of civil defence in the technogenic safety domain in the fuel and energy sector; • reduction of specific costs of production and use of energy products through their rational consumption, introduction of energy saving technologies and equipment, rationalisation of the structure of social production and reduction of the share of energy-intensive technologies; • integration of the United Energy System of Ukraine with the European Energy System with associated growth of electricity export, strengthening Ukraine's position as an oil and gas transit state.
Main objectives (lines)	
Main objectives: • enhancement of the efficiency of reproduction, extraction and processing of fuel and energy resources for satisfaction of domestic and foreign demand; • modernisation and creation of a new energy infrastructure on the basis of large-scale process renovation in the energy sector; • formation of a stable and favourable institutional environment in the energy sector; • enhancement of the energy and environmental efficiency of the Russian economy and energy sector, including through structural changes and intensification of process energy conservation; • further integration of the Russian energy sector in the world energy system.	**Main objectives and lines:** 1.Formation of an integral and effective system of management and regulation in the fuel and energy sector, development of competitive relations on markets of energy resources. 2.Creation of preconditions for a drastic decrease in the energy intensity of the domestic produce at the expense of introduction of new technologies, advanced standards, modern systems of control, management and record at all stages of production, transportation and consumption of energy products; development of market mechanisms for encouragement of energy conservation in all sectors of the economy. 3.Development of the energy sector export potential mainly at the expense of electricity through modernisation and renovation of generating capacities, power transmission lines, including interstate. 4.Development of domestic power engineering industry, instrument making and energy construction sector as a precondition for competitiveness of Ukrainian enterprises in energy projects, including abroad. 5.Optimisation of extraction of domestic energy resources with account of their supply to foreign markets, pricing and geopolitical situation, growth of energy generation and energy products obtained from non-traditional and renewable sources. 6.Diversification of external sources of energy product supply and diversification of routes of their transportation. 7.Creation of a single state system of statistics, strategic planning, monitoring of production and consumption of energy products, formation of balances of their demand and supply. 8.Balancing of the pricing policy with respect to energy products set to ensure coverage of costs of their production and creation of appropriate conditions for reliable operation and sustainable development of the fuel and energy sector enterprises. 9.Regulatory/legal support for implementation of the Energy Strategy objectives with account of the existing international commitments envisaged by the Energy Charter Treaty, the Kyoto Protocol, numerous bilateral international treaties, and requirements of the European energy legislation.

[1] All in all, four long-term energy strategies were developed and adopted in Russia. See: Meshcherin A. Branch policy and state governance. – Neftegazovaya Vertikal, 2010, No. 5, p.6. (*in Russian*).

Phases of the energy policy	
The first phase[2] **tentatively 2013-2015** recovery and creation of fundamentals of a new economy. Respectively, the main objective presumes soonest overcoming of crisis phenomena in the economy and the energy sector for the achievement of a stable pace of economic and energy development envisaged by the Concept and use of opportunities opened up in the crisis period for qualitative renovation and modernisation of the Russian fuel and energy sector. **The second phase** **tentatively 2020-2022** the fuel and energy sector will actively contribute to soonest recovery and further active innovative development of allied industries (machine building, pipe making industry, etc.) through placement of orders for materials and equipment required by the energy sector. **The third phase** **2023-2030** development of the innovative economy; its essence lies in gradual transition to the future energy sector with fundamentally different technological capabilities for further development, relying on highly efficient use of traditional energy resources and new non-hydrocarbon sources of energy and technologies of its generation.	Phases of the energy policy rest on forecasts of the state economy development through 2030, distinguishing three periods. **The first period – till 2010** • period of restructuring of the innovative trend; combines recovery and revival of production with restructuring, sustainable growth of production; • recovery and restructuring of industry, formation of a firm basis for fundamental changes and formation of a rational industrial sector in a longer run; • achievement of sustainable stabilisation and economic growth on the basis of outpacing development of science-intensive sectors, encouragement of industries targeting the domestic market of consumer goods, etc. **The second period – 2011-2020** • period of outpacing development of traditional branches of the service sector; • formation of the basis for the post-industrial production mode. Strategic goal – formation of a single industrial system of the country as an organic part of the European space using all advantages of its resource base, technologies, highly developed intellectual potential of the nation. The period is termed investment-innovative and characterised by transition to the capital-intensive way of development with substantial volumes of investments in fundamental overhaul of all industries. Wide use of the accumulated potential resources for investment is envisaged. **The third period – 2021-2030** • mainly innovative; • completion of transition to post-industrial society with a characteristic change of the economy structure. Strategic goal of the industrial sector development: evolutionary transition to sustainable development in post-industrial global society on the basis of conservation and safety of the human living space, industrial activity with minimal expenditures at the expense of highly efficient use of the material and intellectual potential.
Objectives and main lines of foreign energy policy	
Strategic objective – utmost efficient use of the Russian energy potential for full scale integration in the world energy market, strengthening of its position on it and obtaining maximum benefits for the national economy. The main lines of the energy policy in the field of global energy security meeting the national interests – stable relations with traditional consumers of Russian energy resources and formation of similarly stable relations on new energy markets.	Integration of the Ukrainian energy system in the European as an element of Ukraine's strategic goal of accession to the EU. Integration of the United Energy System of Ukraine with the European Energy System with associated growth of electricity export, strengthening Ukraine's position as an oil and gas transit state.
Plan of measures at the Strategy implementation	
Summary Plan ("Roadmap") of the state energy policy measures through 2030, providing for implementation of Russia's Energy Strategy and being its element.	The Plan of measures for 2006-2010 was approved by the Cabinet of Ministers of Ukraine Resolution No. 436 of July 27, 2006 (amended by the Cabinet of Ministers of Ukraine Resolutions No. 1578 of December 17, 2008, No. 299 of February 24, 2010).
Sources of funding	
Separate measures are funded at the expense of annual state budgets.	Separate measures are funded at the expense of annual state budgets and EU assistance programme funds.
Monitoring of implementation	
Envisaged. Report of implementation of measures envisaged by the Strategy annually submitted to the Government.	Envisaged. Introduction of permanent system of monitoring and planning for the Energy complex.
Strategy review terms	
Not less than once in 5 years.	Not specified (amended by the Cabinet of Ministers of Ukraine Resolution No. 507 of March 26, 2008).
***For reference:* mentions of the strategic partner in the texts of strategies**	
No mention of Ukraine.	29 mentions of Russia in different contexts.

[2] The Energy Strategy of Russia specified conventional phases of implementation of the energy policy. Meanwhile, the Russian expert community distinguishes somewhat different terms of those phases: phase I – 2009-2014; II – 2015-2022; III – 2023-2030. See: Vinogradova O. Russian gas 2009: preliminary results. – *Neftegazovaya Vertikal*, 2010, No. 4, p.20 (*in Russian*).

OPINION

DEVELOPMENT AND EXTRACTION OF DOMESTIC OIL AND GAS RESERVES IS A KEY TO UKRAINE'S ENERGY INDEPENDENCE

Jim BOWN,
CEO, Vanco Prykerchenska Ltd.

In the recent years it has become absolutely clear that development of domestic oil and gas reserves is one of the key preconditions for Ukraine's energy independence, and therefore for its future prosperity. In its turn, such energy independence might fundamentally shift the political situation in the whole region. Ukraine relying on domestic energy resources will never be treated by anyone as a "poor relation". Therefore, development of domestic oil and gas fields on and off shore presents a strategic task, an important factor of national energy independence. In this context, a logical question arises: what has been done, if anything, to this end recently?

Unfortunately, through unreasonable actions of the previous Government that in April, 2008, froze the project of development of the Kerch segment of the Black Sea continental shelf, *Vanco Prykerchenska Ltd.* (VPL) company lost more than two years necessary for the first phase of the segment development. In the result of those steps, having lost the position of a potential leader at the end of 2007, Ukraine now seriously lags behind the neighbouring countries in the development of deep-sea oil and gas fields. Romania, Russia and Turkey are already intensely developing oil and gas fields within their water areas of the Black Sea.

If our activity had not been frozen, VPL might have discovered serious deposits of oil and gas on the Kerch segment as early as October, 2010. But now, such discovery can occur no sooner than 2013. Noteworthy, with the change of Government in early 2010, the attitude to the above-mentioned project also seriously changed. Effective steps were made for amicable settlement of the long-standing dispute between our company and Ukraine's Government. Now, we have all grounds to believe that no new obstacles will arise for successful implementation of the Kerch segment development project, also because time cannot be wasted any longer, we must act. That project might provide the required basis for future energy independence of this country.

Our company plans to start active implementation of an eight-year programme of exploration and development of the Kerch segment in January, 2011. The programme consists of three main phases: two triennial and one biennial. Investments over the entire eight-year period of the programme implementation will total nearly $500 million. For the first three years, we plan a large-scale 3D seismic survey of the Kerch segment seabed on the area of 4,200 km^2, which will enable us to spot two exploratory wells to be drilled. Simultaneously, before the end of the first phase of the project, we plan to lease a vessel for deep-sea drilling of those wells in the places chosen after the 3D seismic survey of the seabed. Drilling of each exploratory well will cost some $100-120 million, and there is no 100% guarantee that hydrocarbon reserves will be found. To be sure, exploration and development of oil and gas fields in deep sea is a very risky and costly process, but we are confident in our success because we have all necessary financial and technical capabilities for successful implementation of the planned exploration and development programme.

What makes us even more optimistic is that Ukraine has a colossal energy potential. This especially refers to the deepwater part of the Black Sea that, according to many expert assessments, conceals billions of cubic metres of natural gas and millions of tons of crude oil. Promising geological structures rich in hydrocarbons are known to lie actually across the whole Black Sea shelf area. If the Government approach is right, the Ukrainian sector of the Black Sea can easily be made an analogue to the North Sea, where Great Britain and Norway get huge benefits from successful exploration, development, extraction of oil and gas, which secured their economic prosperity in course of many years. Ukraine can do the same.

It should be stressed again however that deep-sea development and extraction of hydrocarbons is a very risky and costly process. The same refers to on-shore drilling at depths of 6,000 metres and below. So, Ukraine badly needs serious investments for full-scale development of the domestic oil and gas sector. Furthermore, deep-sea operations require advanced technologies and huge experience of planning and management of such projects.

To raise serious investments and employ advanced technologies, Ukraine should promptly come to terms with foreign oil companies, encourage them to come to the Ukrainian market, to work and invest here. Of course, this can be done if the whole country becomes more attractive for investments.

Investors, especially foreign oil companies, should see incentives to operate on the Ukrainian market, otherwise they will choose other countries to invest. Preconditions necessary for investments include transparency, stability, predictability, along with clarity and simplification of the legislation, especially in the issues of licensing, taxation and payment of royalties. Effective exploration and development of oil and gas deposits in deep sea requires amendment of the Law of Ukraine "On Product Sharing Agreements" for investors to be sure of protection and integrity of their significant investments over the entire term of implementation of their investment projects.

Reforms in the national oil and gas sector necessary to raise foreign investments may be implemented easily enough if the Government has the political will. Only in presence of such political will and a comprehensive strategy of the sector development, Ukraine will be able to start large-scale development and extraction of domestic oil and gas resources that will draw it closer to energy independence. And that is not the only point. Quite probably, with time Ukraine may become an influential and reliable exporter of oil and gas to Europe. If this happens, the European Union will open its door for Ukraine very soon. So, for Ukraine, development and extraction of domestic oil and gas deposits is an economic imperative, not a subject of political play. It is high time to roll sleeves up and actively work together to this end! ■

2. UKRAINE-RUSSIA BILATERAL COOPERATION IN THE OIL AND GAS SECTOR

As we mentioned, the oil and gas sectors of Ukraine and Russia are closely interrelated, first, by Ukraine's large-scale imports of Russian hydrocarbons (mainly natural gas), second, by their transit via Ukraine to other European countries. Today, Ukraine depends on hydrocarbon imports from Russia by 65-70%. On the other hand, Russia's dependence on the Ukrainian GTS in natural gas transit to other European states is close to 75%, in oil transit via the Ukrainian OTS – 10-15%.[1]

The dynamic of indices of such dependence shows that in the past decade Ukraine's dependence on Russian hydrocarbons increased, while Russia's dependence on their transit across Ukraine went down. Currently, Ukraine remains the key transit route for Russian hydrocarbons to the EU countries, but risks are real of it losing its stand, while remaining one of the largest importers of Russian gas and oil.

The main indices describing the oil and gas sectors of the two countries are presented on the Map "*Oil and gas sectors of Ukraine and Russia: main pipeline routes and basic indices*". The brief content of the basic documents shaping the principles of bilateral relations in the oil and gas sector with comments are presented in Annex 1 to this Section.

2.1. UKRAINE'S OIL AND GAS SECTOR

The nature and specifics of the Ukraine-Russia cooperation in the oil and gas sector are mainly determined by the following factors:

- high energy intensity of the Ukrainian economy, combined with the low level of domestic extraction of mineral fuels, bringing about a strong deficit of energy resources the demand for which is covered with imports;
- an excessive share of natural gas in Ukraine's energy balance (up to 40-41%, against 24% in the EU countries and 21% of the world's average);[2] its consumption exceeds 70 BCM a year (including losses and internal consumption in the gas industry); by this indicator, Ukraine is among the 10 world largest consumers of gas;
- non-transparent operation of the sector, companies working in it, and cash flows there, which gives grounds to speak of the high corruption rate in the sector and presence of private interest of a number of Ukrainian and Russian state officials;[3]
- the Russian policy intended to reduce dependence on countries that carry Russian hydrocarbons and at the same time to encourage a high level of consumption of hydrocarbons (first of all, gas) in Ukraine, to retain a large market for its products.

At that, the general standing of the Ukrainian oil and gas sector is deteriorating due to the increasingly worn out infrastructure, protraction of reforms, and, in the recent years, the critical financial standing of the state monopolist, *Naftohaz Ukrajiny* NJSC.[4]

Consumption, extraction and import of hydrocarbons

According to the data quoted in the *Energy Strategy of Ukraine*, the country's total demand for energy resources in 2005 amounted to 200.6 million tons of conventional fuel and was met at the expense of domestic extraction by only some 40%. Respectively, the share of net imports in total primary energy supply amounted to 60.7%. At that, it was noted that the share of gas in the structure of primary energy consumption increased from 1993 till 2005 from 31% to 41%; of oil and petroleum products, on the contrary, decreased from 19% to 17%.[5]

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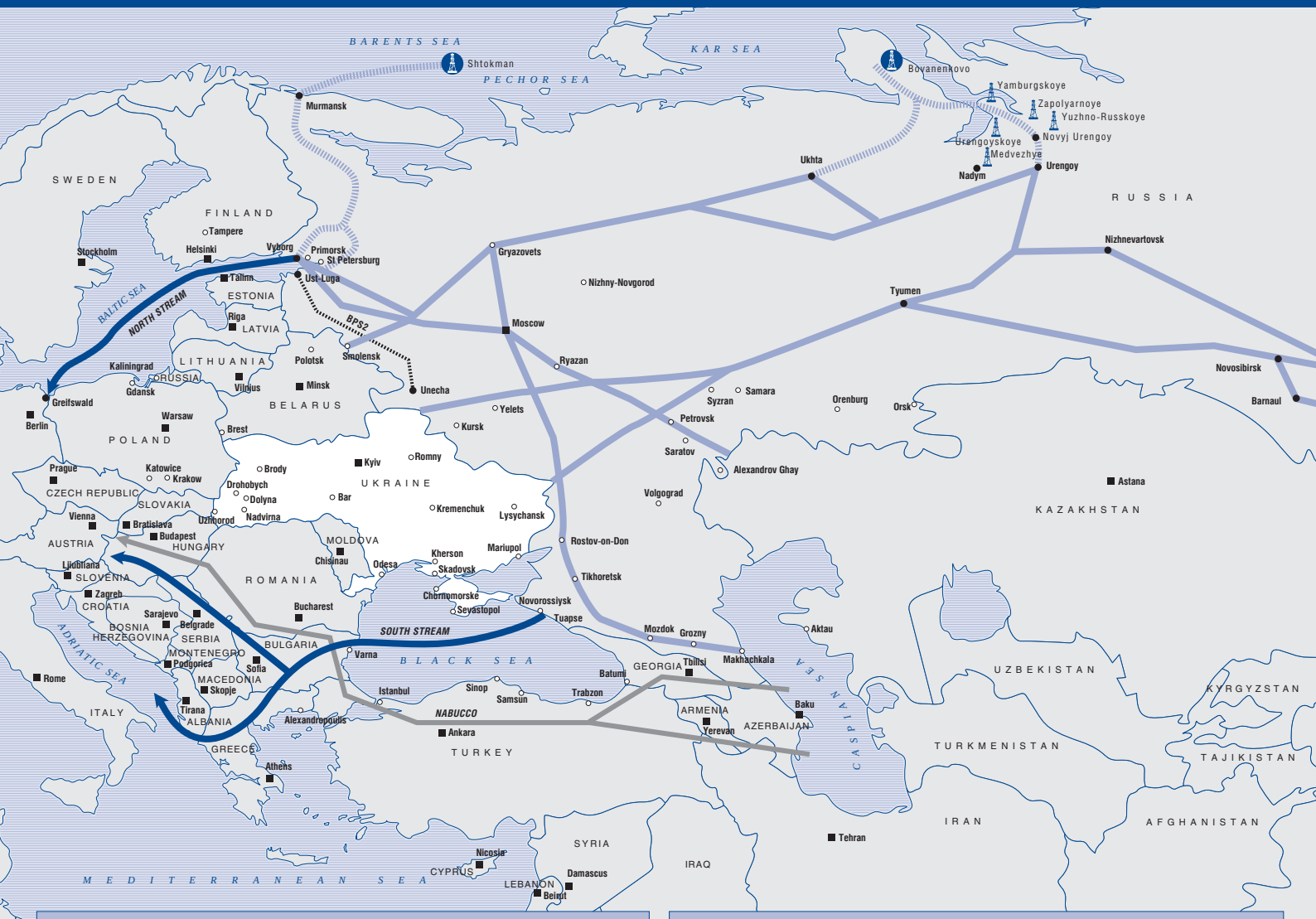
1 Calculated by Razumkov Centre experts on the basis of statistical data released on official websites of the Ministry of Fuel and Energy of Ukraine, RBC News Agency, *Transneft* JSC, *Naftohaz Ukrajiny* NJSC and *Gazprom* OJSC. Data for 2007-2008 were used, since the 2009 figures were not typical due to a serious decrease in hydrocarbon consumption in Europe because of the global economic crisis.

2 Data for 2007-2008. According to *Naftohaz Ukrajiny* NJSC, in 2009, the gas share in the energy balance amounted to 38%. See: Primary energy consumption structure in Ukraine. – *www.naftogaz.com.*

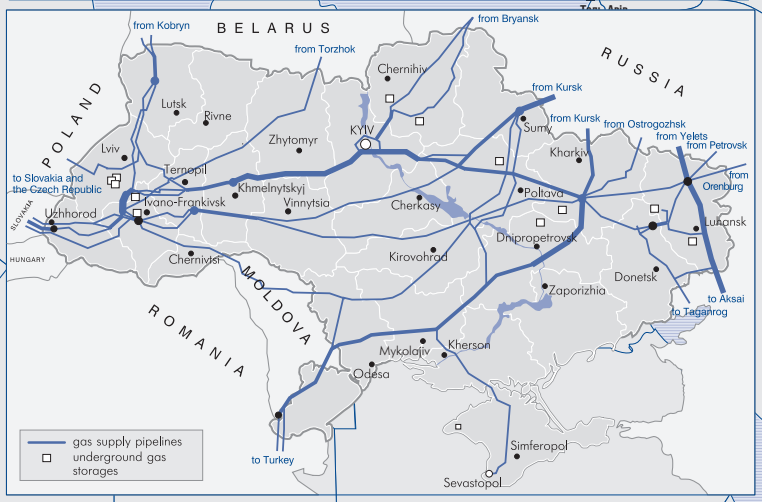
3 For more detail see: Ukraine's oil and gas sector: transparency of operation and incomes. – Kyiv-Sevastopol, 2008, *http://old.ua-energy.org/*.

4 For more detail see: Omelchenko V. *Naftohaz* System: development paradigm and management problems. – *Terminal*, No.13, July 13, 2009 (*in Russian*).

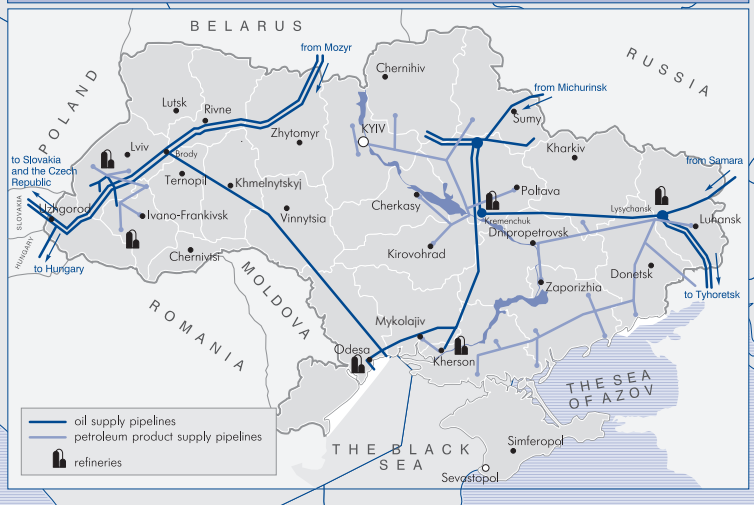
5 Energy Strategy of Ukraine through 2030: Presentation. – Kyiv, Ministry of Fuel and Energy of Ukraine, 2006, p.34-35.



Gas pipelines and underground storages



Ukraine's oil transportation system



UKRAINE'S GAS TRANSPORTATION SYSTEM (GTS)

Main gas pipelines – 39.8 thousand km; 74 compressor stations with the aggregate power of 5450 MW.
Throughput: at input – 288 BCM, at output – 178.5 BCM, in that: 142 BCM – to Central and West European countries; 36,5 BCM – to Russia's southern regions.
Underground gas storage facilities – 13 underground gas storages with the total active capacity of 32 BCM; the GTS network consists of four systems: West Ukrainian, Kyiv, Donetsk, South Ukrainian.
Maximum offtake – 250 million m^3/day.
GTS operator – *Ukrtransgas* state company (subsidiary of *Naftohaz Ukrajiny* NJSC).

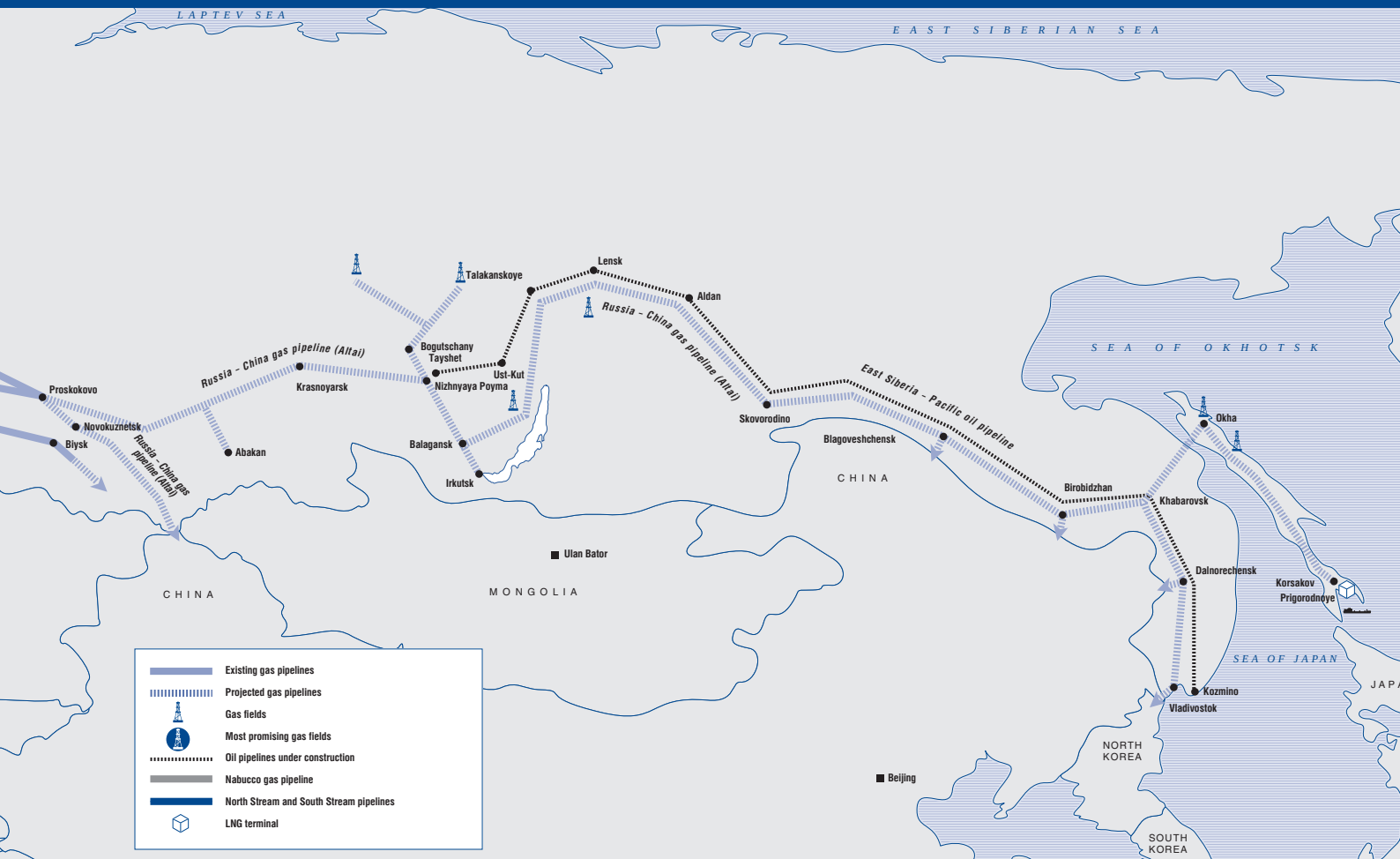
UKRAINE'S OIL TRANSPORTATION SYSTEM (OTS)

Main oil pipelines – 4,671 km; 51 pumping stations; 11 tank batteries (total capacity – over 1 million tons).
Throughput: at input – 114 million tons; at output – 56 million tons.
Oil pipeline systems:

- Druzhba Main Oil Pipelines: from the border with Belarus to Slovakia, the Czech Republic, Hungary and two refineries (Drohobych, Nadvirna); covers almost 100% of Slovakia's and Hungary's demand for crude oil, 60-65% – of the Czech; throughput at input – 34 million tons; at output – 25 million tons (with account of the Odesa-Brody oil pipeline);
- Sub-Dnipro Main Oil Pipelines: from the Russian border to four refineries (Kremenchuk, Lysychansk, Odesa, Kherson) and to export ports on the Black Sea (Odesa, Novorossiysk, Pivdennyj); ensures transit to the port of Odesa used to export Russian and Kazakh oil supplied via the Russian Federation; throughput at input – 80 million tons; at output – 16.5 million tons;
- including the Odesa-Brody oil pipeline and Pivdennyj marine oil terminal (throughput at output – 9-14.5 million tons/year).

OTS operator – *Ukrtransnafta* OJSC (enjoying even the right to set tariffs for non-residents); from 2004, operator of transit routes to Odesa – *International Petroleum Service company (IPS)*, of the Odesa-Brody oil pipeline and Pivdennyj marine oil terminal – *Skilton Ltd*. (both registered on Cyprus).

MAIN PIPELINE ROUTES AND BASIC INDICES



RUSSIAN PROJECTS OF DIVERSIFICATION OF OIL AND GAS EXPORT PIPELINE ROUTES

ACCOMPLISHED

- **BPS1**
  (2006; 75 million tons/year)
- **Blue Stream gas pipeline**
  (2005; 16 BCM/year)
- **Yamal - Europe gas pipeline**
  (2007; 33 BCM/year)
- **North petroleum product pipeline**
  (phase I – 2009; 8.4 million tons/year)

CONSTRUCTION PROJECTS UNDERWAY

- **North Stream gas pipeline**
  commencement of phase I operation – September 2011; 27.5 BCM/year; achievement of designed capacity – November 2012; 55 BCM/year
- **East Siberia - Pacific oil pipeline**
  (ESP) commencement of operation phase I – December 2009; 30 million tons/year; commissioning of the Russia – China oil pipeline branch – September 2010; 15 million tons/year; achievement of designed capacity – 2014; 80 million tons/year
- **BPS2**
  completion of construction – 2012; designed capacity – 50 million tons/year

AGREEMENTS SIGNED

- **North Stream gas pipeline**
  commissioning – 2015; designed capacity – 63 BCM/year; organisational and financial issues not resolved
- **Russia - China gas pipeline (Altai)**
  commissioning – 2015; designed capacity – 30 BCM; period of operation – 2015-2045
- **Sub-Caspian gas pipeline**
  designed capacity – 20 BCM/year; implementation postponed
- **Burgas – Aleksandroupolis oil pipeline**
  designed capacity – 35 million tons/year; implementation postponed

RUSSIA'S OIL AND GAS SECTOR: KEY INDICES[1]

Extraction
oil – 487.6 million tons
gas – 664.0 BCM
idle stock of oil wells - 25 thousand (16% of the operational stock)
oil extraction ratio - 30% (at world leading oil and gas companies - 40%)

Initial aggregate extractable resources on the shelf
Oil – 16.3 billion tons of conventional fuel
Gas – 73.8 billion tons of conventional fuel
70% of oil and gas resources – on the continental shelf of the Barents, Pechora, Kara seas

Proven reserves
Oil – 10.2 billion tons (5.6% of the world reserves)
Oil reserves-to-production ratio – 20 years
Exhaustion of initial oil reserves - 50%
including at basic oil fields – 60%
Exhaustion of basic fields – 65-75%
Yamal – 26 fields (proven reserves – 10.4 trillion m3)
Share of hardly extractable oil reserves at leading oil and gas extracting companies – 30-65%
Funds required for their development over the next 25 years– from $166 to $198 billion
Gas – 48 trillion m3 (23% of the world reserves)
Gas reserves-to-production ratio – 72 years
All in all, attainment of the Russian Energy Strategy tasks will require:
gas extraction – up to $590 billion
oil extraction – up to $625 billion[2]

Prognostic resources
Oil – 39.9 billion tons
Gas – 164.2 trillion m3
(including on the continental shelf – 63,8 trillion m3)

Export to Europe
Oil – some 220 million tons (nearly 30% of consumption)
Gas – 184.4 BCM (33% of total consumption)
Total exports by *Gazprom* OJSC in 2009-2030 - 3.1 trillion m3

Transit dependence on Ukraine
(pipeline transport)
gas – 75%
oil – 10-15%

[1] *Sources:* Energy Strategy of Russia through 2030, approved by the Russian Government Resolution of November 13, 2009. No.1715. – *http://www.energystrategy.ru/projects/es-2030.htm; Mineral Information-Analytical Centre – http://www.mineral.ru; BP Statistical Review of Word Energy*, June 2010 – *http://www.bp.com; Rosstat – http://www.gks.ru; Vedomosti – www.vedomosti.ru; Gazprom* OJSC – *www.gazprom.ru; Transneft* OJSC – *http://www.transneft.ru*

[2] Ibid.

UKRAINE'S OIL AND GAS SECTOR: KEY INDICES (2008)[1]

Extraction
Oil – 4.2 million tons/year
Gas – 21.0 BCM/year

Oil refining – 10.5 million tons
Domestic extraction – 35.7%
Russian oil – 60.5%
Deliveries from alternative sources – 3.8%

Proven reserves
Oil – 116 million tons
Gas – 0.98 trillion m3

Prognostic resources
Oil – 850 million tons
Gas – 5.4 trillion m3

Transit from Russia
Oil – 32.8 million tons
OTS throughput: at input – 114 million tons/year; at output – 56 million tons/year.
Gas – 116.9 BCM
GTS throughput: at input – 288 BCM/year, at output – 178.5 BCM/year (including to Central and West European countries – 142 BCM/year).

Imports from Russia
Oil – 6.2 million tons
Dependence on Russian oil imports 65%
Gas – 56.2 BCM.
Dependence on Russian gas imports 70%

[1] *Sources: Official website of the Ministry of Fuel and Energy of Ukraine – http://mpe.kmu.gov.ua;* Official website of *Naftohaz Ukrajiny* NJSC – *http://www.naftogaz. com; Energy Strategy of Ukraine through 2030 – CMU Resolution "On approval of the Energy Strategy of Ukraine through" №145 of March 15, 2006; RBC News Agency – http://www.rbc.ua.*

In 2006-2007 (years of economic growth in Ukraine) the volume and structure of energy consumption did not change fundamentally. In 2008-2009, energy resources consumption decreased, however, not because of implementation of energy efficient technologies, but due to a production decline in the result of the economic crisis. The same explains some reduction of hydrocarbon imports. Domestic extraction did not change much since its growth is complicated by the exhaustion of its reserves at existing fields and insufficient growth of explored reserves due to underfunding of geological prospecting and bottlenecks of the legislation on the bowels of the earth discouraging long-term investments in the sector.[6]

Oil: demand, extraction, imports. According to estimates, the Ukrainian economy's demand for oil is close to 20 million tons a year. Meanwhile, in the past decade domestic extraction did not exceed 4.5 million tons a year.[7] This means that domestic extraction covers only some 20% of the demand; the rest of oil and petroleum products is imported, mainly from Russia, and also Belarus, Lithuania, etc. Oil is extracted mainly by *Ukrnafta* OJSC (over 3 million tons a year).[8]

Ukraine has a potentially powerful (52 million tons a year) oil refining industry (Insert "*Ukrainian oil refineries*").[9] However, the wear-and-tear of fixed assets of the refineries hit 70%; the oil conversion rate is rather low (on the average – 60%);[10] starting from 2005, refineries continuously experience lack of raw materials due to regular shortage of supply of Russian oil and limited access to alternative sources.

At that, it should be noted that by the end of 2007 four out of six Ukrainian oil refineries (73% of total capacities) belonged to or were controlled by Russian companies.[11] During privatisation of the sector enterprises preference was given to Russian companies since it was expected that they would be able to ensure supply of raw materials and modernisation of oil refineries. However, this did not happen. After a few years of growth of oil deliveries to Ukrainian refineries (2001-2004) the situation began to deteriorate. It may be assumed that the strategy of Russian companies – owners of Ukrainian refineries envisages not modernisation of their facilities and supply of quality petroleum products to the Ukrainian market, but their involvement in the process flow where deep processing of oil is performed at more modern oil refineries in Southern and Eastern Europe, including for local fuel station chains owned by Russian companies.[12]

By and large, capacities of Ukrainian oil refineries in the recent years have been used by only 20-25%, on the average,[13] while Ukraine remains a net importer of petroleum products from 2006. The situation is further aggravated by the unfavourable investment climate in the sector, especially recently – because of a conflict concerning ownership rights to *UkrTatNafta* PJSC (Insert "*Conflict concerning ownership rights to UkrTatNafta PJSC*").

UKRAINIAN OIL REFINERIES

Refining of oil (and gas condensate) and production of petroleum products in Ukraine can be performed at six refineries (in Drohobych, Kremenchuk, Lysychansk, Nadvirna, Odesa and Kherson) and seven gas processing plans, the largest – in Shebelynka. All refineries were built and/or overhauled in 1960-1970s and designed for processing of "heavy" oil (with high sulphur content) and production of primary petroleum products. Their aggregate capacity at the beginning of 1990s amounted to 52 million tons/year.

In 1990s volumes of oil processing at Ukrainian refineries sharply declined: from 52 million tons in 1991 to 8.5 million tons in 2000. After privatisation of Lysychansk and Odesa refineries in early 2000s by powerful Russian oil companies TNK-BP and Lukoil, respectively, said volumes increased 2.5 times – to 21.2 million tons in 2004.[14] At that time, Ukraine was a net exporter of petroleum products.

However, since 2005, there has been a trend towards a decrease in Russian oil deliveries to Ukrainian refineries not adequately offset by alternative sources. All in all, in 2004-2009, imports of Russian oil fell more than three-fold – from 20.8 million tons to 6.4 million tons a year, the total volume of oil refining – almost two-fold (to 11.5 million tons a year).

In 2009, oil refining volumes made only 54% (or 11.5 million tons) of the 2004 level. The share of the Russian oil in total deliveries made 66.1%, domestic extraction – 25.8%, deliveries from alternative sources – only 8.1%.[15]

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6 For more detail see, e.g.: Patrick van Daele. Investment climate in Ukraine's oil and gas sectors: the ways of improvement. – *National Security & Defence*, 2008, No.8, p.40-41;

7 2000-2007 witnessed a small, but steady increase in extraction of oil (including gas condensate), totally – from 3.7 million tons to 4.5 million tons. However, in the crisis years of 2008-2009 its volume decreased (4.3 and 4 million tons a year, respectively). *Source:* Ukraine Statistic Yearbook 2009, p.115.

8 *Ukrnafta* OJSC is managed by *Naftohaz Ukrajiny* NJSC. All in all, companies belonging to *Naftohaz* account for over 90% of oil and gas extraction in Ukraine.

9 For more detail see: Ukraine's oil refining industry: the current state, problems, and prospects. Razumkov Centre analytical report. – *National Security & Defence*, 2006, No.3, p.15-34; Diversification projects in Ukraine's energy sector: progress, problems, and ways of implementation. Razumkov Centre analytical report. – *National Security & Defence*, 2009, No.6, p.26-37.

10 From 46% at Kherson to 74% at Nadvirna oil refineries. The Fuel and Energy Ministry gives other data of the average rate of oil conversion at Ukrainian oil refineries – 75%, but many experts consider that figure overstated by 10-15% due to the difference from the international assessment methods.

11 For instance, the Odesa oil refinery was privatised by the Russian company Lukoil; Lysychansk – by the Russian-British *Tyumen Oil Company – British Petroleum* (*TNK-BP*); Kherson – managed by the *Russian Alliance Group* OJSC; nearly 57% of the Kremenchuk oil refinery shares belonged to structures from Tatarstan and a few companies incorporated in different countries.

12 For more detail see: Riabtsev L., Sapehin S.V., Lir V.E. Petroleum products in Ukraine: the present and the future. – Kyiv, 2008, p.142-151 (in Russian).

13 Drohobych and Nadvirna oil refineries – by 8-12%; Kremenchuk – 20%; Lysychansk – 30%; Odesa – 50%; Kherson oil refinery – stands idle.

14 State support for Ukrainian export. – Official website of the Ministry of Economy of Ukraine, *http://ukrexport.gov.ua/ukr/prom/ukr/16.html*

15 Official website of the Ministry of Fuel and Energy Ukraine. – http://mpe.kmu.gov.ua. The difference between the figures of oil imports and refining is attributed to carryover in tanks intended for use in subsequent periods.

CONFLICT AROUND *UKRTATNAFTA* PJSC

A serious problem in Russian-Ukrainian relations in the oil refining sector remains to be posed by the dispute about restoration of ownership rights of Russian shareholders (the Government of Tatarstan and *Tatneft* oil company) in *UkrTatNafta* PJSC (before 2010, CJSC), which they lost to the benefit of private shareholders of *Privatbank* Joint-Stock Bank. In June, 2010, the Governments of Russia and Ukraine agreed to formalise negotiation of that problem, but it cannot be resolved on the governmental level, since it lies in the domain of the law and may be settled only in court.

The conflict was developing as follows.

In 1994, Ukraine and Tatarstan established *UkrTatNafta* CJSC on the basis of the Kremenchuk Refinery. As a result, the Ukrainian state in 2007 was left with approximately 43% of shares, the Tatar party controlled approximately 56% of the company shares: 28.8% belonged to the Ministry of Land Property of Tatarstan, 8.6% – to *Tatneft* OJSC, another 10% and 8.3% – to business entities affiliated with *Tatneft* OJSC: *Seagroup International Inc*. (the USA) and *Amruz Trading AG* (Switzerland), respectively; 1.2% of shares were held by *Korsan* LLC (related with *Privatbank* Joint-Stock Bank owners).[16]

In 2009, the Higher Business Court of Ukraine sustained the Poltava Regional Business Court Ruling that ruled unlawful transfer of *UkrTatNafta* CJSC shares to *Seagroup International Inc*. and *Amruz Trading AG* and Tatarstan's acquisition of 28.8% of the company shares due to the breach of the authorised fund creation procedure.[17] Later, *Korsan* LLC bought by auction a 18.3% block of shares of *UkrTatNafta* CJSC for UAH 2.1 billion.[18]

In such situation, *Tatneft* oil company that used to be the main supplier of raw materials to the Kremenchuk Refinery stopped oil shipments to the factory and filed a suit against Ukraine to the international arbitration, claiming reimbursement of inflicted damages. After Yanukovych was elected Ukraine's new President, Tatarstan's Prime Minister Minnikhanov said that Tatarstan was hoping for resumption of *UkrTatNafta* CJSC operation in the form of a joint venture.

In February 2010, a shareholders' meeting of *UkrTatNafta* CJSC was held to elect a new Supervisory Board, wanted by *Privatbank* owners, and approve the sale of nearly 47% of the company shares to their benefit. This became possible after the Supreme Court ruled their acquisition by *Amruz Traiding AG*, *SeaGroup International Inc.* and the Ministry of Land Property of Tatarstan illegal. Therefore, *Privatbank* owners with assistance from the previous leadership of *Naftohaz Ukrajiny* NJSC obtained full operational control of the largest oil refining complex in the country. Now, they can disrupt shareholder meetings, as the state does not have the required number of votes to arrange them (the quorum makes 60%).

The new Government of Ukraine led by Azarov decided to return the Kremenchuk Refinery into state ownership. The Ministry of Fuel and Energy filed a cassation to the Higher Business Court, requesting return of the integral property complex of the Kremenchuk Refinery into state ownership. The cassation was filed on March 29, 2010, against the Kyiv Business Court of Appeal Ruling of February 18, 2010, that sustained the first instance court ruling and refused to claim the integral property complex of the refinery from *UkrTatNafta* PJSC.[19]

Hence, extension of preferences to Russian oil companies during privatisation of the Ukrainian oil refining sector gave into their hands the overwhelming majority of Ukrainian oil refining capacities, but failed to lead the branch out of stagnation or seriously enhance the competitiveness of its products.[20] Such situation may be attributed to the state's inability to get rid of the monopoly influence of the sole source of supply or to provide effective incentives for investment in overhaul and modernisation of oil refineries.

Natural gas: consumption, extraction, import. As we noted, gas ranks first in Ukraine's energy balance. In 2000-2008 its consumption somewhat decreased (from 73.4 to 66.3 BCM), and in the crisis year of 2009 equalled 51.9 cu.m.

Although domestic extraction of gas a bit increased in that period (from 18.1 in 2000 to 21.2 BCM in 2009), it covers, as before, only approximately 27-30% of the domestic demand, and Ukraine had to import big volumes of gas. In particular, in 2008 it imported 56.2 BCM of gas; in 2009 – only 27 BCM.[21] However, this reduction was mainly caused by the crisis- prompted production decline, and as the country goes out of the crisis, imports will grow, since consumption will go up – in 2010 it will make some 55-57 BCM.[22]

Noteworthy, starting from 2006, **Russia is the only source of gas, since after that Ukraine lost the opportunity to buy gas from Turkmenistan under direct contracts and appeared fully dependent on *Gazprom* OJSC deliveries (made solely through a mediator – Swiss-registered *RosUkrEnergo* company).**[23]

Pursuant to the provisions of the contract of gas purchase/sale between *Naftohaz Ukrajiny* NJSC and *Gazprom* OJSC for 2009-2019, Ukraine will annually buy up to 40 BCM of gas (including in 2010 – 36.5 BCM), being one of the highest figures among European countries.

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[16] *Source*: Ukraine took *UkrTatNafta* under its control. – *Newsru.ua*, July 11, 2007, *http://www.newsru.com.ua/finance/11jul2007/ukrtatnafta.html* (*in Ukrainian*).

[17] Court ruled unlawful Tatarstan's purchase of 28.8% of *UkrTatNafta*. – *Finance.ua*, March 10, 2009, *http://news.finance.ua/ru/~/1/0/ua/2009/03/19/155176* (*in Russian*).

[18] *Source*: Court did not let Fuel and Energy Ministry take property of Kremenchuk Refinery from *UkrTatNafta* CJSC. – *Newsru.ua*, July 18, 2010, *http://www.newsru.ua/finance/18feb2010/npz.html* (*in Ukrainian*); Korsan transferred UAH 2.1 billion for purchase of 18.3% of *UkrTatNafta*. – UNIAN, July 8, 2009, *http://economics.unian.net/rus/detail/16339* (*in Russian*).

[19] Kremenchuk Refinery wanted by the state. – Ekonomichna Pravda, April 8, 2010, *http://www.epravda.com.ua/news/4bbd861a08823* (*in Ukrainian*).

[20] For more detail see: Ukraine's oil refining industry: the current state, problems, and prospects..., p.15-34; Creation of strategic stocks of oil and oil products in Ukraine: current status, problems, search for solutions based on the international experience. Razumkov Centre analytical report. – *National Security & Defence*, 2007, No.4, p.18-23.

[21] Source: *Gazprom in questions and answers – Gazprom in questions and answers* website, 2010, p.52, *http://gazpromquestions.ru/fileadmin/files/2008/ALL_rus_23_04_10.pdf*.

[22] Also treated as the factors of import cuts in 2009 were gas supply limitations by *Naftohaz Ukrajiny* NJSC for thermal energy generation and industrial enterprises due to deterioration of the discipline of settlements for consumed fuel. See: Balance of natural gas for Ukraine in December and over 12 months of 2009. – Monitoring by *EnergoBiznes* magazine, January 19, 2010 (*in Russian*).

[23] After 1992, Russia and Turkmenistan were the main exporters of gas to Ukraine. At that, in 1998-2005, Ukraine was getting Russian gas mainly as payment for its transit (25-32 BCM a year); Turkmen gas was delivered to Ukraine by the Russian GTS. For more detail see: Gas markets of the EU and Ukraine: problems of development and integration. Razumkov Centre analytical report. – *National Security & Defence*, 2008, No.8, p.29.

Transit capacities and transit

Transit capacities are especially important for Ukraine, since they let the country not only get substantial hard currency proceeds to the budget, but also have a say on the international energy market.[24] According to the International Energy Agency (IEA) report, Ukraine "is the largest gas transit country in the world by volume and also hosts major oil transit routes"; Europe obtains through Ukrainian transportation systems nearly 80% of Russian gas and up to 17% of oil.[25]

Meanwhile, in the recent years the utilisation rate of Ukraine's transit capacities goes down, in view of the above-mentioned implementation of the Russian policy of the decrease of dependence on transit countries and construction of transportation routes bypassing their territories. On the other hand, after "gas conflict" in January, 2006, the EU, too, pays more attention to alternative routes of hydrocarbon transportation. By and large, in 2008, the transit capacities of the Ukrainian OTS were used by only 30%; GTS – by 80%.

Oil transportation system (OTS) and oil transit. The Ukrainian OTS so far remains the second largest in Europe. In 2002, construction of the Odesa-Brody oil pipeline and Pivdennyj maritime oil terminal (capacity – 9 million tons a year) was completed, providing new opportunities for oil transit, in particular, of Caspian grades delivered by tankers to the Pivdennyj maritime oil terminal for subsequent transportation by the Odesa-Brody oil pipeline to the EU countries.

However, in 2004 the Governments of Ukraine and the Russian Federation made the Agreement of oil transit across Ukraine (2004 Oil Agreement for 2004-2019), whereby the oil pipeline was operated in the reverse mode for export of Russian oil. Use of the Odesa-Brody oil pipeline in the reverse mode was actively lobbied by the Russian-British company *TNK-BP* that promised guarantees of its full load. However, those guarantees were not specified in the Agreement, and after its signing the oil pipeline was operated by Cyprus-based *Skilton Ltd.* company that had no obligations whatsoever as to its filling.

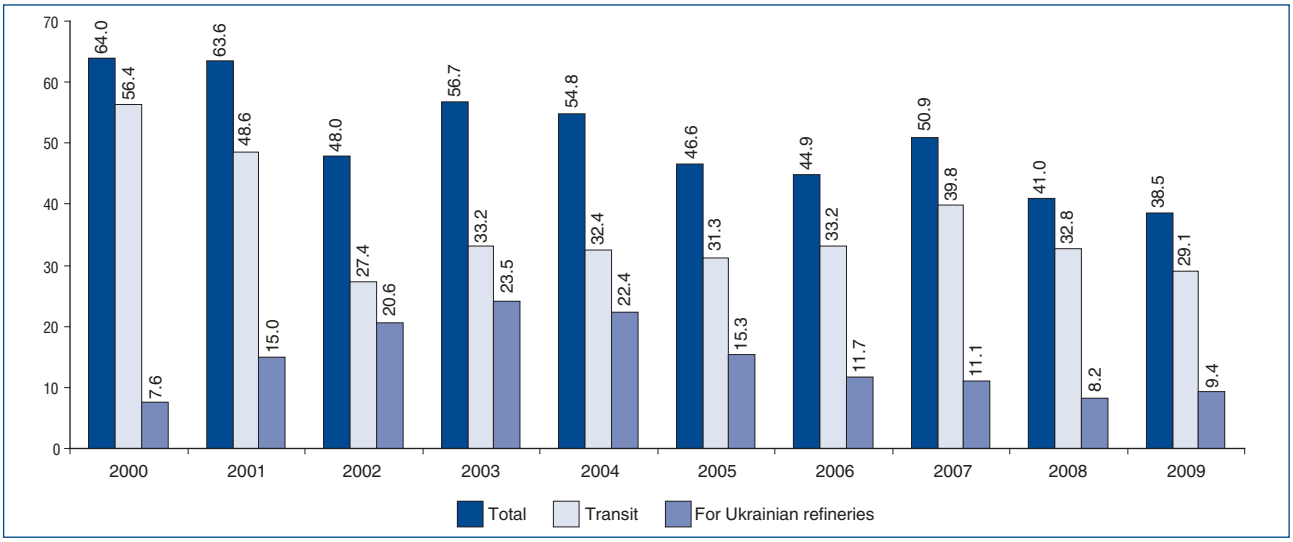
Other provisions of the Agreement took the right to enter contracts of transit services with Russian consignors from the Ukrainian OTS operator (*Ukrtransnafta* OJSC) and gave it to its Russian partner – *Transneft* JSC. Therefore, the Ukrainian operator in fact appeared fully dependent on the Russian company (furthermore, not responsible for observance of the transportation schedule), while Ukraine largely ceded the right to manage its OTS, since transportation contracts are made by *Transneft* JSC or operator other companies, while the conditions of transportation remained unknown for the state.[26]

The main factor influencing the Ukrainian OTS utilisation rate is presented by the above-mentioned Russian strategy of reducing dependence on transit countries by building oil transportation capacities bypassing their territories. For instance, construction of the Sukhodolnaya-Rodionovskaya bypass oil pipeline in 2001 and creation of a new export route going to Primorsk seaport (BPS phase I) caused a sharp decline in the volume of Russian oil transit by the Ukrainian OTS.

All in all, in 2000-2009, oil transit fell almost two-fold – from 56.4 million tons to 29.1 million tons (Diagram *"Volumes of pipeline transportation of oil in 2000-2009"*).[27] Hence, the Ukrainian OTS capacities were used only by a third, which substantially raised specific oil transportation costs.

The Odesa-Brody oil pipeline was fully loaded only in 2007, in the other years it was used by 38-86%, and since August, 2010, the oil pipeline has been standing idle (even for supply of oil to *Lukoil's* Odesa oil refinery.

Volumes of pipeline transportation of oil in 2000-2009,
Million tons



[24] Other possibilities include export of electricity and participation of Ukrainian companies and specialists in energy projects beyond the country borders.

[25] As of 2005 See: Ukraine: energy policy review 2006. – International Energy Agency, p.33. – *http://www.iea.org/textbase/nppdf/stud/06/Ukraine2006-UKR.pdf.*

[26] For more detail see: Ukraine's oil and gas sector: transparency of operation and incomes..., p.95-97.

[27] Source: official website of *Naftohaz Ukrajiny* NJSC. – *www.naftogaz.com.*

During negotiation of the new Ukraine-Russia agreement of oil transit across Ukraine in September-October, 2010, the Russian party refused to provide guarantees of transit volumes, including due to insufficiency of oil flows, as was officially announced by the Russian Minister of Energy. He also said that the Ukrainian direction was not a priority for Russian companies, and in this connection, the transit tariff suggested by the Ukrainian party was overstated.[28]

The absence of guarantees of Russian oil transit volumes (in particular – load of the Odesa-Brody oil pipeline) was among the drivers for the Governments of Ukraine and Belarus to make an agreement of Venezuelan oil transportation to the Mazyr oil refinery on November 1, 2010. In its pursuance, *Ukrtransnafta* OJSC signed a mid-term contract (2011-2013) for transit of up to 8 million tons of Venezuelan oil a year by the Odesa-Brody oil pipeline.[29] On November 23, 2010, test pumping of oil along the Odesa-Brody-Mazyr route was accomplished and witnessed technical readiness of the oil pipeline for operation in the straight mode.[30]

On November 26, 2010, the Intergovernmental Agreement of Oil Transit was signed. In 2011, the Russian party is to supply only 17 million tons instead of 30 million tons wanted by Ukraine. However, even that volume is not guaranteed, since Russia seeks to fill the BPS.[31]

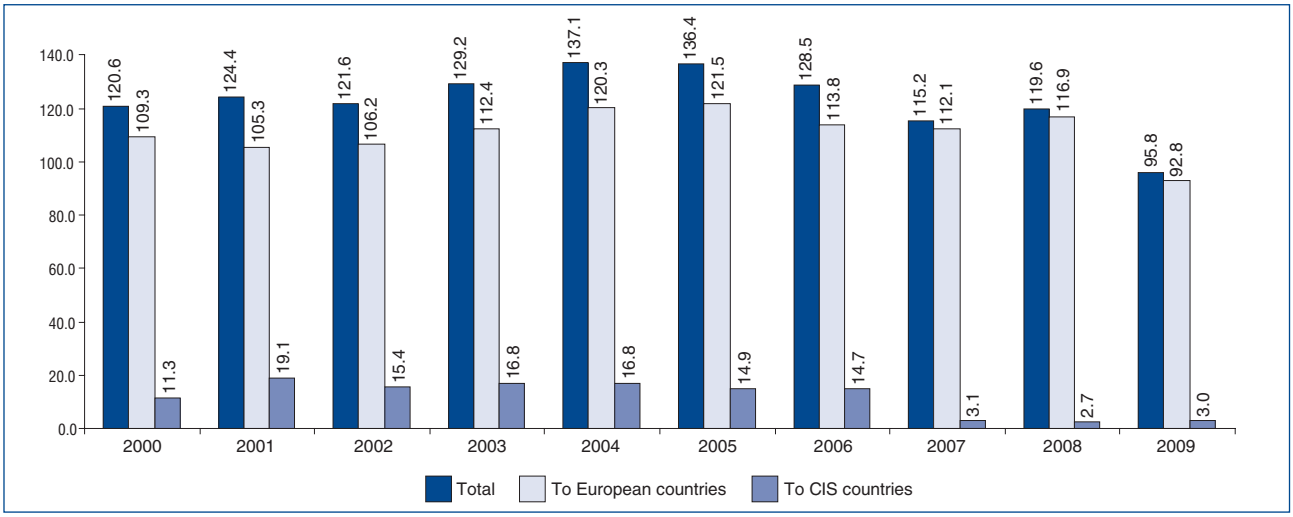
Therefore, there are grounds to assume that Russia's insistence on the Odesa-Brody oil pipeline operation in the reverse mode (despite its evident economic unsoundness) was intended to bar diversification of oil supply sources for Ukraine and win time to build bypass oil pipelines. However, this would have been impossible without the consent and involvement of Ukrainian officials as well as appointment of offshore oil companies operators of some Ukrainian oil pipeline routes and handling services: *Collide SA* and *Collide Ltd*. (oil handling at the Pivdennyj maritime oil terminal), *IPS* (handling in the port of Odesa), *Skilton Ltd*. (employment of the Odesa-Brody oil pipeline system).[32]

Employment of non-transparent schemes involving said offshore companies resulted in overstated tariffs of oil transit and handling, which undermined the competitiveness of the Ukrainian OTS, caused substantial losses for *Ukrtransnafta* OJSC and the state budget, and shattered the investment attractiveness of the Ukrainian OTS and Ukraine as a whole.

In the end result, Ukraine has actually lost its status of the main transit state for Russian oil and an opportunity to employ its OTS and oil refining capacities in volumes envisaged by its *Energy Strategy* in the near future.[33]

Gas transportation system (GTS) and gas transit.[34] The Ukrainian gas transportation system, as well as the OTS, is the second most capacious in Europe (after Russian). In 2000-2008, transit of Russian gas to European countries by the Ukrainian GTS on the average amounted to 110 BCM a year. In 2009, due to the decline of demand for gas because of the economic crisis and the January Russian-Ukrainian gas conflict, it fell record-low since 1991 to 92.8 BCM (Diagram "*Volumes of Russian gas transit in 2000-2009*"[35]).

Volumes of Russian gas transit in 2000-2009,
BCM



[28] The Russian Minister of Energy Shmatko explained the Russian stand as follows: "…We really have no guaranteed volumes, and one should realise that *Transneft* transportation company can give no guarantees". See: Agreement of oil transit across Ukraine initialled. – *Dzerkalo Tyzhnya*: News, October 27, 2010, *http://news.dt.ua*.

[29] The Agreement of oil deliveries from Venezuela to Belarus was signed by Presidents of the two countries in March, 2010. In 2010, Venezuela is to supply to Belarus 4 million tons, in 2011 – 10 million tons of oil extracted by the Belarus-Venezuela JV *Petrolera BeloVenesolana*.

[30] See: Ukraine to transport to Belarus 8 million tons of oil. – Ministry of Industry, November 1, 2010, *http://minprom.ua*; Ukraine and Belarus signed an agreement of Venezuelan oil delivery by the Odesa-Brody oil pipeline. – NEWSru.ua, November 1, 2010, *http://rus.newsru.ua* (*in Russian*).

[31] No-guarantee service. – *Kommersant Ukraine*, November 29, 2010 (*in Russian*).

[32] *Ibid*., p.20, 97-98.

[33] For more detail see: Ukraine's oil and gas sector: transparency of operation and incomes..., p.95-97.

[34] See also: Gas markets of the EU and Ukraine: problems of development and integration..., p.18-29.

[35] Source: Official website of *Naftohaz Ukrajiny* NJSC. – *www.naftogaz.com*.

However, in the first half of 2010, exports of Russian gas to Europe increased by 50% (including to Central and West European countries – by 15%; to CIS and Baltic states – three-fold), which led to the growth of transit across Ukraine by 30.4%.[36] Meanwhile, in the second half of the year transit to South European countries declined, and it should be expected that at the year end transit of Russian gas by the Ukrainian GTS will make nearly 100 BCM.

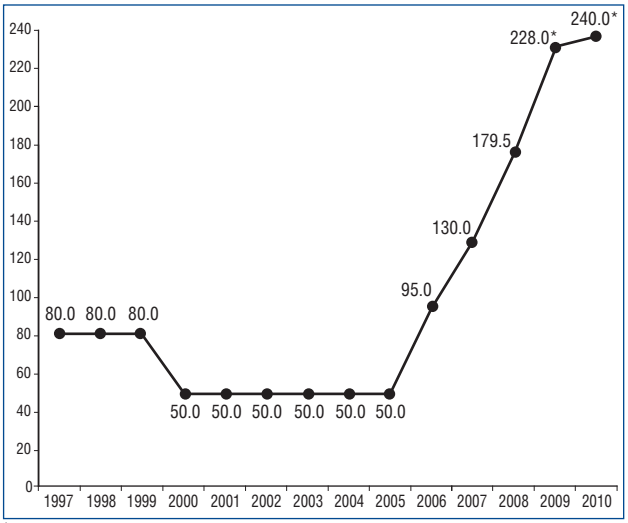
Gas price / transit tariffs[37]

In 1997-2005, the value of Russian gas for Ukraine was tied with the rate of its transit across Ukraine. In 1997-1999, it was equal to $80 – with the transit rate of $1.75; in 2000-2005 – $50 with the transit rate $1.09.

From 2006, the Agreement on Regulation of Relations in the Gas Sector among *Gazprom* OJSC, *Naftohaz Ukrajiny* NJSC and *RosUkrEnergo* company broke the linkage between the gas price and the transit rate.[38] Under the Gas Purchase and Sale Contract between *Gazprom* OJSC and *Naftohaz Ukrajiny* NJSC of January 19, 2009 (2009 Gas Contract), the gas value is now determined by a "formula" making it dependent on black oil and gas oil prices (Diagram *"Cost of Russian gas for Ukraine in 1994-2010"*).[39] At that, the basic price set by the Contract is the highest in Europe; the Contract also provided unreasonably strict sanctions for undertaking contracted volumes and/or breach of payment terms.

On April 21, 2010, following the Kharkiv Agreement (that, as we mentioned, linked the rent for the Russian Black Sea Fleet stationing in the Crimea with Russian gas prices for Ukraine), an Annex to the Contract was signed (Insert *"Annex to the 2009 Gas Contract"*).

Cost of Russian gas for Ukraine in 1994-2010
(at the Russian-Ukrainian border), $/thousand m³



* – year-average.

ANNEX TO THE 2009 GAS CONTRACT

- the pricing formula, the basic gas price ($450) and the "take or pay" provision remained unchanged;
- the price reduction by $100 (but no more than 30%) applies only to 30 BCM delivered in 2010, and 40 BCM in the following years;
- in 2010, Ukraine is to increase gas purchases to 36.5 BCM, which is 2.8 BCM higher than previously planned (33.75 BCM);
- Ukraine is to pay 80% of the gas value by the 6th day of the following month, 20% – by the 20th day of the following month;
- the transit rate remained unchanged (depends on the inflation rate and the fuel input), but due to the gas price reduction, it will automatically go down;
- sanctions for extra-contractual siphoning of gas remained unchanged.

According to the Annex, the basic price in the "formula" specified by the 2009 Contract remained the same – $450, while the "discount" is provided through cancellation or reduction of the gas export duty (payable by *Gazprom* OJSC) by the Russian Government Resolution.

This **"reduction" was presented in mass media by the Russian and Ukrainian leadership as a Russian investment of $40 billion in the Ukrainian economy over the next 10 years.[40] However, such statements do not rest on facts and are intended only to calm down the public opinion in Ukraine.**

In reality, Ukraine gets no preferences and benefits whatsoever.

***First*, "discount" prices for Ukraine entirely meet the level of Russian gas prices for other European countries, for which, no discount is provided**. In particular, Table *"Comparative prices of imported gas for Ukraine and Germany"*[41] shows that the value of gas for Ukraine in the 2nd quarter of 2010 (after the Kharkiv Agreement) became $83 lower than for Germany. However, for correct comparison, transportation costs of *Gazprom* OJSC should be taken into account, for gas delivery to Germany more than $50 higher than for delivery to Ukraine. There are other factors, too, entitling Ukraine to an extra discount:

(1) Ukraine is one of the largest consumers of Russian gas;

(2) *Gazprom* OJSC subsidiary (*Gazpromsbyt Ukraine*) got 25% of the most liquid Ukrainian market of industrial enterprises;

[36] Sources: Rosstat: gas extraction in the Russian Federation in the first half of the year increased by 21.3%, to 334 BCM. – *Neft Rossii*, July 16, 2010, *http://www.oilru.com*; Information report of basic indices of development of branches of the Ukrainian fuel and energy sector. – Official website of the Ministry of Fuel and Energy of Ukraine, July 15, 2010, *http://mpe.kmu.gov.ua*

[37] Hereinafter, speaking of gas price and transit tariffs, the price of 1,000 cu.m of gas and the tariff charged for pumping of 1,000 cu.m of gas per 100 km are meant.

[38] The Agreement was signed on January 4, 2006.

[39] Data of Razumkov Centre experts. See also: Honchar M. Gasocracy. – *Ukrajinskyj Tyzhden*, 2010, No.37, p.26 (*in Ukrainian*).

[40] See: D.Medvedev: Agreement of extension of the Russian Black Sea Fleet stationing in the Crimea provides for "transfer of equivalent of actually $40 billion to Ukraine". – RBC News Agency, May 18, 2010. *http://www.rbc.ua* (*in Ukrainian*).

[41] Source: Pirani S., Stern J., Yafimava K., "The April 2010 Russo-Ukrainian gas agreement and its implications for Europe." – Oxford Institute for Energy Studies, June 2010, p.20.

Comparative prices of imported gas for Ukraine and Germany
(long-term contracts)

At the border $/thousand m³	2009 Q1	2009 Q2	2009 Q3	2009 Q4	2010 Q1	2010 Q2
Average for Germany	398.00	300.83	259.50	281.00	280.66	318.96
Estimated for Ukraine on the basis of the basic contractual price	450.00	338.68	247.50	260.62	305.40	336.00
Actual for Ukraine*	360.00	270.95	198.00	208.50	305.40	236.00

* With account of the 20% discount for 2009 and the discount under the Kharkiv Agreement of April 21, 2010, effective from the 2nd quarter of 2010.

(3) to ensure reliability of transit, Ukraine every year for its own expense keeps significant volumes of gas in underground storages.

Therefore, the present price of Russian gas for Ukraine (with an alleged discount) may well be termed "fair market", compared to prices in the EU, while the previous one, set by the 2009 Gas Agreement, was clearly overstated.

***Second*, the price "discount" is conditioned by cancellation or reduction of the gas export duty – if envisaged by a Resolution of the Russian Government**. This lets the Russian Government in case of problems with Ukraine's fulfilment of the 2010 Kharkiv Agreement to return to the prices effective before the Annex was signed.

Therefore, the Agreement **imposed a rigid mechanism of guarantees for Russia ruling out its denunciation without huge economic losses for Ukraine. If Ukraine ventures it, it will have not only to return to discriminatory for it conditions of Russian gas purchase, but also to repay the amounts of "discounts" obtained for consumed gas.**

Strategy of Ukraine's oil and gas sector development

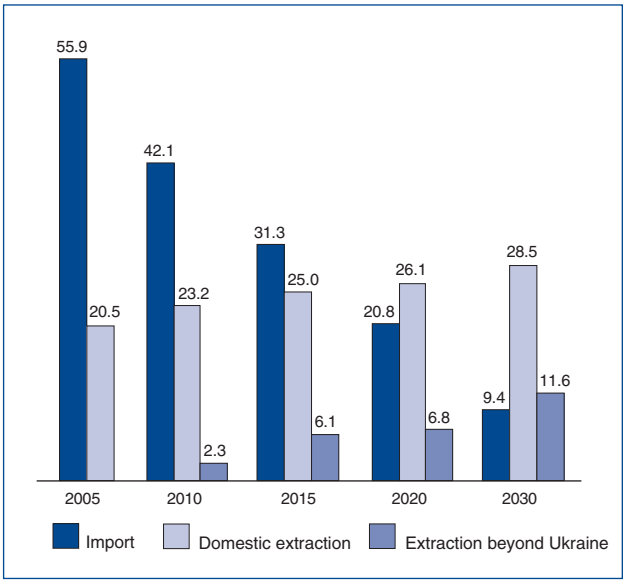
The prospects of development of the Ukrainian oil and gas sector through 2030 are set out by the *Energy Strategy of Ukraine*. It pays particular attention to the decrease of the national economy dependence on gas consumption and growth of hydrocarbon transit capacities of the oil and gas transportation systems.

Gas consumption and import. The *Energy Strategy* generally correctly identifies the energy policy trend towards a decrease in Ukraine's gas dependence through reduction of gas consumption, including imported. It envisages a decrease in gas imports from 55.9 BCM in 2005 to 20.8 BCM in 2020 and to 9.4 BCM in 2030 (Diagram *"Forecast of natural gas extraction and import to Ukraine for domestic consumption").*

However, the *Energy Strategy* seems overly optimistic concerning gas extraction beyond the country borders and deliveries of pipeline gas from Turkmenistan and Iran (including if Ukraine joins the *NABUCCO* project), while overlooking the potential reduction of gas consumption through enhancement of energy efficiency of the economy.

Gas transportation. According to the *Energy Strategy*, by 2030, the load on Ukraine's GTS at its

Forecast of natural gas extraction and import to Ukraine for domestic consumption,
BCM



"output" to Central and West European countries is not only to be raised to the designed capacity of 140 BCM a year, but increased by 30-35 BCM a year (to 170-175 BCM a year) through building compressor stations on the Torzhok-Dolyna gas pipeline, the second line of the Ananjiv-Izmajil gas pipeline and the Bohorodchany-Uzhhorod gas pipeline.

However, analysis of the demand and supply of Russian gas with account of new export routes (including to Asian and Pacific countries) shows that the planned growth of Ukraine's GTS transit capacities does not rest on additional volumes of Russian gas exports (see Insert "*Raw material base of the Russian oil and gas sector: development and problems*", p.28).

Oil transportation. In the oil transportation sector, the *Energy Strategy of Ukraine* envisages that the total oil transportation by the Ukrainian OTS is to reach 70 million tons a year by 2015 – including 50 million tons of Russian oil (in particular, through integration of the *Druzhba* and *Adria* oil pipelines (5-15 million tons a year)) and 20 million tons a year oil from the Caspian region and the Gulf states by the Odesa-Brody route.

However, Russia refused from the project of integration of the *Druzhba* and *Adria* oil pipelines and, as noted above, plans to commission BPS-2 bypass oil pipeline system in 2012. Since under the 2010 Transit Agreement transportation of Russian oil is to amount to some 25 million tons a year (including 17 million tons as transit), it may be assumed that after BPS-2 commissioning, the Ukrainian OTS will carry approximately 20 million tons of Russian oil a year – more than two times less than envisaged by the *Energy Strategy*.[42]

Summing up the above, it may be said that no notable progress to decrease Ukraine's dependence on oil and gas deliveries from Russia was observed in 2000-2010, since projects of diversification of sources of hydrocarbons have not been implemented, and the Ukrainian economy remained the most energy consuming in the world. On the contrary, that period saw contradictions in bilateral relations that took the form of the "gas crises" of 2006 and 2009.

Hopes for revival of Ukraine's oil refining industry pinned to privatisation of the sector's enterprises by Russian oil companies have never come true. Overhaul and modernisation of refineries went on too slowly, the total volume of processing over the past five years fell almost two-fold, the investment climate in the sector has not changed for the better.

The *Energy Strategy* provisions dealing with the oil and gas sector were not implemented in 2006-2010. This fact, along with the changes that occurred in the sector in the second half of 2000s, give grounds to speak of obsoleteness and inadequacy of the document and the need of its revision or replacement with a new one.

2.2. RUSSIA'S OIL AND GAS SECTOR

As we noted above, Russia possesses some of the world largest reserves of hydrocarbons and Europe's most capacious oil and gas pipeline systems that ensure export of not only Russian, but also Central Asian hydrocarbons to European countries and CIS states. Meanwhile, in the past decade Russia has been pursuing an active policy of diversification of transportation routes and markets for its energy resources. That policy immediately touches Ukraine's interests and prospects of use of its pipeline systems.

Oil and natural gas: extraction, export, reserves. Russia occupies the first place in the world by oil extraction and accounts for 12% of the world oil trade. Over 80% of Russian oil exports goes to European countries (in 2008 – 248 million tons).[43]

Russia has oil reserves for 20 years of exploitation.[44] Its proven reserves amount to 10.2 billion tons (5.6% of the world total). By this indicator, Russia ranks seventh in the world.[45] Meanwhile, the initial reserves have been spent by more than 50% (on the European territory – by 65%, including in the Ural and Volga basin – by more than 70%). The degree of exhaustion of large fields in active development is approaching 60%. As a result, 77% of the current oil extraction is provided by big fields sufficient for 8-10 years, while developed reserves mainly lie in medium and small fields and are difficult to extract.

By natural gas extraction Russia ranks second in the world (after the USA), but it is the first in its export, accounting for 20% of the world trade in that energy resource.[46] In particular, in 2008, Russian gas export to European countries amounted to 184.4 BCM, or 33% of their gas consumption (including 26% of consumption in the EU countries).[47]

Russia also keeps the first place in the world by proven gas reserves, making 23% of the world's, or 48 trillion cu.m (including 6.9 trillion cu.m on the continental shelf); the gas reserves-to-production ratio is 72 years. The prospective gas reserves are estimated at 164.2 trillion cu.m (including 63.8 trillion cu.m on the continental shelf).

In pursuance of the tasks set by the previous *Energy Strategy of Russia* (through 2020), gas extraction was started at fields of the Sakhalin shelf, a natural gas liquefaction plant was built and commissioned on the island. The current *Energy Strategy of Russia* views development of liquefied natural gas (LNG) production and transportation as a means of "strengthening the export position of the RF on the foreign market", in particular, of Asian and Pacific countries.

Export of gas is a vital element of the Russian energy policy of the recent years bringing over $40 billion of currency proceeds and an important tool of promoting the country's political interests on the international scene, first of all, on the European continent.

Today, Russian gas is sold to 31 countries, including to 22 European, its largest consumers being Ukraine, Germany, Turkey and Italy. In the *Gazprom* OJSC structure of gas sales, less the domestic market, West and Central European countries plus Turkey occupy the first place with over 30% of total sales, the share of CIS countries is close to 16% (Diagram *"Structure of gas sales by Gazprom OJSC in 2008"*).[48]

Dependence of European states on Russian gas deliveries varies: in West European countries its share in the gas balance does not exceed 50%, in most of Central European and Baltic countries – exceeds 70% (Diagram *"Gazprom OJSC share on European markets"*).[49]

[42] Provided that oil deliveries from Russia to Ukrainian oil refineries reach the 2005 level – 15 million tons a year, and transit is reduced after BPS-2 commissioning to some 10 million tons a year.

[43] Hereinafter, unless specified otherwise, the data cited in the *Energy Strategy of Russia through 2030* were used. Similarly, unless specified otherwise, the term "Europe" or "European countries" does not include European CIS states.

[44] The ratio of proven reserves to current extraction. Source: *BP Statistical Review of Word Energy, June 2010, p.6., http://www.bp.com*.

[45] *Ibid*. (the Russian legislation treats information of oil reserves as a state secret).

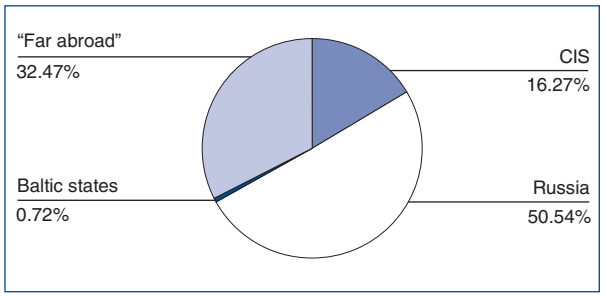
[46] *Ibid*., *p.30*.

[47] Source: *Gazprom in questions and answers*, 2010, p.51, *http://gazpromquestions.ru*.

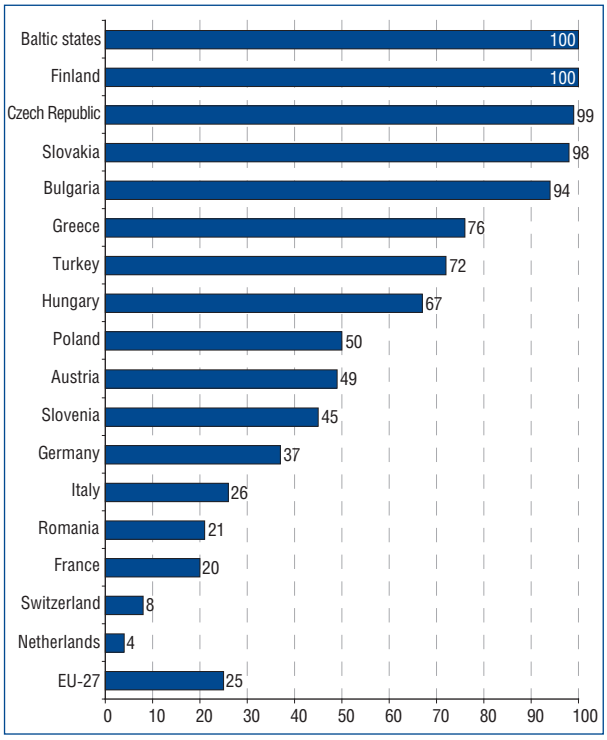
[48] Source: RF exports of natural gas in 2000-2010 (based on data of the Federal Customs Service and Rosstat). – Central Bank of the Russian Federation, June 23, 2010, *http://cbr.ru*.

[49] National Energy Security Fund. Europe against Russia: from Russophobia to methanophobia. – *Neftegazovaya Vertikal*, 2009, No.27-28, p.22.

Structure of gas sales by *Gazprom* OJSC in 2008, %



Gazprom OJSC share on European markets, %



Proceeding from the cited figures, it may be predicted that Russia will long remain the key strategic partner for Ukraine in hydrocarbon supply and transit to the EU, while the energy markets of European countries will stay the main markets for the Russian oil and gas sector.

Transportation of hydrocarbons

As we mentioned, Russia possesses the most capacious oil and gas transportation systems in Europe and pursues an active policy of their development in order, *first*, to reduce dependence on transit countries (including Ukraine that used to have a key position for Russian exports),[50] and *second*, to do away with monopoly dependence on the European market.

Oil transportation system. In 2000-2009, the projects of construction of the Sukhodolnaya-Rodionovskaya oil pipeline and phase I of the BPS were implemented. As we mentioned, this reduced Russian oil transit across Ukraine almost two-fold – from 56.4 million tons in 2000 to 29.1 million tons in 2009.

Currently, new projects are being implemented for diversification of supply routes and markets for Russian oil. In particular, the Russian-Belarusian oil conflict of January, 2008, prompted Russia to implement BPS-2 oil pipeline project that will make it possible to channel oil flows (50 million tons a year) by a new export route to the Gulf of Finland bypassing Belarus, Poland and Ukraine. BPS-2 commissioning at the designed capacity planned for 2012 will let *Transneft JSC* reduce oil transit across Ukraine by 19 million tons a year.

In 2014, the East Siberia – Pacific (ESP) oil pipeline is to reach its designed capacity (80 million tons a year).[51] However, East Siberia and the Far East will not be able to produce enough oil until 2030, so, up to 30 million tons of oil will annually be diverted from export routes designed for Russian oil supply to Europe, which will pose an extra risk of reduction of oil transit by the Ukrainian OTS by 5-10 million tons a year.

Gas transportation system. Pursuing a policy of reduction of dependence on transit countries, Russia in 2000-2009 implemented projects of construction of the *Blue Stream* and Yamal-Europe gas pipelines. Completion of the *North Stream* gas pipeline (55 BCM a year) is planned for 2012, the *South Stream* gas pipeline (63 BCM a year) – for 2015.[52] The latter's prospects remain uncertain due to the high project value and the EU policy intended to reduce its energy dependence on Russia. Agreements of the sub-Caspian gas pipeline (20 BCM a year) construction have also been made.

In the result of implementation of the *North Stream* project Ukraine may lose over 25% of the present volumes of gas transit, and if the *South Stream* project is implemented, too, it may also lose the status of the leading gas transit state in Europe.

Strategy of Russia's oil and gas sector development

The prospects of the oil and gas sector development are outlined in the *Energy Strategy of Russia through 2030*. Energy markets of European countries are expected to stay the main markets for the Russian oil and gas sector over the entire *Strategy* validity term (Insert "*Trends and prospects of Russian gas export to Europe*"). To reduce risks for deliveries of Russian energy resources, measures at the export infrastructure development and enhancement will be taken, including diversification of hydrocarbon transportation routes.[53] Noteworthy, **namely the infrastructure projects are viewed in the *Strategy* as the basis for the Russian energy sector development**.

[50] In particular, Russian natural gas was transported across Ukraine to 18 European countries.

[51] In September, 2010, construction of the Russo-Chinese oil pipeline – an ESP segment was completed. See: D.Medvedev and Hú Jǐntāo announced completion of construction of the Russian-Chinese oil pipeline. – OAO Transneft JSC, 27 September 2010, *http://www.transneft.ru*.

[52] Data of *South Stream AG* company. See: Figures and facts. – *http://south-stream.info/index.php?id=14*

[53] For more detail see also: Production and transportation projects that influence gas supply to Europe. – *National Security & Defence*, 2008, No.8, p.16-17.

Meanwhile, the *Energy Strategy of Russia* provides for diversification of hydrocarbon markets, which, according to the documents, "will make it possible to reduce the risk of monopoly dependence of Russian oil and gas companies on hydrocarbon deliveries to Europe and enhance the effectiveness of their international operation without substantial growth of export volumes".[54]

That is why the share of the European direction in total exports of Russian hydrocarbons will go down at the expense of eastward diversification of energy export markets (to China, Japan, the Republic of Korea, Pacific countries).

It is forecasted that by 2030 the share of eastern direction of oil and petroleum product export will rise from the present 6% to 22-25%, in gas export – to 19-20%.

RUSSIAN-CHINESE GAS PIPELINE PROJECT ("ALTAI")

Within the framework of the policy of diversification of markets for Russian hydrocarbons, on September 27, 2010, Gazprom OJSC and China National Petroleum Corporation signed an agreement of basic conditions of gas supply from Russia to China.[55] Execution of a commercial contract is planned for 2011.

The agreement fixes deliveries at 30 BCM a year on "take or pay" terms for 30 years starting from 2015. The price issue remained unsolved: Gazprom offers prices of the European market, which does not suit China, since it can alternatively buy gas from Turkmenistan at much friendlier prices.

North Stream and *South Stream* gas pipeline projects

Ukraine's interests in the gas sector are especially affected by the *North Stream* and *South Stream* projects[56] that potentially can divert from the Ukrainian GTS up to 118 BCM of gas a year, which by 5-10 BCM a year exceeds the volumes it carried to Europe in the past 10 years.[57] That is, plans of implementation of those projects pose a direct threat of loss of the GTS transit potential.

North Stream. Russia pins the greatest hopes to implementation of the *North Stream* project that has passed points of no return, having got permits from Finland, Sweden, Germany and Denmark to lay pipes on the Baltic Sea bed following an environmental expert examination.[58] They have solved the issues of

[54] *Energy Strategy of Russia*…, p.4.

[55] Source: Chinese contracts. – *Vedomosti*, September 28, 2010, http://www.vedomosti.ru/newspaper/article/2010/09/28/246556.

[56] For the description and specifications of those projects see: Diversification projects in Ukraine's energy sector: progress, problems, and ways of implementation..., p.17-18.

[57] Except 2009, when in the result of a sharp decline in demand for gas in Europe because of the world economic crisis transit of Russian gas amounted to 92.8 BCM, which was 24 BCM less than in 2008.

[58] The operator of the gas pipeline construction and operation is the *Nord Stream AG* consortium. The shareholders are *Gazprom* OJSC (51% of shares), German companies *Wintershall Holding GmbH* and *E.ON Ruhrgas AG* (20% each), the Dutch *N.V. Nederlandse Gasunie* (9%).

TRENDS AND PROSPECTS OF RUSSIAN GAS EXPORTS TO EUROPE

As we noted, export of natural gas plays a significant role in Russia's national economy and, according to the *Energy Strategy of the Russian Federation*, is set to retain that role.

The basic principles of the Russian energy policy in gas exports include:

- **provision of one export channel**: no other enterprise except *Gazprom* is entitled to deliver gas to foreign markets. Such standing naturally seriously strengthens *Gazprom's* position at negotiation of contracts with partners;
- **prevailing use of long-term contracts concluded for up to 25 years**, **applying the mechanism that links the gas price and petroleum product value,** seen by the Russian side as the guarantee of stability and reliability of deliveries.

Long-term contracts, as a rule, are made on the basis of interstate agreements. *Gazprom* OJSC currently has contracts with European partners for delivery of 3.1 trillion cu.m through 2030.[1]

In 2006, *Gazprom* OJSC accomplished transition to market pricing under long-term contracts in relations with all CIS and Baltic states. As a result, prices for those countries increased 2- or 3-fold, which delivered a serious blow to their national economies. It should be noted however that **formulation of pricing proposals for each country takes into account its political relations with Russia and the degree of integration with the Russian gas concern's business**.

- **application of the "take or pay"** provision in those contracts – which secures the market and strengthens dependence of European consumers on the Russian fuel.
- **targeting of the end user**. *Gazprom's* marketing policy targets the end user, which lets it substantially raise the profitability of its business. For that purpose, the company buys up shares of gas distribution network operators in European countries and now has interests in Germany (nearly 7%), Italy, the Czech Republic (nearly 10%), Estonia and Latvia. By and large, *Gazprom* plans to get 5-10% of the retail market in Central and West European countries. To step up its influence on national gas markets, *Gazprom* also takes part in upgrade of the existing and construction of new underground gas storages in many EU countries.

Practice of long-term contracts

The model of gas deliveries under long-term contracts has been employed in Europe for over 40 years now and was justified, while the global market of oil and petroleum products dominated, and capabilities for alternative methods of natural gas delivery were limited. Meanwhile, trade in LNG has been booming in the recent 10-15 years.[2] By and large, the EU gas markets are becoming more competitive due to the growing share of spot trade. Furthermore, the formula principle of the gas

[1] Source: *Gazprom* made long-term contracts for delivery of 3.1 trillion cu.m of gas to Europe by 2030. – *Neft Rossii* information-analytical web portal, April 5, 2010, *http://www.oilru.com (in Russian).*

[2] See: Diversification projects in Ukraine's energy sector: state, problems and ways of achievement. Razumkov Centre analytical report. – *National Security and Defence*, 2009, No.6, p.13.

price linkage with petroleum product value is no longer deemed unquestionable, since replacement of gas at new generation power plants with black or gas oil is economically unjustified, in most cases.

Drawbacks in the system of long-term contracts became manifest in 2009, when the decline in demand for energy resources due to the world economic crisis concurred with a serious increase in shale gas extraction in the USA. As a result, the volumes of LNG from Africa and the Gulf states not demanded in the USA appeared in Europe, which led to a serious increase in supply against the background of stagnation of demand and resultant collapse of spot prices and associated decline of benefits of pipeline gas procurement from Russia.[3]

Due to the *Gazprom* OJSC management's reluctance to bring terms of long-term contracts in compliance with the market realities, the company had to cede part of the attractive EU market to its competitors. Russian gas exports to the EU countries fell by 11.4% in 2009, its share declined from 26% to 22%. Extraction by *Gazprom* OJSC dropped by 16% in 2009 – to record low 461.4 BCM.[4]

By contrast, LNG suppliers increased exports to the EU in 2009 (in particular, Qatar – more than two-fold). Norway, like Russia supplying gas under long-term contracts, managed to timely find its place in the new situation and was flexible in pricing, which let it raise sales on the European market by 11% and increase extraction by 4%.[5]

The threat of further loss of competitiveness made *Gazprom* make concessions to companies – its most important partners in Europe: *E.ON* (Germany), *Eni* (Italy), *GDF Suez* (France-Belgium), *Botaş* (Turkey), starting from 2010.

Some provisions of long-term contracts previously deemed unshakable by *Gazprom* were reviewed. First of all, it significantly softened the "take or pay" condition, provided discounts in the "pricing formula" and gave freedom to buy 10-15% of natural gas at spot prices.

Targeting the end user

Gazprom plans of expanding its presence on EU markets were especially seriously hit with adoption of the so-called "third energy package" documents in November, 2009, that laid down the basis of the 3rd phase of the EU gas sector's liberalisation.[6] The documents were primarily intended to promote competition on the gas market through spot trade, defence of consumer rights, enhancement of the effectiveness of regulation and **creation of legal barriers for investment in gas infrastructure facilities by monopolies, such as *Gazprom***. This makes the Russian gas concern to adjust its export policy, in particular, to remove restrictions on gas re-export from contracts and to revise plans related with access to the end user. To maintain its position on the market, *Gazprom* acting through *Gazprom Marketing&Trading Ltd.* subsidiary also began selling gas at market places in Great Britain, Belgium, the Netherlands and France at spot prices.

Position of the European Union

The Russia-Ukraine gas conflicts of 2006 and 2009 prompted more active measures of the EU energy policy intended to reduce dependence on Russian gas deliveries. They included:

- enhancement of energy efficiency under the EU plan "20-20-20";[7]
- diversification of gas supply sources and routes, first of all, through creation of the infrastructure for LNG admission;
- further liberalisation of the gas sector (Phase III);
- restriction on third country investments in gas infrastructure facilities;
- expansion of underground gas storage capacities;
- employment of mechanisms of early warning of gas crises and joint actions during delivery cuts;
- integration of gas pipelines in a single gas transportation system.

Implementation of the measures will let the EU countries create a situation on the gas market whereby consumers will be able to step up influence on *Gazprom* and arrange for an increase in the share of Russian gas sales at spot prices in the future (to at least 40%) and as much as possible limit growth of its imports by 2030.

It should be noted that in energy security issues, the EU countries have recently concentrated on expansion of LNG re-gasification capacities.[8] In 2009 alone, they increased by 23.4% (or 29.8 BCM/year), in 2010, they are to further grow by 31.8 BCM/year.[9]

Meanwhile, in early 2010, the European Commission put forward the initiative of the Central European gas pipelines' operation in the reverse mode, which will enable those countries to obtain gas not only from Russia, but also from the western direction.

Implementation of that project, along with the expansion of LNG capacities and underground gas storages, will drastically reduce the risks of Russia using its energy potential against Central European countries for political goals. At the same time, implementation of those EU plans may substantially shatter the importance of the Ukrainian GTS for the pan-European energy security system.

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3 Spot prices at European market places in 2009 were 1.5-2 times lower than prices under long-term contracts with *Gazprom* OJSC.

4 Source: From the editor: Victims of progress. – *Vedomosti,* April 8, 2010*, www.vedomosti.ru (in Russian).*

5 Ibid.

6 On July 13, 2009, the EU Council of Ministers adopted five documents critical for the European Union energy markets development ("Third Package") that will shape further processes of liberalisation and integration under rules common for 27 member states. Each country is to fully implement them by March 1, 2011.

7 Approved by the European Parliament on December 17, 2008. Provides for reduction of atmospheric hazardous emission by 20% (or 30%, under an international agreement), an increase in energy generation from renewable sources to 20% and enhancement of the energy efficiency by 20% before 2020.

8 Re-gasification – the process of transformation of natural gas from the liquid phase (LNG) into gaseous for pumping to gas pipelines.

9 Medvedev A. Gazprom OJSC marketing policy in the conditions of the global financial-economic crisis. – *Vedomosti*, February 24, 2010, *www.vedomosti.ru (in Russian).*

Forecast of demand for imported gas in Europe through 2030[10]

The EU countries account for the lion's share (90%) of gas consumption on the continent,[11] that is why exactly they shape the key trends of the European gas market.

EU measures at enhancement of the energy efficiency of the economy and growth of the share of renewable energies in the fuel and energy balance already yield fruit. While in 1999-2005, gas consumption in the EU countries increased from 428.8 to 493.6 BCM (by 15%), in 2006-2008, it stayed flat at 480-490 BCM.

According to preliminary estimates, due to the economic crisis, gas consumption in the EU in 2009 returned to the 2001 level, having fallen by 5.9%, compared to 2008 (to 459.9 BCM),[12] while the whole of Europe consumed nearly 515 BCM of gas, which is 6% less than in 2008.

According to long-term forecasts, one should expect restoration of the demand for gas as late as 2013-2015, and subsequent gradual reduction to 540 BCM in 2020 and 500 BCM in 2030 (Table "*Forecast of demand for gas in Europe through 2030*").[13]

Forecast of demand for gas in Europe through 2030,* BCM

	2008	2013-2015	2020-2022	2030
Total	550.6	550	540	500
including from Gazprom	184.4 (33%)	180 (33%)	170 (31%)	150 (30%)

* Not including CIS countries.

In that, it is expected that the demand for the Russian gas will gradually go down because of:

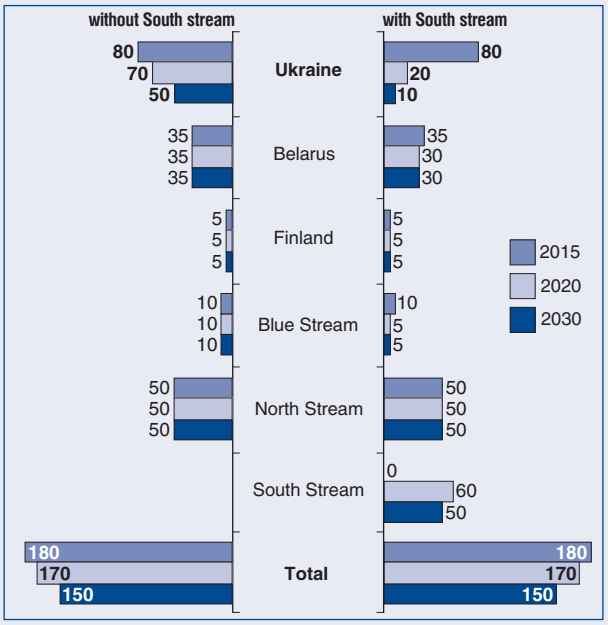
- growth of the share of renewable energies in the EU energy balance;
- energy efficiency measures, introduction of new energy saving technologies;
- growth of LNG deliveries from the Gulf states, Africa, Central Asia and other parts of the world.

By and large, it may be forecasted that if all the above-mentioned EU plans are met, Russian gas imports to Europe will fall to 150 BCM/year by 2030 – against 184.4 BCM in 2008.

Forecasts of volumes of Russian gas transit to Europe

1. The analysis of demand and supply of Russian gas in Europe shows that after the *North Stream* gas pipeline is commissioned in 2012, transit of the Russian gas across Ukraine will fall from 116.9 BCM in 2008 to 70-80 BCM/year in 2013-2020 (Table "*Forecast of volumes of Russian gas transit to Europe through 2030", option without the South Stream*").

Forecast of volumes of Russian gas transit to Europe through 2030, BCM/year



2. In case of implementation of the *South Stream* project, Ukraine's GTS will lose its pan-European importance, since it will transport not more than 20 BCM of gas a year.

However, that forecast may never come true due to high risks of the project implementation and intensification of the EU policy intended to reduce the dependence on Russian energy resources.

3. Politicisation of gas deliveries to Europe by Russia may lead to a situation where the surplus of throughput capacities of gas pipelines will grow, since growth of gas pipeline capacities will notably outpace gas extraction figures. For instance, while in 2008, the aggregate surplus of throughput capacities of gas pipelines from Russia to European countries amounted to nearly 35 BCM/year, after the *North Stream* completion in 2012 it will grow to 74 BCM/year (for Ukraine – to 62 BCM/year), and if the *South Stream* is commissioned and reaches the designed capacity, the aggregate idle capacities in 2020-2022 will reach 147 BCM/year (for Ukraine – 122 BCM/year) (Table "*Throughput capacities of routes of Russian gas transit to Europe*").

Throughput capacities of routes of Russian gas transit to Europe,* BCM/year

	Current throughput	In that, throughput surplus	Current throughput	In that, throughput surplus	Current throughput	In that, throughput surplus	Current throughput	In that, throughput surplus
	2008		2015		2020		Until 2030	
Ukraine	**142**	**25**	**142**	**62**	**142**	**122**	**142**	**132**
Belarus	25	3	35	0	35	5	35	5
Finland	6	1	6	1	6	1	6	1
Blue stream	16	6	16	6	16	11	16	11
North stream	-	-	55	5	55	5	55	5
South stream	-	-	-	-	63	3	63	13
Total	**189**	**35**	**254**	**74**	**317**	**147**	**317**	**167**

* Forecasted periods cited in line with the stages of the Russian Energy Strategy implementation

[10] The EU countries and Turkey account for nearly 97% of gas consumption in Europe (without the CIS states). See: Gazprom in questions and answers. – Gazprom in questions and answers website, 2010, p.52, *http://gazpromquestions.ru*

[11] Hereinafter, Europe (the European continent and other synonymic terms) are deemed not to include the CIS states.

[12] BP Statistical Review of Word Energy, June 2010, p.27., *http://www.bp.com*.

[13] Calculated by the Razumkov Centre experts with account of new trends at world gas markets and on the basis of data of the BP Statistical Review of Word Energy and forecast of the European Commission Second Energy Review. *Sources*: data from websites of the *British Petroleum* and the European Commission.

the *North Stream* filling (contracts made for gas supply to consumers in Germany, Denmark, France and Great Britain) and the gas pipeline phase I construction funding: 26 banks provided a €3.9 billion credit.[59] Commissioning of phase I of the pipeline is planned for September, 2011, achievement of the designed capacity – for November, 2012.

The construction value goes up all the time: since the project start, it has grown by 60% and hit €8.8 billion. The fact that despite the growth of costs and idle capacities of the Ukrainian GTS, the project's main shareholder – *Gazprom* company – does not give up plans of its implementation may witness that **the main drivers of that project for Russia are the desire to strengthen its political influence on the European countries through growth of their energy dependence and the interest of the groups of influence involved in the project building contracts.**

South Stream. By contrast to the *North Stream*, the prospects of implementation of that project are less evident, despite even numerous preliminary contracts made among the concerned parties. Noteworthy, the Russian Government began showing particular insistence in its pushing after the EU stepped up efforts for promotion of the alternative *NABUCCO* project in 2007.[60]

For the project implementation, in 2008, a special vehicle company was registered in Switzerland – *South Stream AG* (founders: *Gazprom* OJSC, *Eni* oil and gas company (Italy), on a parity basis). Interstate agreements were made with Serbia, Bulgaria, Hungary, Slovenia, Greece and Austria joining the project – the gas pipeline is to be laid across the territories of those countries. After the last interstate agreement was made in April, 2010 (with Austria), *Gazprom's* CEO Miller said that the *South Stream* operation would start in December, 2015.[61]

However, only the first steps for the project implementation have been made, the main problems are still ahead. They include, first of all:

- increased efforts of the EU (after the Russian-Ukrainian gas conflicts of 2006 and 2009) to reduce dependence on Russian gas by promoting projects of diversification of gas supply sources and routes, growth of the share of alternative energies in the energy balance, development of energy-efficient technologies;
- record-high value of the project estimated at €25 billion, which will make transit costs approximately three times higher than the current costs of transit by the Ukrainian GTS;[62]
- uncertain prospects (due to problems in the Russian gas industry) of gas extraction growth in the volumes sufficient for a significant increase in exports to Europe.

According to the Russian leadership's plans, the *North Stream* and *South Stream* gas pipelines should even stronger tie European consumers to Russian gas by long-term contracts, which will hinder liberalisation and diversification on the European markets.

The prevalence of political interests over economic in those projects is also witnessed by the fact that the aggregate growth of the throughput of export gas pipelines for transit of Russian gas to Europe is expected to substantially exceed the demand of European countries and the Russian gas extraction capabilities (Insert "*Raw material base of Russia's oil and gas sector: development and problems*").

Ukraine's President Yanukovych suggests that the *North Stream* construction cannot be stopped, but still hopes to offer an alternative to the *South Stream* by involving Russia in modernisation and overhaul of the Ukrainian GTS. However, Russia's refusal from that project is inconsistent with the basic provisions of its *Energy Strategy* providing for a decrease in transit dependence on neighbouring countries, first of all meaning Ukraine.

So, it may be assumed that the **Russian authorities will never agree to a trade-off in the *South Stream* issue. The same was reiterated by *Gazprom's* CEO Miller who said that "the *South Stream* project will be implemented irrespective of the company's possible involvement in the Ukrainian consortium".**[63]

2.3. ENERGY STRATEGIES OF RUSSIA AND UKRAINE: OPPOSITE GOALS AND OBJECTIVES IN THE OIL AND GAS SECTORS

Analysis of the provisions of the two countries' energy strategies reveals opposite goals and objectives in the key domains of cooperation. Specifically:

- Ukraine is trying to retain and increase transit of Russian hydrocarbons across its territory. Russia, on the contrary, pursues a policy of minimisation of transit dependence on neighbouring countries; furthermore, regarding oil, due to the above-mentioned exhaustion of Russian oil fields the *Energy Strategy of Russia* provides that after 2020 oil extraction "will reach its technological and economic maximum", oil exports "will demonstrate a downward trend", and the oil sector "will be actively using its capacities to ensure oil transit" by new export routes (continuing to divert significant volumes from the Ukrainian OTS);
- Ukraine planned to increase oil refining, including processing of Russian oil. Russia, despite its *Energy Strategy's* provision of priority supply of raw materials to foreign oil refineries owned by Russian companies, assumes no responsibility for overhaul, modernisation and supply of oil to Ukrainian refineries they own or manage;[64]
- Ukraine declares its desire to get hydrocarbons from alternative sources, raise their domestic extraction and cut consumption through introduction of

[59] *Source*: official website of the *Nord Stream AG* consortium. – *http://www.nord-stream.com/ru*.

[60] With the capacity of 31 BCM a year. For more detail see: Diversification projects in Ukraine's energy sector: progress, problems, and ways of implementation..., p.18, 23.

[61] Miller A.: *South Stream* will be commissioned in 2015. – *Rossiya* state TV channel, April 25, 2010, *http://www.vesti.ru* (*in Russian*).

[62] Data of *RWE Supply & Trading* company. See: The expensive alternative. – *Vedomosti*, November 18, 2009, *http://www.vedomosti.ru* (*in Russian*).

[63] Source: *Gazprom* has got no proposals from Ukraine for consortium participation yet. – UNIAN, April 24, 2010, *http://www.unian.net* (*in Ukrainian*).

[64] "… the Strategy also provides for optimisation of volumes of oil refining in the country… and volumes of export of crude oil (with priority delivery of its part to oil refineries abroad owned by Russian companies)". – *Energy Strategy of Russia*..., p.46.

RAW-MATERIAL BASE OF THE RUSSIAN OIL AND GAS SECTOR: DEVELOPMENT AND PROBLEMS

Despite significant reserves of hydrocarbons, Russia faces problems related with deterioration of their structure and development, which may question the prospects of filling all pipeline systems currently planned and performance, including by *Gazprom* OJSC, of the present gas import obligations. Analysis and consideration of those problems give grounds to assume that some pipeline projects promoted by Russia may rather be used as tools of political pressure on countries used for transit of Russian hydrocarbons.

Hydrocarbon reserves

Recent years have brought an evident trend towards a decrease in highly productive reserves at low depths, whose development was comparatively cheap. The share of hardly extractable reserves steadily goes up. That is why *Gazprom* will not be able to maintain the current level of extraction till 2015 without development of hardly extractable reserves located in difficult natural and climatic conditions, remote from industrial and social infrastructure.

Oil. Initial reserves of oil have generally been exhausted by more than 50%, large fields in active operation – by almost 60%. The share of hardly extractable reserves in possession by the leading oil and gas extraction companies ranges from 30 to 65%.[1]

It is forecasted that till 2030, oil reserves will grow mainly in the West Siberian, Lena-Tunguska and Timan-Pechora oil and gas provinces, as well as on the continental shelf of arctic, far eastern and southern seas. However, development of those fields will require huge investments. All in all, to achieve the oil extraction targets set by the *Energy Strategy of the Russian Federation*, **up to $625 billion worth of investments will be required till 2030**.

Natural gas. The structure of gas reserves is more favourable than oil, but it also experiences problems with their development. Reserves of the basic fields of West Siberia (Medvezhye, Urengoi, Yamburg) are exhausted by 65-75%, and those commissioned recently (*Zapoliarnoye*, Yuzhno-Russkoye) can only partially make up for the drop in extraction at exhausted fields.

The *Energy Strategy of the Russian Federation* lists among the new centres of gas extraction the Yamal peninsula, the continental shelf of the Barents, Kara and Okhotsk Seas, as well as the Russian sector of the Caspian Sea.

Development of those reserves, especially in Yamal, by its scale and importance may be compared only with development of West Siberian fields in 1970s, but by its complexity, it is unique. 26 fields with proven reserves of 10.4 trillion cu.m have been discovered on the peninsula. However, in the next 25 years, $166-198 billion worth of investments will be needed for their development alone.

All in all, achievement of the gas extraction targets set by the *Energy Strategy of the Russian Federation* **will require up to $590 billion worth of investments till 2030.**

Offshore fields. The initial extractable hydrocarbon reserves on the Russian continental shelf amount to 90.3 billion tons of conventional fuel (including 16.5 billion tons of oil with condensate and 73.8 billion tons of gas).[2] Nearly 70% of those resources falls on the continental shelf of the Barents Sea, Pechora Bay and Kara Sea.

Growth of hydrocarbon extraction from offshore fields is one of the main trends of the world oil and gas extraction industry.[3] The share of their global seabed extraction currently makes up to 40% of total extraction, but in Russia, it does not exceed 1%. So, here, **Russia needs the appropriate experience, technologies, equipment, which, in turn, requires significant additional investments**.

Phases of implementation of the *Energy Strategy of the Russian Federation* regarding development of raw material reserves

Phase I (2010 – 2013-2015): growth of geological prospecting in traditional areas of hydrocarbon extraction and creation of legal, tax and institutional conditions for development of the raw material base in hard-to-reach areas.

Phase II (to be completed, tentatively, in 2020-2022): intense development of fields in Yamal and the continental shelf of the Arctic seas, Siberia, Far East, North of the European part of Russia, the sub-Caspian region.

Phase III (to be completed in 2030): further development of new extraction areas using advanced methods and technologies of geological prospecting and employing investments, including foreign.

By and large, geological prospecting is to provide for a total increase in oil reserves by nearly 12 billion tons, gas – by not less than 16 trillion cu.m by 2030.

However, implementation of those plans may be questioned due to problems with use of the bowels of the earth and in the oil and gas sector (in particular, drawbacks in *Gazprom* OJSC management).

Problems with use of the bowels of the earth

Low pace of reproduction of reserves. In 2004-2009, the aggregate growth of reserves made: for oil – 117% of aggregate extraction; for gas – 107%[4] (Diagrams *"Ratio of growth of oil and gas condensate reserves and extraction", "Ratio of growth of natural gas reserves and extraction"*).

At that, only since 2005, statistical growth of reserves has been exceeding their annual extraction, while the previous decade saw a serious decrease in reproduction of reserves, still not made up for. Additionally, some reserves increased not at the expense of geological prospecting, but due to recalculation of known reserves, application of an increased quotient of hydrocarbon extraction and re-accounting of reserves previously written off.

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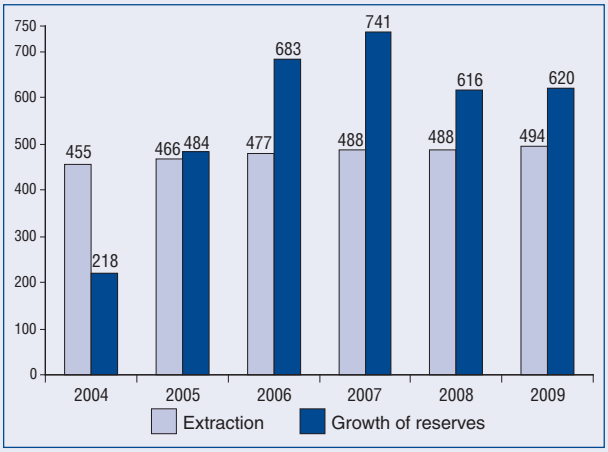
1 Unless specified otherwise, the Insert hereinafter builds on data of the *Energy Strategy of the Russian Federation* (as more detailed), compared to the *BP Statistical Review of Word Energy*.

2 Extractable hydrocarbon reserves – volumes, extraction of which is economically reasonable.

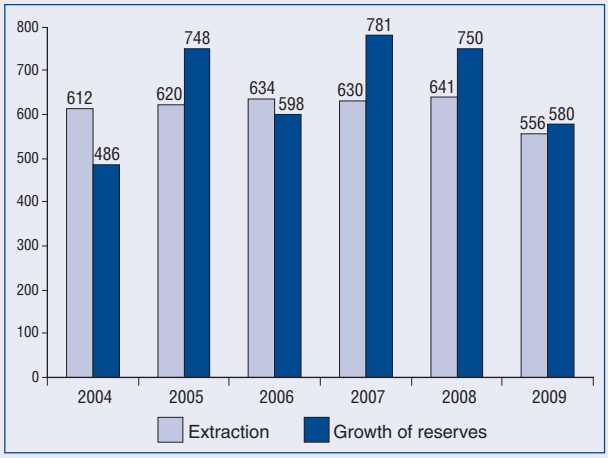
3 In the recent years, exactly offshore areas have accounted for growth of reserves, large and gigantic fields were discovered. This refers to continental shelves of Brazil, Nigeria, Vietnam, China, West African states, the Gulf of Mexico. The potential of the continental shelf of Russia's northern seas is also enormous, as witnessed by large discoveries made, in particular, in the past 15-20 years in the Barents and Kara Seas.

4 Ledovskikh A.A. Basic works of the Federal Agency for Use of the Bowels of the Earth in 2009 and priority tasks for 2010: report presentation, 2009 (in Russian). *http://www.rosnedra.com.*

Ratio of growth of oil and gas condensate reserves and extraction,
Million tons



Ratio of growth of natural gas reserves and extraction,
BCM



Meanwhile, for normal reproduction, growth of reserves should exceed extraction at least one and half times.[5] That target cannot be achieved without a radical increase in the scope of exploratory drilling, since now, oil and gas companies finance that item of expenditures after all others: in 2008, only 4.6% of total capital expenditures was spent on geological prospecting, in 2009, that figure fell to 3.8%, which led to a decrease in geological prospecting by 46%.[6] Russia spends on restoration of the mineral raw material base not more than 1.5% of the estimated value of sold oil, while other countries spend 5-8%.[7] **Oil and gas companies accept no risks associated with discovery of new deposits, but try to invest in acquisition of plots with highly profitable explored reserves, more and more deficient with every year.**

Drawbacks in legislation. Russia remains an area of risky use of the bowels of the earth not even due to deterioration of the structure of reserves, but due to serious drawbacks in the relevant legislation and its permanent amendment.

For instance, in line with amendments adopted in 2008, only Russian legal entities may exploit federal deposits. Foreign companies acting on their own cannot hope to get a licence to use segments of the land interior containing reserves: of oil – over 70 million tons, gas – over 50 BCM. Even Russian private companies cannot develop the continental shelf, since it was established that this may be done only by companies with the state interest exceeding 50%.[8]

Therefore, the legislation actually provides for monopoly of state companies – *Rosneft* oil company and *Gazprom* OJSC – in development of the continental shelf, and foreign investors may take part in shelf projects only as their younger partners. However, state companies will not be able to effectively use their privileged status since, as we noted above, they have no advanced technologies of drilling on deepwater segments of the seabed and lack own funds for investment in the required volume.

The tax legislation in the field of hydrocarbon extraction does not encourage oil and gas extracting companies to increase extraction and is mainly intended to fill the state budget. It is amended to the benefit of state companies, disregarding interests of investors and private Russian companies.

The rate of the mineral resources extraction tax is the same for all fields and tied with oil price at international exchanges, which encourages development of reserves that require minimum expenditures. The effective tax system takes from oilers up to 95% of their revenues due to price rise, at that, they spend up to 65% to pay the export duty, another 30% – to pay the mentioned tax.[9] I.e., the oil price rise does not motivate oilers to raise investments in extraction growth.

Drawbacks in the tax legislation and licensing agreements have led to emergence of a stock of non-operated wells due to unprofitability of their operation. It numbers over 25 thousand wells, or nearly 16% of the total stock in the inventory. At some fields, up to 40% of wells is not operated.[10] Oil companies try to step up extraction at commercially the most attractive wells with violation of the process technology, which leads to their inundation and a drop in the oil recovery factor, at Russian oil and gas enterprises not exceeding 30%, against 40% for world leading companies.[11]

Drawbacks in *Gazprom* OJSC management

To spare the largest state company from competition, the legislation, *inter alia*, established the principle of a single export channel giving *Gazprom* OJSC exceptional rights of access to export gas pipelines, discouraging other oil and gas extraction enterprises to invest in exploration and development of new gas fields. At that, ***Gazprom* cannot finance programmes of raising the gas recovery factor in the required volume with its own funds alone**.

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5 With account of unprofitability of development of part of reserves, errors at their determination, remoteness of the transport infrastructure, etc.
6 Mobilising power of crisis. – *Neftegazovaya Vertikal*, 2010, No.4, p.11-12 (*in Russian*).
7 Resource base: "cream" came to an end. – *Neftegazovaya Vertikal*, 2010, No.5, p.42 (*in Russian*).
8 "On Procedure of Making Foreign Investments in Business Entities of Strategic Importance for Provision of the Country Defence and State Security": Federal Law of the Russian Federation of April 29, 2008. – *Rossiyskaya Gazeta* (Federal issue), May 7, 2008 (*in Russian*) *http://www.rg.ru/2008/05/07/investicii-fz-dok.html*.
9 Patchwork legislation: barriers and labyrinths. – *Neftegazovaya Vertikal*, 2010, No.5, p.21 (*in Russian*).
10 A dog in the manger. – *Neftegazovaya Vertikal*, 2010, No.2, p.40 (*in Russian*).
11 *Ibid*.

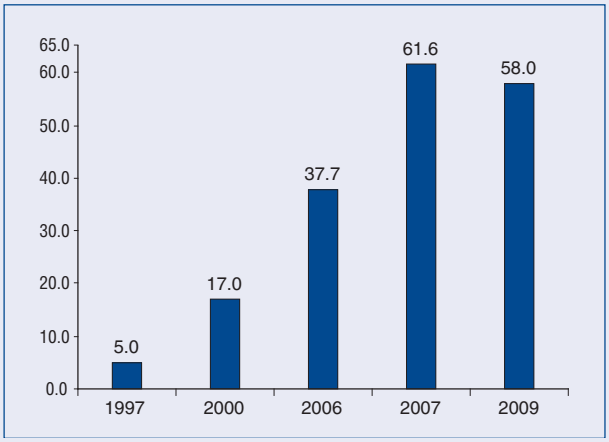
Furthermore, the state *hors concours* issued to the company a licence to development of the best Russian fields. However, the privileged standing of *Gazprom* OJSC only leads to ineffective use of financial and natural resources, fraught with degradation of the entire Russian gas sector.

Dissipation by the gas monopoly is witnessed by the fact that in 2000-2008, the unit cost of gas extraction per barrel of oil equivalent increased 3.9 times – from $3.8 to $14.8, while in most European companies it increased by not more than 60%.

Gazprom OJSC uses much money on inorganic assets: in 2001-2007, more funds was spent for that purpose than for gas extraction development.[12] As a result, the terms of commissioning of Bovanenko and Shtokman fields with total reserves equalling 8.7 trillion cu.m critical for achievement of the tasks set by the *Energy Strategy of the Russian Federation* were again postponed (till 2012 and 2016).

Specific of *Gazprom* OJSC operation in the past decade were huge investments in the gas transportation infrastructure development and inorganic assets at the expense of growth of debts that in 2000-2009 increased more than four-fold and reached $58 billion, making 57% of the company's annual proceeds[13] (Diagram *"Gazprom OJSC debt (short-term and long-term loans)"*).

Gazprom OJSC debt (short-term and long-term loans),
$ billions (in prices of the relevant periods as of the year end)



Forecast of hydrocarbon extraction development till 2030

In view of those problems of the Russian oil and gas industry, it may be argued that the *Energy Strategy of the Russian Federation* gives an overly optimistic forecast of hydrocarbon extraction targets.

This forecast envisages rather a slow pace (by 10% over 22 years) of oil extraction growth during its implementation period – from 487.6 to 530-535 million tons/year, and a much more dynamic pace of gas extraction growth (by 33-42%) – from 664 to 885-940 BCM/year. However, if no required reforms are implemented and investment conditions remain as unattractive as they are now, extraction is expected to follow a pessimistic scenario that envisages a decrease in oil and gas extraction by 36% and 25%, respectively (Tables *"Forecasted options of oil extraction in Russia through 2030"*, *"Forecasted options of gas extraction in Russia through 2030"*).

Forecasted options of oil extraction in Russia through 2030,
Million tons/year*

	2008	2015	2020	until 2030
Oil extraction according to the Russian Energy Strategy	487,6	486-495	505-525	530-535
Probable scenario of oil extraction	487,6	470-480	450-460	430-440
Pessimistic scenario of oil extraction	487,6	420-430	370-380	310-320

* The probable and pessimistic scenarios of oil extraction in Russia are estimates made by Razumkov Centre's experts on the basis of analysis of problems and trends of the Russian oil and gas sector development made in this section.

Forecasted options of gas extraction in Russia through 2030
BCM/year*

	2008	2015	2020	until 2030
Gas extraction according to the Russian Energy Strategy	664	685-745	803-837	885-940
Probable scenario of gas extraction	664	640-660	670-690	700-720
Pessimistic scenario of gas extraction	664	580-600	520-540	500-520

* The probable and pessimistic scenarios of gas extraction in Russia are estimates made by Razumkov Centre's experts on the basis of analysis of problems and trends of the Russian oil and gas sector development made in this section.

However, a more likely option is that the authorities pressed by the economic situation will have to implement some reforms in the oil and gas extraction sector, which will encourage investments, to some extent. With that option, it may be forecasted that oil extraction will slowly go down, staying within 430-480 million tons/year, while gas extraction will slightly drop till 2013-2015, compared to 2008 – to 640-660 BCM/year, and then gradually rise to 700-720 BCM in 2030.

Analysis of the state of the Russian hydrocarbon resource base and economic conditions of its oil and gas sector operation proves that its development, given the growth of hydrocarbon deliveries to Asian and Pacific countries and domestic consumption, simply cannot provide additional resources to offset Ukraine's losses from the planned commissioning of the 1st and 2nd phases of the *North Stream* gas pipeline and the 2nd phase of BPS in 2011-2012.

Furthermore, the likely forecast of Russian energy resources extraction shows that Russia will not increase supply of hydrocarbons to the European market in the middle and long run. This trend will be unfavourable for their pricing in the European countries. This should encourage Ukraine to curb demand for imported hydrocarbons by means of active implementation of energy efficient technologies, development of alternative sources of energy and growth of domestic extraction.

[12] Inozemtsev V. An enemy of modernisation. – Vedomosti, April 5, 2010, http://www.vedomosti.ru; Nemtsov B., Milov V. "Putin and Gazprom" independent expert report, – Moscow, 2008, p.9 (*in Russian*).

[13] *Ibid*.

energy-efficient technologies. Russia, on the contrary, is interested in retention and expansion of markets for hydrocarbons, in particular, keeping Ukraine on the list of the largest consumers of Russian natural gas;

- The *Energy Strategy of Ukraine* has no foreign energy policy section, despite the declared plans of energy resources extraction beyond the country by Ukrainian companies and their participation in international energy projects. In particular, for that reason, too, its position on the international energy markets is passive and weak. The *Energy Strategy of Russia*, on the contrary, has a strong external dimension including expansion of Russian companies on internal markets of consumer countries. For instance, the Energy Strategy of Ukraine envisaged extraction of 3.6 million tons of oil and 2.3 cu.m of gas beyond the country borders in 2010, but Ukrainian enterprises have had little progress in that domain, while Russian companies every year increase investments in international projects of oil and gas extraction, processing, transportation and sale;
- The *Energy Strategy of Ukraine* puts forward no initiatives of cooperation with countries that transit hydrocarbons for coordination of joint activities in the Eurasian space. The *Energy Strategy of Russia* sets the task to step up the international dialogue, but mainly with producers and consumers of energy resources, ignoring the interests of transit countries;[65]

Ukraine is reforming its legislation on the EU principles, under the rules laid down by the Energy Community Treaty. Russia instead is taking measures to enhance the gas monopoly's role on the markets of European countries and steps up efforts of the Forum of Gas Exporting Countries intended to diminish the effects of the Third EU Energy Package, in particular, for preservation of the role of long-term contracts for gas supply.

The basic principles of foreign economic relations in the oil and gas sector provided by the *Energy Strategy of Russia* objectively pose risks for Ukraine's interests in the field of hydrocarbon transportation. Creation of alternative export routes for Russian energy resources supply to international markets in presence of problems with growth of its extraction in Russia conditions the need of a serious adjustment of Ukraine's *Energy Strategy* (or, given the above instances of non-attainment of the set tasks, its replacement with a new document).

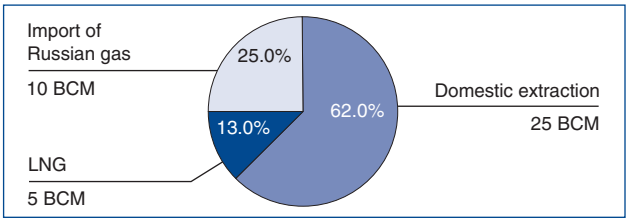
2.4. PROBABLE SCENARIOS OF DEVELOPMENTS IN UKRAINE'S OIL AND GAS SECTOR

In view of Russia's attempts to enhance its influence on Ukraine by building new bypass gas pipelines and plans to gain control of the Ukrainian gas sector by using its full dependence on imports of Russian gas, the key lines of Ukraine's energy policy should include:

- a decrease in the energy intensity of the GDP on the basis of economy restructuring in the direction of growth of the role of innovative technologies, enhancement of energy efficiency and development of alternative energy resources;
- reformation of the gas sector to enhance the level of its competitiveness and transparency, and enhance the quality of corporate management and regulation;
- attraction of investments in geological prospecting and domestic oil and gas extraction;
- diversification of deliveries through construction of a terminal for admission of liquefied natural gas (LNG) from the Gulf states, Africa and the Caspian region.

Successful implementation of economic policy measures in those domains may let Ukraine reduce the aggregate gas consumption from 66 BCM in 2008 to 40 BCM in 2020. At that, domestic extraction can be raised to 25 BCM a year, LNG deliveries are estimated to reach 5 BCM a year, and imports of Russian gas will go down from 56.2 BCM in 2008[66] to 10 BCM a year, or to 25% of total consumption (Diagram *"Forecast of gas consumption in Ukraine in 2020 on the condition of efficient reforms"*).[67]

Forecast of gas consumption in Ukraine in 2020 on the condition of efficient reforms



CONCLUSIONS

If those reforms in the economy are not implemented or are not efficient enough, the index of Ukraine's dependence on gas imports from Russia in 2020 will reach a critical level – over 75%, since under that scenario imports of Russian gas are estimated at up to 50 BCM a year with flat consumption of 65 BCM a year and stagnation of domestic extraction.[68]

Specific of Ukraine-Russia relations in the oil and gas sector in the past decade were: on the part of Ukraine – inconsistency, lack of a system approach, prevalence of short-term interests over long-term goals, spread of non-transparent schemes and inability of the state leadership to get rid of the influence of FIGs competing for economic benefits from Ukraine-Russia commercial contracts; on the part of Russia – aggressiveness, consistency, coordination of efforts of the state and business structures, which let it impose on the Ukrainian counterpart a favourable for it format of relations.

As a result, Ukraine's dependence on Russian hydrocarbons critically increased, objectives set by the *Energy Strategy of Ukraine*, including diversification, were not met in 2006-2010. Furthermore, in connection with Russia's promotion of the North Stream and South Stream pipeline projects, Ukraine is facing the threat of loss of its role of the lead gas transit country in Europe, while remaining one of the biggest importers of Russian gas.

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65 "Russia will become a regional leader in the field of provision of the Eurasian energy security on the basis of… enhancement of long-term stability of demand and supply of energy resources in the Eurasian space at the expense of development of export deliveries of Russian energy resources and an active dialogue with countries producing and consuming energy resources in the region". – *Ibid*., p.86.

66 Source: *Gazprom* on foreign markets. – *Gazprom* in questions and answers 2010, p.52, *http://gazpromquestions.ru*.

67 Calculated by Razumkov Centre experts.

68 The consumption figures do not include volumes of gas pumped to underground gas storages.

EFFECTIVE UKRAINE-RUSSIA INTERGOVERNMENTAL AGREEMENTS AND COMMERCIAL CONTRACTS OF DELIVERY AND TRANSIT OF NATURAL GAS

INTERGOVERNMENTAL AGREEMENTS

Title/date of signing (ratification)/ validity term	Brief contents	General description and comments
Agreement between the Government of Ukraine and the Government of the Russian Federation on Export of Russian Natural Gas to Ukraine and Its Transit across the Territory of Ukraine to European Countries **of February 18, 1994** **Validity term:** February 18, 1994 – December 31, 2005 Automatically extended for following five-year periods, if neither party notifies the other party at least four years before the end of the five-year period of the Agreement validity term of its intention to terminate it.	**The Agreement** **set out** legal and economic principles of cooperation at Russian natural gas export to Ukraine and transit across Ukraine to European countries; **provided that**: the Russian party in the person of *Gazprom* OJSC in 1994-2005 would arrange for: • export of 50-70 BCM of Russian gas for Ukrainian consumers; • supply of 111.5-143.8 BCM of Russian gas a year for transit to delivery/ acceptance points on the border with Slovakia, Hungary, Romania and Poland; • transit of 25-35 BCM of natural gas a year from Central Asian countries for Ukrainian consumers across its territory on a contractual basis; the Ukrainian party in the person of *Ukrgazprom* JSC (since 1999 *Naftohaz Ukrajiny* NJSC) would arrange for: • transit of Russian gas across Ukraine from agreed delivery/acceptance points on the Russian-Ukrainian border to delivery/ acceptance points on the western border with other European countries; **provided for:** • signing of annual contracts between *Gazprom* OJSC and Ukrgazprom JSC (*Naftohaz Ukrajiny* NJSC) setting out commercial conditions of gas delivery and export; • linkage of the transit rate with the gas price; • a ban on re-export of Russian gas to third countries; • creation of new transit capacities on the territory of Ukraine on the condition of co-ownership.	The 1994 Gas Agreement set out the guidelines of Ukraine-Russia relations in the gas sector and provided that the key issues (including gas prices and transit rates) should be settled commercially, through contracts made between business entities – *Naftohaz Ukrajiny* NJSC and *Gazprom* OJSC.
Agreement between the Cabinet of Ministers of Ukraine and the Government of the Russian Federation on Guarantees of Russian natural gas transit across Ukraine **of December 22, 2000** **Ratified on November 15, 2001** **Validity term:** December 20, 2001 – December 31, 2013, except Annexes 1, 2 and Articles 2, 5, 9 (the Agreement was extended into 2002 and beyond by an agreement of October 4, 2001)	**The Agreement** **set out** legal and economic principles guaranteeing uninterrupted transit of Russian gas across Ukraine to European countries and guarantees of settlement between *Gazprom* OJSC and *Naftohaz Ukrajiny* NJSC for services of Russian gas transit and storage; **provided:** • the economic mechanism of the Ukrainian party repayment of its debt in case of extra-contractual withdrawal of Russian gas, in particular, through documentation of Ukraine's public debt in the form of governmental bonds; • imposition of an export duty on gas in the amount of $140/1,000 cu.m; • control of actual movement of gas across the Ukraine-Russia border by Ukrainian and Russian customs bodies; • Russian guarantees of transit of 30 BCM of Turkmen gas a year across the Russian territory.	**The gas agreements of 2000-2001 raised the Ukraine-Russia legal relations in the gas sector from the economic level of relations between business entities to the interstate political level:** *first*, by the Ukrainian Government providing guarantees for transit of Russian gas, its commitment not to take gas above contractual limits and liability in case of debt for delivered gas (Article 1 of the 2000 Agreement); *second*, by providing that the amount and form of payment for gas transit are to be specified in annual intergovernmental protocols (Article 2 of the 2001 Agreement).
Agreement between the Cabinet Agreement between the Cabinet of Ministers of Ukraine and the Government of the Russian Federation on Additional Measures at Provision of Transit of Russian Natural Gas across the Territory of Ukraine of October 4, 2001 **Ratified on November 15, 2001** **Validity term:** November 20, 2001 – December 31, 2013	**The Agreement** **set out** additional measures at provision of Russian gas transit across Ukraine and settlements by Gazprom OJSC for transit services; **provided that:** • the volumes of Russian gas transit across Ukraine and the amount of cash payments and/or volumes of gas delivered as payment for transit should be specified on the basis of annual intergovernmental protocols for the concerned year; • the Russian party guaranteed transit of Central Asian gas for Ukrainian consumers on the basis of contracts between business entities with account of annual intergovernmental protocols for the concerned year on conditions similar to those of Russian gas transit by the Ukrainian party to West European countries; • before November 1, 2001, *Naftohaz Ukrajiny* NJSC and *Gazprom* OJSC were to sign a long-term contract of Russian natural gas transit across Ukraine for 2002-2013; **regimented:** • the procedures associated with *Naftohaz Ukrajiny* NJSC debt to *Gazprom* OJSC for Russian gas delivered before June 1, 2000, but not paid for by means of issue of governmental bonds with the maturity terms of 2004-2013; • imposition of a gas export duty under annual intergovernmental protocols barring re-export of Russian gas from the territory of Ukraine; • performance of contractual obligations by the Ukrainian party in case of bankruptcy or reorganisation of *Naftohaz Ukrajiny* NJSC.	

Agreement between the Cabinet of Ministers of Ukraine and the Government of the Russian Federation on Strategic Cooperation in the Gas Sector **of October 7, 2002** **Validity term:** October 7, 2002 – October 7, 2032 To be extended automatically for following five-year terms if no party notifies the other party of its intention to terminate it at least two years before the end of another five-year term.	**The Agreement** **set out** the guidelines of strategic cooperation in the gas sector with the purpose of further development of Ukraine's main gas pipeline system and uninterrupted transit of gas to European countries across Ukraine: • development of a common balance and provision of gas transit; • construction, upgrade and operation of infrastructure facilities of the main gas pipeline system; • development of joint projects of gas transportation across the territory of both countries to foreign markets, including jointly with companies of third countries; • encouragement of gas field development projects on the territory of both countries. regimented the establishment of an international Consortium on parity terms whose responsibilities were to cover, in particular: • transportation of gas and guarantee of reliability of Ukraine's GTS, growth of gas transit across Ukraine; • creation of new competitive gas transportation capacities on the territory of Ukraine; • economic use and operation of the Ukrainian main gas pipeline system infrastructure; • raising investments necessary for the Ukrainian GTS modernisation and development.	**The main purpose of the 2002 Gas Agreement was to set up an international Consortium on mutually advantageous terms** in the form of a business company for gas transportation, guarantee of reliability, safety and stability of Ukraine's GTS operation and growth of natural gas transit across its territory. However, the Consortium had never been established.
CONTRACTS FOR 2009-2019		
Title/date of signing (ratification)/ validity term	**Brief contents**	**General description and comments**
Contract between Gazprom OJSC and Naftohaz Ukrajiny NJSC for purchase and sale of natural gas in 2009-2019 **of January 19, 2009** **Validity term:** January 1, 2009 – December 31, 2019	**The Contract** **specified** conditions of purchase and sale of Russian, Kazakh, Uzbek and Turkmen natural gas. **provided that:** • *Gazprom* OJSC (the Seller) undertook to supply, and *Naftohaz Ukrajiny* NJSC (the Buyer) – to accept and pay for up to 40 BCM of natural gas from January 1, 2009, till December 31, 2010, and 52 BCM/year starting from 2010 (*the Annex of April 21, 2010, speaks of 36.5 BCM for 2010*); • each year, the Buyer was to accept and pay for not less than 80% of the annual contracted volume; • the Buyer was not allowed to sell gas supplied by the Seller beyond Ukraine; • the contractual price of gas was set under the formula dependent on gas oil and black oil prices recorded in the pervious 9-month period on the South European market (basis of deliveries – Italy, Mediterranean); the basic price was set equal to $450/1,000 cu.m (*the actual price, according to the Annex of April 21, 2010, was reduced by the amount of customs duties, if envisaged by a Russian Government Resolution; the actual price of gas delivered in excess of 30 BCM in 2010 and in excess of 40 BCM starting from 2011 was not subject to a discount*); **provided that:** • if the Buyer took more than 6% of monthly volumes of deliveries from April till September inclusive, it was to pay a fine in the amount of 150% of the current gas price, and in case of taking from October till March inclusive – 300%; • the Buyer should not later than on the 7th day of the month following the month of delivery make payment in the amount of 100% of the value of delivered gas, if the Buyer failed to meet its payment obligations, in subsequent periods it was to pay in advance; • for late payment for delivered gas, the Seller might charge a fine from the Buyer in the amount of 0.03% for each day in default.[1] **envisaged:** • the Buyer's obligation to make with *Gazpromsbyt Ukraine* LLC (100% subsidiary of *Gazprom* OJSC) a long-term contract of gas delivery valid from January 1, 2009, till December 31, 2019, in the amount of 25% of all gas imported by the Buyer for sale to industrial consumers; • settlement of disputes between the parties at the Arbitration Institute of the Chamber of Commerce in Stockholm (Sweden).	Before signing of long-term contracts in 2009, contracts of June 21, 2002, and January 4, 2006 were in force, one after another. **Provisions of the 2002 gas contract** between *Naftohaz Ukrajiny* NJSC and *Gazprom* OJSC of the volumes and conditions of Russian gas transit across Ukraine in 2002-2013 **were balanced for both parties, not consistent though with the contract system customary for the EU countries**. **However, at the beginning of 2006 Russia decided to amend their provisions to its benefit**, having used the "energy weapon", i.e. cutting gas deliveries in the Ukrainian direction for several days by more than 100 million cu.m/day during the strong January frost. After that conflict, on January 4, 2006, *Gazprom* OJSC, *Naftohaz Ukrajiny* NJSC and *RosUkrEnergo* company (registered in Switzerland) made a commercial agreement "On Settlement of Relations in the Gas Sector". According to its provisions, *Naftohaz Ukrajiny* NJSC could no longer buy gas directly from Gazprom OJSC and had to do that via a mediator *RosUkrEnergo*. **The mechanism of relations provided by the 2006 Agreement fully met the Russian interests**, since *Naftohaz Ukrajiny* NJSC was cut from almost the entire sector of industrial consumers, which caused a sharp deterioration of its financial standing and led to growth of Ukraine's dependence on Russian gas. Furthermore, it set an unreasonably low rate of transit, while the gas price might go up. **Signing of the long-term contracts in 2009 was preceded by the gravest in the European history gas conflict caused by a dispute between Ukraine and Russia about the commercial conditions of supply**. In particular, Ukraine's leadership suggested that the gas price in 2010 should be unchanged and make $201/1000 cu.m at the transit rate not below $2 for 1,000 cu.m per 100 km[2]. Instead, *Gazprom* OJSC supported by the Russian Government insisted on transition to long-term contracts using a "formula approach". At that, the Russian party, as well as in 2006, resorted to forcible pressure on Ukraine, having taken an unprecedented decision to completely cut gas deliveries to the Ukrainian GTS, which stopped its transit abroad for two weeks, until long-term contracts were made. Some provisions of the contracts enabled their use for political goals, also prompted by the fact that they were drawn up in the conditions of critical aggravation of relations between the top Ukrainian officials – President Yushchenko and Prime Minister Tymoshenko, including in view of the would-be presidential campaign one year ahead (Insert "*Political aspect of long-term gas contracts of 2009*").
Contract between Naftohaz Ukrajiny NJSC and Gazprom OJSC of volumes and conditions of natural gas transit across Ukraine from 2009 till 2019 **Signed on January 19, 2009** **Validity term:** January 1, 2009 – December 31, 2019	**The Contract** **set out** commercial conditions of Russian gas transit across Ukraine by pipeline in the specified quantity; provided that • from 2009 till 2019 inclusive, the Customer (*Gazprom* OJSC) was to annually transfer to the Contractor (*Naftohaz Ukrajiny* NJSC) for transit to European countries not less than 110 BCM of natural gas; • the Contractor should on its own provide for proper operation of Ukraine's GTS and guarantee reliable and uninterrupted transit of the Customer's gas across Ukraine in volumes delivered for transit; • annual volumes of gas transit across Ukraine and distribution by quarter (and by direction) were to be specified in *Annexes to the Contract*; • the Customer and the Contractor were to annually sign a Technical Agreement specifying the directions and distance of gas transit, but the absence of a signed agreement did not present an obstacle for performance of contractual commitments by the parties; • from 2010, the rate of payment for services of transit of 1,000 cu.m of gas across Ukraine was to be determined by the formula containing a basic component, in the amount of $2.04 for 1,000 cu.m per 100 km, adjusted for the inflation rate in the EU, and a fuel component, dependent on the current gas price, transportation distance (1240 km) and a coefficient (0.03) taking into account the share of total transported volume used for process needs; • the Customer was to annually pay for services of gas transit across Ukraine provided by the Contractor by transferring funds to the Contractor's account before the 20th day of the month following the month when the services were provided; • in case of delayed payment for gas transit services the Customer might charge a fine in the amount of 0.03% for each day in default; • disputes between the parties were to be settled at the Arbitration Institute of the Chamber of Commerce in Stockholm (Sweden);	

1 The Annex dated April 21, 2010, removed from the Contract the provisions of penalty sanctions against the Seller and the Buyer in case of their short delivery/undertake of contracted monthly volumes of gas.
2 Joint Statement by the President of Ukraine Yushchenko and the Prime Minister of Ukraine Tymoshenko of December 31, 2008. – UNIAN, *http://unian.net* (in Ukrainian).

POLITICAL ASPECT OF LONG-TERM GAS CONTRACTS OF 2009

The contract of gas purchase and sale for the first time employed the "formula approach" whereby the gas price was set dependent on the market value of petroleum products (black oil and gas oil). This principle has been applied in European countries since 1960s, its benefit being that the gas price in the long run is revised beyond the influence of political factors.

Hence, by their form, the long-term contracts signed in 2009 resembled the legal pattern under which *Gazprom* OJSC dealt with European partners, but in essence, they bore a strong political component that cancelled all benefits of the "formula approach" because the Russian leadership continued to view gas as a tool of influence on the Ukrainian policy, while Ukraine's Prime Minister Yu.Tymoshenko in the first place looked at it through the prism of internal political struggle for the presidential post.

In the result of such approaches, *Gazprom* OJSC reassigned the right to claim debt from *RosUkrEnergo* to the amount of $1.7 billion (or 11 BCM of gas) to *Naftohaz Ukrajiny* NJSC[3] and allowed a 20% reduction of the gas price in 2009. In exchange for such "services", the Ukrainian side signing the gas contract for 2009 "overlooked" a number of provisions burdensome for it, in particular:

- the basic price overstated by at least $70/1,000 cu.m ($450 for 1,000 cu.m);
- the unreasonably high figure of the annual contractual volume (52 BCM);
- the toughest in Europe sanctions for breach of the "take or pay" provision (a penalty in the amount of 150-300% of monthly deliveries, dependent on the season);
- Europe's toughest procedure of payment for delivered gas (in case of late payment, subsequent deliveries only on prepayment terms, and delivery cuts by volumes equal to unpaid deliveries).

Unfair provisions of the long-term contract of 2009 did not allow *Naftohaz Ukrajiny* NJSC to pay for Russian gas with its own funds, which caused a large yearly deficit of its budget and critical growth of dependence of the Ukrainian economy on Russian gas.

Specifically, in 2009, *Naftohaz Ukrajiny* NJSC, because of the budget deficit in excess of UAH 30 billion, could not pay the Russian gas on its own, and this was by almost 50% made at the expense of the national gold and foreign currency reserves, through the state bank refinancing mechanism.

Since *Naftohaz Ukrajiny* NJSC was unable to meet the "take or pay" provision, Ukraine's Government had to agree to concessions to Russia in strategic issues, e.g., in the nuclear industry, in exchange for cancellation of penalty sanctions.

By and large, Russian government officials acting through *Gazprom* OJSC implanted in the long-term contracts of 2009 strong possibilities for economic influence on political developments in Ukraine.

This was made possible by the inability of Ukrainian presidential and governmental structures to formulate a common stand at negotiations due to personal political ambitions of the top state officials and influence of rival financial-industrial groups competing for commercial benefits from Russian-Ukrainian gas contracts.

By contrast, all actions by the Russian state bodies and business were well coordinated, which enabled Russia's Government to keep negotiation of gas contracts with Ukraine under its control.

INTERGOVERNMENTAL AGREEMENTS AND COMMERCIAL CONTRACTS

Title/date of signing (ratification)/ validity term	Brief contents	General description and comments
Agreement between the Government of Ukraine and the Government of the Russian Federation on Conditions of Delivery of Oil and Petroleum Products and Their Transportation across the Territory of Ukraine **February 18, 1994** **Validity term:** from February 18, 1994, till the end of a six month term from the date when one party notifies the other party of its intention to terminate its validity	**The Agreement** **regimented** issues of oil and petroleum product deliveries at world market prices and transportation across Ukraine at rates giving mutual economic benefit; **provided that:** • payment for Russian oil and petroleum products delivered to Ukraine should be made ex-Russian-Ukrainian border, proceeding from current prices of oil and petroleum products on the world market; • payment for Ukraine's oil transportation system services of Russian oil transit should be made at tariffs negotiated by the State Committee of Ukraine for Oil and Gas and the Ministry of Fuel and Energy of the Russian Federation[4]; • the Ukrainian party was to provide for return of petroleum products obtained from Russian crude oil delivered to Ukraine on the conditions of temporary importation, without collection of duty and quantitative restrictions, the volumes of such deliveries were to be specified in a separate agreement.	The Agreement provided for transition to payment for oil and petroleum products at world market prices. Meanwhile, payments to Ukraine's oil transportation system for transit of Russian oil were made at rates coordinated by concerned agencies of the two countries which actually deprived *Ukrtransnafta* OJSC of the right to set tariffs on its own. The practice proved that the Russian oil pipeline monopoly *Transnef*t JSC using that norm of the Agreement was repeatedly using the influence of Russian state bodies while negotiating transit tariffs.
Agreement between the Government of Ukraine and the Government of the Russian Federation on Oil Transit across Ukraine **August 18, 2004** **Validity term:** 2004-2019 Automatically extended for following five-year periods, unless the parties decide otherwise.	**The Agreement** regimented economic cooperation in transit of oil coming by pipelines from the Russian territory for third countries across the territory of Ukraine; **provided that:** • transit of oil was performed on the basis of contracts of services between authorised entities of the parties and contracts between the authorised entity on the part of Russia and consignors in volumes determined by schedules of oil transportation approved by the Russian party in accordance with the established procedure; • volumes and directions of oil transit across Ukraine were specified in annual protocols made by concerned bodies of the parties; • authorised entities of the parties provided for optimal operation of the Odesa-Brody oil pipeline, including deliveries of Russian oil in the direction of Brody-Odesa-Pivdennyj maritime oil terminal; • the Ukrainian party undertook to inform the Russian party of amendment of tariffs of oil transit across Ukraine three months before the effective date of such amendment; **provided that:** coordination and control of fulfilment of that Agreement rested with concerned bodies of the parties: • on the part of Russia – the Ministry of Industry and Energy of the Russian Federation; • on the part of Ukraine – the Ministry of Fuel and Energy of Ukraine; • the authorised entities of the parties in charge of fulfilment of that Agreement were: • on the part of Russia – Transneft JSC; • on the part of Ukraine – Ukrtransnafta OJSC.	General description and comments The Agreement and commercial contracts changed the legal mechanism of conclusion of contracts for oil transit by Ukrainian routes. (1). Before their signing, *Ukrtransnafta* OJSC made contracts directly with Russian oil extracting companies. The Agreement and commercial contract of 2004 provided that oil transit was performed on the basis of contracts of services between Transneft JSC and *Ukrtransnafta* OJSC, while contracts with consignors of oil were signed by *Transneft* JSC in volumes determined by schedules approved by the Russian oil pipeline company itself. **Therefore, after signing of the Agreement and a commercial contract of oil transportation across Ukraine, *Ukrtransnafta* OJSC appeared fully dependent on the sole customer of transit services, moreover not liable for breach of the oil transportation schedule since it was not its owner, but only fulfilled orders of Russian oil extracting companies for oil pumping.** (2). The Agreement provided for the Odesa-Brody oil pipeline use to deliver Russian oil in the direction of Brody-Odesa-Pivdennyj maritime oil terminal. This provision of the Agreement specified in a relevant commercial contract created legal grounds to bar operation of the Odesa-Brody oil pipeline in the strait direction, to deliver Caspian oil to Ukraine and transit it to Europe, and therefore barred diversification of oil sources for Ukraine.
In pursuance of the Agreement provisions, commercial contracts were made: • **between *Ukrtransnafta* OJSC and *Transneft* JSC on provision of oil transportation services across Ukraine for 15 years**. According to the contract terms, functions of the sole customer of oil transportation services of behalf of all Russian companies were granted to *Transneft* JSC. The contract seriously weakened *Ukrtransnafta* OJSC influence on setting transit tariffs and restricted its right to provide oil transportation services to third parties, having specified that such services were provided only if additional volumes of oil did not prevent the Contract implementation and with *Transneft* JSC consent; • **among *Ukrtransnafta* OJSC, *Transneft* JSC and *TNK-BP* on Russian oil transportation in the reverse direction along the Mazyr-Brody-Pivdennyj maritime oil terminal route**.		

[3] RosUkrEnergo debt to Gazprom OJSC that arouse in 2008.

[4] In connection with reorganisation of those executive bodies in Ukraine and the Russian Federation, their functions are now performed by the Ministry of Fuel and Energy of Ukraine and the Ministry of Energy of Russia, respectively.

3. UKRAINE-RUSSIA COOPERATION IN THE NUCLEAR POWER ENGINEERING SECTOR

As we mentioned, after the USSR break-up Ukraine and Russia inherited parts of once a united nuclear complex which led to long-standing interdependence of nuclear power engineering sectors of both countries. Hence, nuclear power engineering actors of both states established cooperative ties, signed a number of documents necessary for solution of cooperation issues.

However, not all lines of cooperation are developing with equal regard to national interests of the two countries.[1] The least problem-hit (conventionally and, maybe, to some point of time) are the segments of delivery of raw materials for fresh nuclear fuel and nuclear power engineering industry, with its natural or traditional interdependence of Ukrainian and Russian enterprises.[2] More problematic are aspects dealing with employment of Ukrainian enterprises in large-scale Russian projects in third countries, as well as prospects of Ukrainian nuclear power engineering development, in particular, creation of nuclear fuel cycle elements in Ukraine.

This section briefly describes the key aspects of the Ukraine-Russia cooperation, first of all, problem-hit, since the future of relations between Ukraine and Russia in nuclear power engineering and in the energy sector as a whole depends exactly on solution of those problems and existence of the political will of both parties in this respect.

The key indices describing nuclear power engineering sectors of both countries are presented on Map "*Nuclear sectors of Ukraine and Russia: basic indices*". For brief contents of the main documents that lay down the principles of bilateral relations in the sector see Annex 1 to this section.

3.1. UKRAINIAN NUCLEAR POWER ENGINEERING[3]

Ukraine has a developed nuclear power engineering sector generating almost half of all electricity produced in the country. The prospects of its further development are outlined in the *Energy Strategy of Ukraine through 2030* (hereinafter – *Energy Strategy of Ukraine*) and the Plan of Measures at its implementation for 2006-2010.[4]

The nature and specifics of Ukraine-Russia cooperation in nuclear power engineering sector are primarily shaped by the following factors:

- prevailing dependence of Ukraine on Russia, including actually monopoly dependence on supply of fresh and processing and storage of spent nuclear fuel, which already created political risks of the Russian party using that dependence for pressure on Ukraine;[5]
- non-publicity of the sector, not only because of its evident sensitivity (due to connection with non-proliferation issues), but also because of the lack of timely and regular public information about purely economic parameters of its operation that prompts suggestions of presence of a corrupt dimension there and affects its further development;
- continuous delay of Ukraine's implementation of its own decision and programmes of nuclear power engineering development, first of all, creation of nuclear fuel cycle (NFC) elements, as a result of which, the relevant scientific and scientific-technological potential of the country steadily goes down, and dependence on the Russian counterpart goes up.

Nuclear generation

Ukraine now has four operational NPPs – Zaporizhya, Rivne, Khmelnytskyj, South Ukrainian – running 15 power

[1] The segment of Russian nuclear fuel transportation for third countries across the territory of Ukraine is beyond the scope of this study.

[2] In particular, Russia supplies up to 85% of equipment for Ukrainian NPPs. In their turn, Ukrainian enterprises (Sumy Machine-Building Scientific-Production Association, *Nasosenergomach* OJSC and others) take part in implementation of the Programme of development of nuclear power engineering of the Russian Federation through 2030 by supplying power engineering equipment. For instance, a third of the *Turboatom* OJSC stock of orders (Kharkiv) falls on Russia, its low-speed turbines run at all Russian NPPs, *Power Machines* OJSC only commences their production in Russia.

[3] See also: Nuclear power in Ukraine: safety and development. Razumkov Centre analytical report. – *National Security & Defence*, 2005, No.6, p.3-30; Nuclear energy in the world and in Ukraine: state and prospects of development. Razumkov Centre analytical report, 2008, No.3, p.2-34; Diversification projects in Ukraine's energy sector: progress, problems, and ways of implementation. Razumkov Centre analytical report, 2009, No.6, p.38-49.

[4] Approved by CMU Directive No.436 of July 27, 2006.

[5] E.g., in December 2004, in the heat of the political crisis in Ukraine, *TVEL* OJSC spoke of possible suspension of nuclear fuel supply in 2005. After the Russian leadership changed its position regarding the presidential elections in Ukraine, that statement was refuted. See: Pechera Yu., Kosharna O. Safety and management of spent nuclear fuel – Safety and Non-proliferation, 2005, No.2, p.37 (*in Ukrainian*).

RUSSIA'S NUCLEAR

ROSATOM STATE COMPANY

Covers 10% of the world demand for uranium, nearly 20% of uranium conversion, 45% of the world market of isotope enrichment of uranium, 17% of the nuclear fuel fabrication market (74 power units in 15 countries of the world).

ATOMSTROYEXPORT CJSC

Accomplished projects:

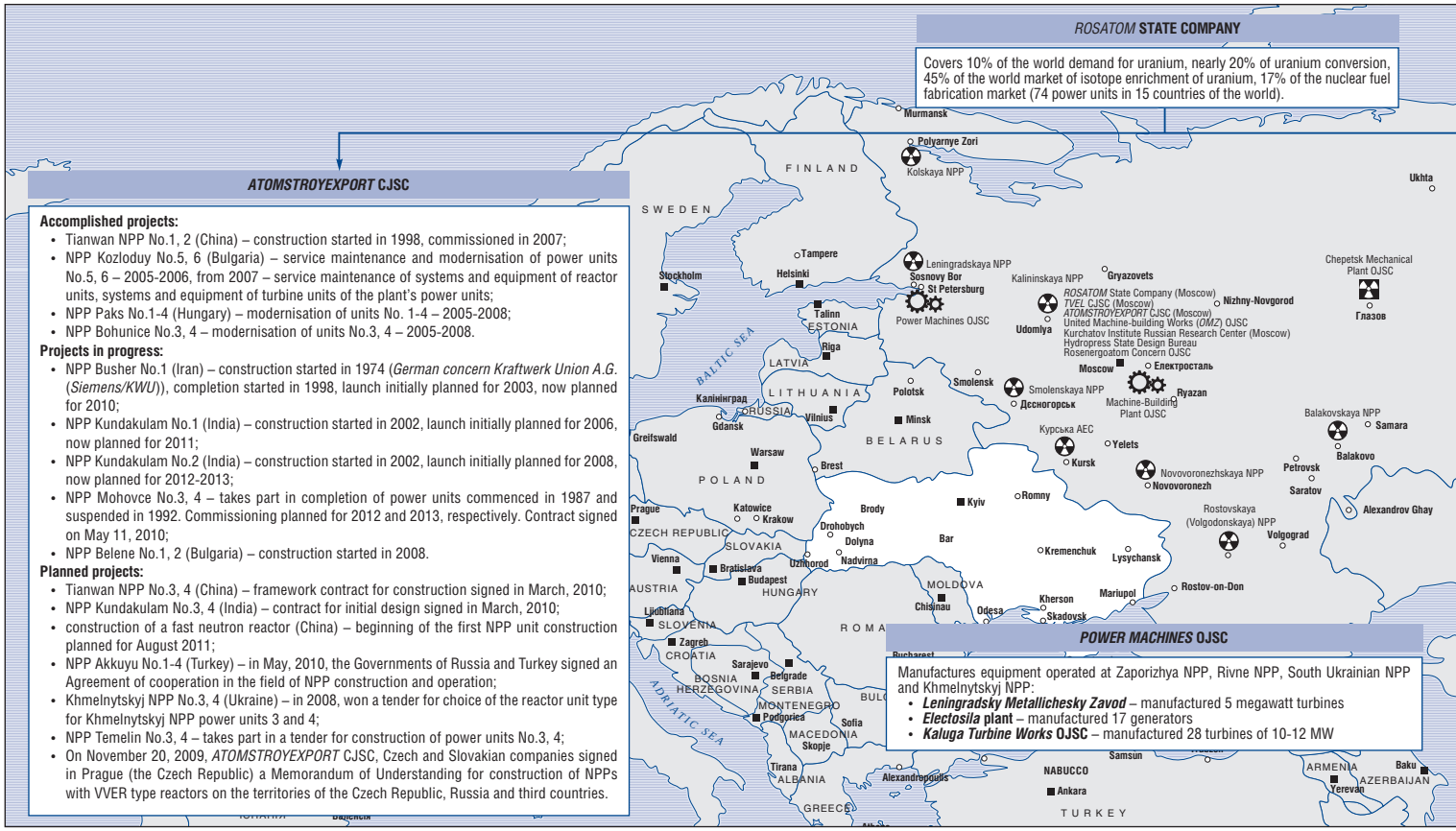
- Tianwan NPP No.1, 2 (China) – construction started in 1998, commissioned in 2007;
- NPP Kozloduy No.5, 6 (Bulgaria) – service maintenance and modernisation of power units No.5, 6 – 2005-2006, from 2007 – service maintenance of systems and equipment of reactor units, systems and equipment of turbine units of the plant's power units;
- NPP Paks No.1-4 (Hungary) – modernisation of units No. 1-4 – 2005-2008;
- NPP Bohunice No.3, 4 – modernisation of units No.3, 4 – 2005-2008.

Projects in progress:

- NPP Busher No.1 (Iran) – construction started in 1974 (*German concern Kraftwerk Union A.G.* (*Siemens/KWU*)), completion started in 1998, launch initially planned for 2003, now planned for 2010;
- NPP Kundakulam No.1 (India) – construction started in 2002, launch initially planned for 2006, now planned for 2011;
- NPP Kundakulam No.2 (India) – construction started in 2002, launch initially planned for 2008, now planned for 2012-2013;
- NPP Mohovce No.3, 4 – takes part in completion of power units commenced in 1987 and suspended in 1992. Commissioning planned for 2012 and 2013, respectively. Contract signed on May 11, 2010;
- NPP Belene No.1, 2 (Bulgaria) – construction started in 2008.

Planned projects:

- Tianwan NPP No.3, 4 (China) – framework contract for construction signed in March, 2010;
- NPP Kundakulam No.3, 4 (India) – contract for initial design signed in March, 2010;
- construction of a fast neutron reactor (China) – beginning of the first NPP unit construction planned for August 2011;
- NPP Akkuyu No.1-4 (Turkey) – in May, 2010, the Governments of Russia and Turkey signed an Agreement of cooperation in the field of NPP construction and operation;
- Khmelnytskyj NPP No.3, 4 (Ukraine) – in 2008, won a tender for choice of the reactor unit type for Khmelnytskyj NPP power units 3 and 4;
- NPP Temelin No.3, 4 – takes part in a tender for construction of power units No.3, 4;
- On November 20, 2009, *ATOMSTROYEXPORT* CJSC, Czech and Slovakian companies signed in Prague (the Czech Republic) a Memorandum of Understanding for construction of NPPs with VVER type reactors on the territories of the Czech Republic, Russia and third countries.

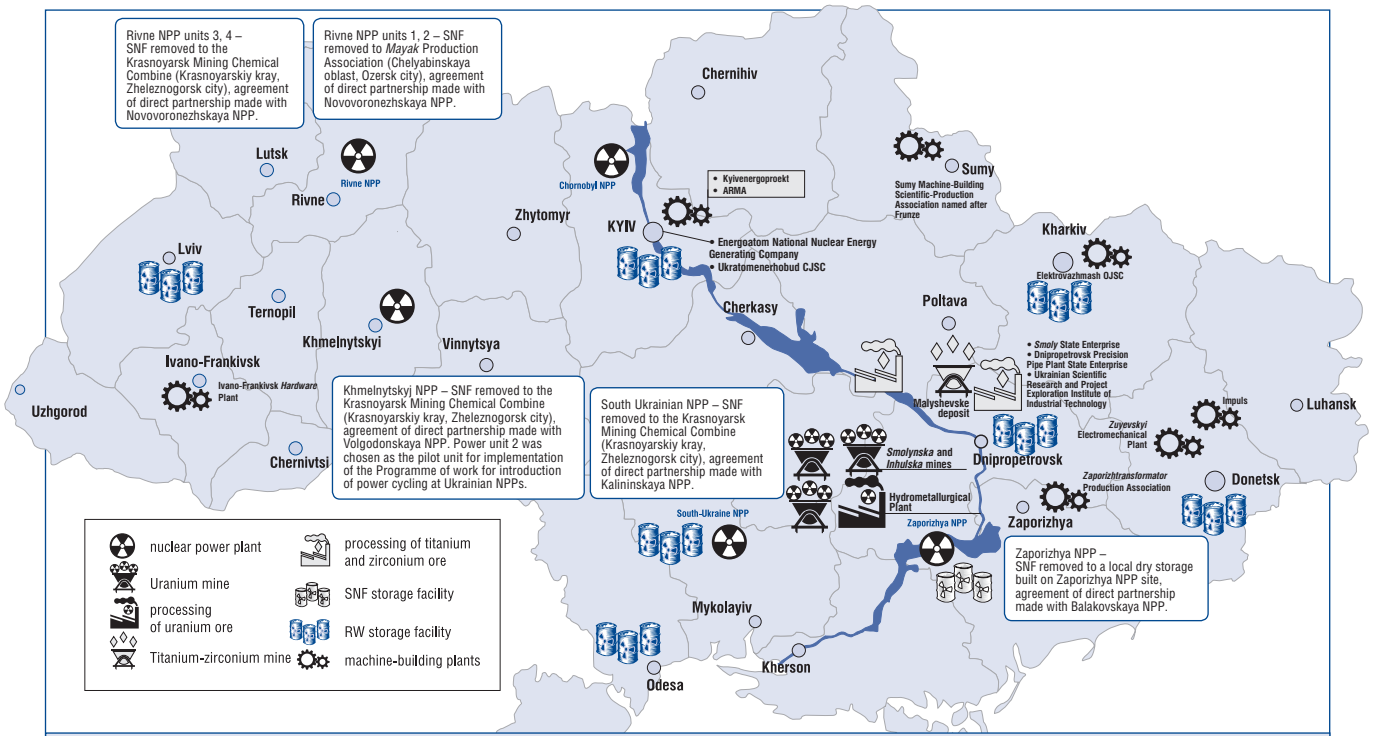


POWER MACHINES OJSC

Manufactures equipment operated at Zaporizhya NPP, Rivne NPP, South Ukrainian NPP and Khmelnytskyj NPP:

- ***Leningradsky Metallichesky Zavod*** – manufactured 5 megawatt turbines
- ***Electosila* plant** – manufactured 17 generators
- ***Kaluga Turbine Works* OJSC** – manufactured 28 turbines of 10-12 MW

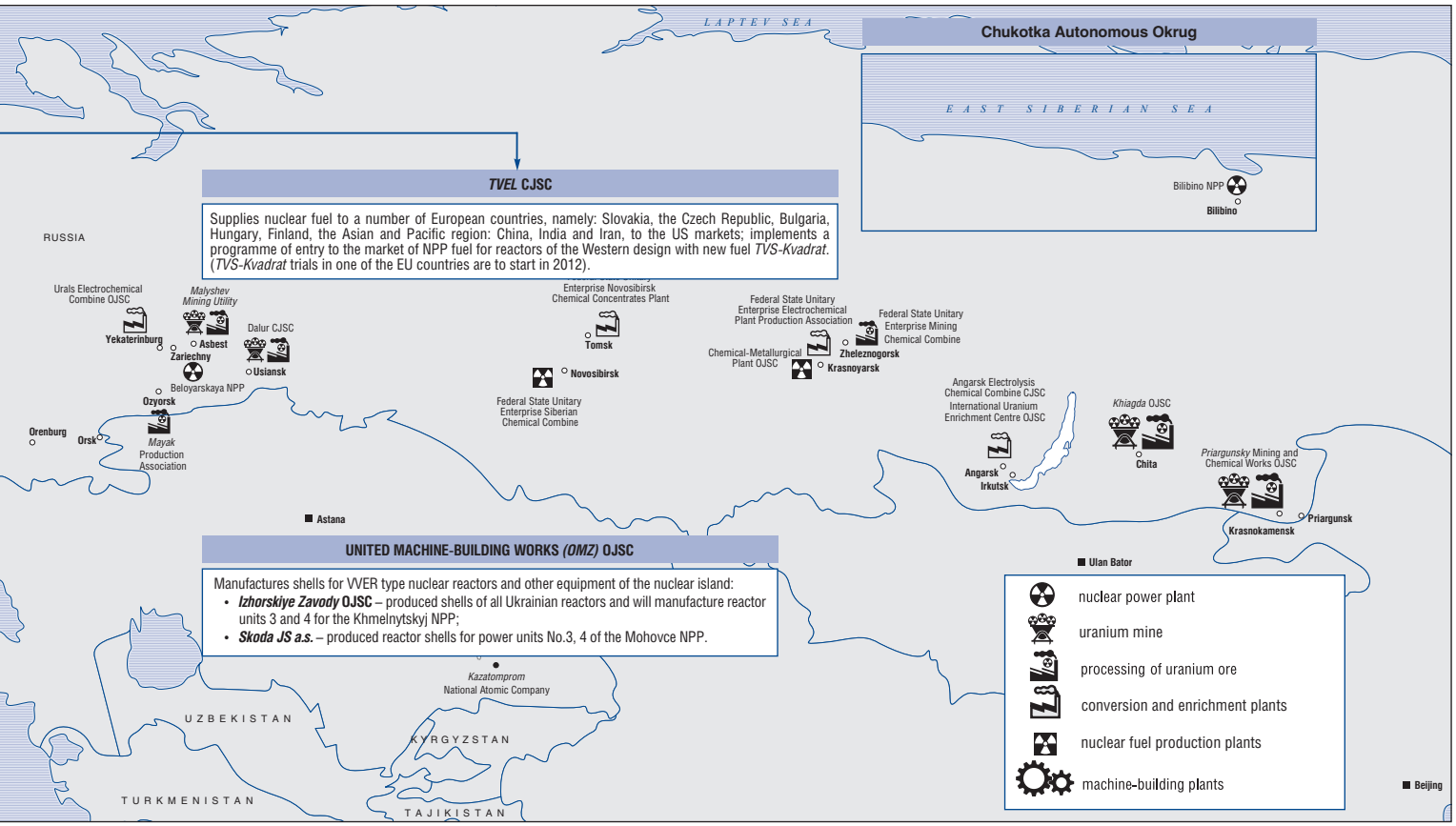
Ukraine's nuclear



UKRAINE

- ranks sixth in the world and first in Europe by explored uranium reserves (1.8% of the world explored reserves)
- possesses unique, Europe-largest deposits of zirconium; Ukrainian enterprises in fact monopolised supply of raw zirconium to the world market
- has uranium and zirconium ore processing enterprises
- possesses research and industrial facilities and advanced technologies of production of nuclear-pure zirconium, hafnium and rolled zirconium
- is the third country in the world, after the USA and France, producing pure hafnium
- ranks seventh in the world and fifth in Europe by electricity generation at NPPs
- in the future, can effectively create its own nuclear fuel, employing foreign capacities only for enrichment of uranium

SECTOR:



energy sector

Active power units

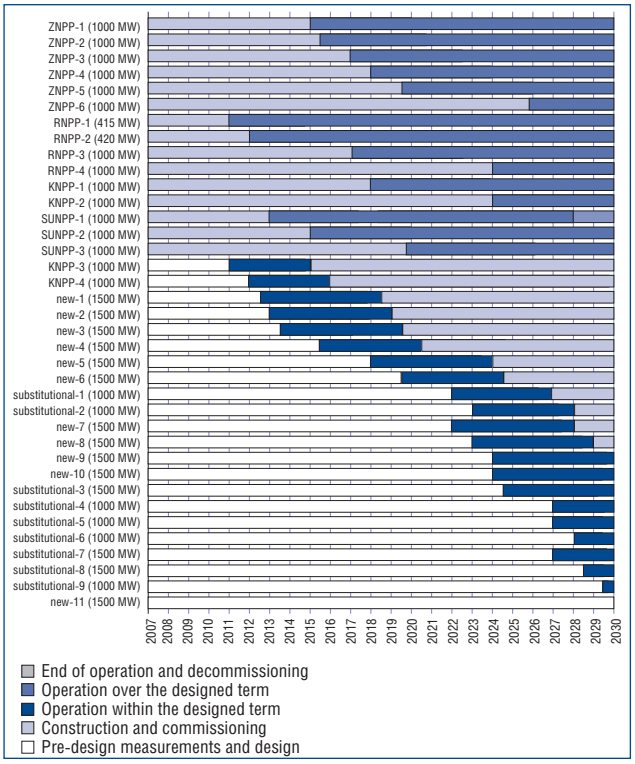
NPP	Power unit number	Electric power, MW	Reactor unit type	Date of commissioning	Last year of designed operation term
Zaporizhya NPP	1	1,000	VVER 1000	December 1984	December 2014
	2	1,000	VVER 1000	July 1985	July 2015
	3	1,000	VVER 1000	December 1986	December 2016
	4	1,000	VVER 1000	December 1987	December 2017
	5	1,000	VVER 1000	August 1989	August 2019
	6	1,000	VVER 1000	October 1995	October 2025
South-Ukraine NPP	1	1,000	VVER 1000	December 1982	December 2012
	2	1,000	VVER 1000	January 1985	January 2015
	3	1,000	VVER 1000	September 1989	September 2019
Rivne NPP	1	420	VVER 440	December 1980	December 2010*
	2	415	VVER 440	December 1981	December 2011*
	3	1,000	VVER 1000	December 1986	December 2016
	4	1,000	VVER 1000	October 2004	October 2034
Khmelnytskyj NPP	1	1,000	VVER 1000	December 1987	December 2017
	2	1,000	VVER 1000	August 2004	August 2034

* On December 10, 2010, State Nuclear Regulatory Committee of Ukraine has extended the term of operation for units 1,2 at Rivne NPP for 20 years.

Planned power units

NPP	Power unit number	Electric power, MW	Reactor unit type	Date of commissioning (*planned*)
Khmelnytskyj NPP	3	1,000	V320	Studies are underway
	4	1,000	V320	

Construction and commissioning of power units (1,000 MW or 1,500 MW power units)



* Commissioning of the new nuclear units in the specified time is doubtful due to non-implementation of the Energy Strategy of Ukraine.

units of the Russian design: two power units with *VVER-440* reactors (with the rated electric power of 420 and 415 MW, respectively) and 13 *VVER-1000* power units (1,000 MW each), two of them commissioned in 2004.[6] Active Ukrainian NPPs are operated by *Energoatom* NNEGC. In 2009, NPPs accounted for 48% of electricity generation.[7]

Over the past five years, thanks to safety enhancement measures, better technical maintenance, replacement of equipment, professional development of personnel, power units at NPPs were operating quite stably.[8] In particular, in 2009, compared to the previous year, the number of load shedding instances decreased 1.8 times, power unit shutdowns – 2.3 times; the quantity of electricity not generated because of failures fell almost four-fold; no accidents or incidents under the International Nuclear Event Scale (*INES*) were registered at NPPs.

Operation and extension of service life of power units.[9] Ukrainian and Russian operators interact in line with the Programme of cooperation between *Energoatom* NNEGC and the Russian *Rosenergoatom* concern, annually approved under the interdepartmental Agreement of scientific-technological cooperation of December 2, 1999.[10]

Currently, the most urgent tasks that require joint efforts of the Ukrainian and Russian parties are the following:

- **Introduction of power cycling at Ukrainian NPPs.** The need of that step stems from the insufficient throughput of Ukrainian power grids, its difficulty being that *VVER* reactors and their nuclear fuel were not designed for operation in the power cycling mode.[11]

In 2003, *Energoatom* NNEGC and *TVEL* OJSC agreed the Programme of work for introduction of power cycling at Ukrainian NPPs, involving Kurchatov Institute Russian Research Center, *Hydropress Design Bureau* and other institutions. K2 power unit was chosen for pilot trials. The beginning of its trial operation in the power cycling mode is planned for 2011. The documents necessary for the project start are already available.[12]

Introduction of power cycling may, *first*, have a positive effect on the service life of power units and adopted design limitations as to the core operation parameters, *second*, it will promote the stability of Ukraine's energy system (first of all, the network frequency) in the conditions of daily/seasonal fluctuation of demand and economy of resources (nuclear fuel), *third*, it is set to enhance the competitiveness of Ukrainian NPPs: *Energoatom* NNEGC hopes that it will be able to sell redundant electricity (so-called power cycling component) at a rate higher than basic.

- **Extension of service life of NPP power units in excess of the designed term**.[13] In line with the *Energy Strategy of Ukraine*, by 2018, it is planned to extend the service life of 12 out of 15 active power units, first of all, units 1-2 at the Rivne and unit 1 at the South Ukrainian NPPs – since their designed terms expire 2010-2012. *Energoatom* NNEGC is performing relevant preparatory operations in line with the Comprehensive Programme of work for extension of service life of active NPP units.[14]

Cooperation with Russian counterparts in that field is of particular importance, since Russia has vast experience of extending the service life of *VVER* reactors at its NPPs: in 2001-2009, it extended operation of 13 power units with the aggregate installed power of 6.8 MW. That is why the domain "modernisation and extension of service life of NPPs" in Ukraine-Russia cooperation is deemed especially important. In particular, within its framework, common documents are drawn up;[15] the Russian experience of survey of the current state of equipment at Ukrainian NPPs is employed; specialists from lead Russian institutions are immediately involved in practical work at Ukrainian NPP sites.

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6 To denominate specific features of reactor unit (reactor) construction, different terms are used: development, project, construction, design. This text uses the word "design".

7 82.9 billion KW of electricity was generated, which is 7.7% less than in 2008; the installed power utilisation factor equalled 68.4%, or 5.5% less. The decrease in those figures is attributed to the economic crisis and associated decline of demand for electricity.

8 Those steps are mainly taken under the Summary Programme of safety enhancement at Ukrainian NPPs, combining the Comprehensive Programme of work for extension of NPP service life and the Plan of Measures at implementation of the Concept of safety enhancement at active NPP units.

9 For more detail see: Nuclear energy in the world and in Ukraine…, p.16-19.

10 Currently effective is the Programme approved by *Energoatom* NNEGC Order No.1203 of December 31, 2009. The Programme envisaged various measures – from joint meetings of the Council of Chief Engineers of Russian and Ukrainian NPPs and resumption of work of the *VVER-440*, *VVER-1000* club to conclusion of agreements of direct partnership between NPPs (Khmelnytskyj and Volgodonskaya, Zaporizhya and Balakovskaya, Rivne and Novovoronezhskaya, South Ukrainian and Kalininskaya).

11 For that reason the State Nuclear Regulatory Committee is cautious about introduction of power cycling, insisting that it may be introduced only at power units whose safety fully meets international standards. See: Mykolajchuk Ye.: The state is a very naïve and trustful NPP owner. – *AtomNews*, March 17, 2010, *http://www.atomnews.info* (*in Russian*).

12 The developed documents include: the draft Programme of work at substantiation and introduction of daily power cycling in the range of 100-75-100% of the rated power at *VVER-1000* power units of Ukrainian NPPs; the Conceptual technical solution of introduction of the mode of daily power regulation in the range of 100-75-100% of the rated power at K2 power unit. Finalised were: Section 60 of the Requirements of general safety of NPP reactor units for substantiation of safety of K2 operation in the power regulation mode, and the Preliminary report of analysis of safety of K2 operation in that mode. The Technical solution of trial operation of K2 in the power regulation mode was presented for approval to the State Nuclear Regulatory Committee.

13 See also: Nuclear power in Ukraine: safety and development..., p.23-24.

14 The Programme was approved by CMU Resolution No.263 of April 29, 2004.

15 The guideline document "Monitoring of NPP building structures" has been drawn up (effective in Ukraine from March 2007), development of the document "Management of ageing nuclear station building structures: Technical requirements" is nearing completion.

In particular, thanks to those joint efforts, all procedures were successfully accomplished required to get a licence to extension of service life of power units 1-2 at the Rivne NPP for 20 years, issued by the State Nuclear Regulatory Committee on December 10, 2010.[16]

Prospects of nuclear power generation. The *Energy Strategy of Ukraine* provided for NPP installed power growth from 13.835 GW to 29.5 GW. In particular, it is planned to accomplish construction and **commission before the end of** 2016 power units 3 and 4 at the Khmelnytskyj NPP.[17] In pursuance of those plans, a tender for the reactor unit choice was held in 2008. The Russian *Atomstroyexport* CJSC won the tender, having proposed improved *VVER-1000* (*V-392B*) reactor units, to be built by *Izhorskiye Zavody* OJSC.

Already at that stage, many questions arose as to the power unit completion project. Since the time of the tender, there has been no project feasibility study and, respectively, reasonable pricing parameters, so it remains unknown on the basis of what calculations talks are being held about Russian credits for construction funding by the Ukrainian side.[18] Estimates of the construction cost mentioned in official statements (some UAH 30 billion, or $4-5 billion), were questioned by many experts as overstated.[19] Doubts were also expressed about the utility of power units' completion using old building structures and their fitting with *VVER* reactors.[20]

But despite the doubts and reservations, the Governments of Ukraine and the Russian Federation on June 9, 2010, signed the Agreement of cooperation in construction of power units 3 and 4 at Khmelnytskyj NPP. **Noteworthy, the Agreement carries an unusual for the world practice obligation of the customer – Ukraine – to feed the new power units only with Russian-made nuclear fuel over their entire service life**.

The Russian party is to finance 85% of the construction value, Ukraine – 15%. A $1 billion credit for Ukraine to meet its financial commitments under the Agreement will probably be provided by *Sberbank Rossii* OJSC. Power unit 3 is to be **commissioned** in 2016, 4 – in 2017.

Concerning **new NPP construction**, the Ministry of Fuel and Energy jointly with *Energoatom* NNEGC plan to finish compilation of the Cadastre of sites for construction of new NPP units in 2011, on whose basis *Energoatom* NNEGC will choose the reactor type that may be used in Ukraine (the list of possible manufacturers includes *Rosatom*, *AECL* (Canada), *KEPCO* (Korea), *AREVA* (France), *Westinghouse* and others**).**

However, as soon as in 2008, the lag behind the terms of preparatory measures and works set by the relevant plans made 1.5-2 years. This questions timely and full attainment of the objectives set by the *Energy Strategy of Ukraine* **in this respect.**

The issue of new power unit construction is of strategic importance for Ukraine. Its solution should take into account the following factors: geopolitical and security priorities of the state; the need to diversify sources of nuclear fuel (and, respectively, choice of reactor types); provision of the required parameters of power regulation in electric grids of the Ukrainian United Energy System through greater manoeuvrability of the selected reactor types; employment of the national scientific-technological potential for development and construction of new power units; Ukraine's possible accession to the European energy system (*UCTE*).[21]

Nuclear fuel cycle (NFC)

Ukraine has no complete cycle of nuclear technologies necessary for production of fresh and processing of spent nuclear fuel for NPPs, so it buys fresh fuel from Russia and sends there spent fuel for processing and storage – despite the plans of creating a domestic "partly closed", or "incomplete" NFC that did not envisage enrichment of natural uranium announced in early 1990s, since employment of the relevant technologies and construction of enterprises was deemed unreasonable. With time, this stand has not changed, and in October, 2010, Ukraine joined the International Uranium Enrichment Centre (IUEC) established on the Russian initiative in Angarsk (see Insert "*International Uranium Enrichment Centre…*", p. 43).

[16] In particular, a Comprehensive inspection performed in November, 2010, established that: the NPP followed conditions of the current licence; data provided in reports of regular reassessment of safety were true; the operator was ready to run power units 1, 2 at the Rivne NPP above the designed term. Reliability of power units 1, 2 at the Rivne NPP was also certified by international experts during the IAEA *OSART* mission and partner inspections by the World Association of Nuclear Operators (*WANO*). See: State Nuclear Regulatory Committee issued licence to extend operation of units 1, 2 at Rivne NPP by 20 years. – Official website of the State Nuclear Regulatory Committee, December 16, 2010, *www.snrk.gov.ua* (*in Ukrainian*).

[17] The power units' construction was started in 1987-1988 and suspended because of the moratorium on nuclear facilities' building in Ukraine after the Chornobyl accident. In 2005-2006, expert examination of the structures was held and admitted that the power units could be completed on their basis (physical readiness: No.3 – 70%, No.4 – 28%). *Energoatom* NNEGC is sure that the structures are reliable and can reliably serve for 45 years. See: Russian Federation agreed to credit Ukrainian portion of procurements for Khmelnytskyj NPP completion. – RBC Ukraine, December 12, 2010, *http://rbc.ua* (*in Russian*).

[18] As of 2007, the average value of light-water reactor *AP-1000* (by *Westinghouse*) made $2.15 billion, European *EPR-1600* reactor (*AREVA*) – $4 billion, Russian *VVER-1000* – $1.67 billion (the Russian Federation agreed to build phase II of the Tianwan NPP in China for $1.7 billion). India in March, 2010, set the reference price of VVER-1000 at $1.6 billion.

[19] See, e.g.: Price of power units for Khmelnytskyj NPP overstated 3-4 times – Sokolovskyj. – *Fokus*, June 21, 2010, *http://focus.ua/politics*.

[20] For instance, the State Nuclear Regulatory Committee had reservations about the power units' completion with old structures. See: Ukraine's State Nuclear Regulatory Committee considers completion of units 3 and 4 of Khmelnytskyj NPP unsafe. – RBC Ukraine, June 26 2010, *http://rbk.ua* (*in Russian*).

[21] Of interest in this respect are the Agreement "On Measures at Provision of Parallel Operation of the United Energy System of the Russian Federation and the United Energy System of Ukraine" signed on October 27, 2010, and the Prime Ministers' arrangement of urgent drafting of a long-term agreement that will tie energy systems of Russia and Ukraine. That agreement was unnecessary since the Ukrainian and Russian energy systems are already working in parallel, while having signed the long-term agreement, Ukraine may lose the opportunity of integrating its power grids in the European energy system.

At present, Ukraine produces natural uranium covering some 30% of the domestic demand and meets 100% of domestic and of Russian demand for zirconium concentrate, its share in the nuclear fuel value is close to 20%. The rest 80% of the value is mainly created by Russia, and also by Kazakhstan where fuel pellets are made.

Therefore, operation of Ukrainian NPPs strongly depends on the Russian counterpart. That dependence could be reduced only through diversification of sources of nuclear fuel, creation of its reserve stock and actual production of domestic NFC elements.

Supply of fresh nuclear fuel for Ukrainian NPPs and diversification of its sources.[22] Up to the end of 1996, nuclear fuel for Ukrainian NPPs was supplied on a compensation basis in exchange for arms-grade uranium contained in nuclear warheads, which Ukraine transferred to Russia after repudiation from nuclear arms.

In 1995, Ukraine announced an international tender for nuclear fuel supply to Ukrainian NPPs in 1996-2010, the Russian *TVEL* company was declared its winner, and a relevant contract through 2010 was made with it.[23] In 2003, in connection with completion of K2/R4 power units' construction, two additional contracts were made with *TVEL* for supply of nuclear fuel for the entire period of their operation.

At the same time, from 2005, a joint US-Ukrainian project, Ukraine Nuclear Fuel Qualification Project, was implemented, whereby *Westinghouse* fuel assemblies were loaded for trial and production operation in power unit 3 of the South Ukrainian NPP. In 2008, a commercial contract was signed with *Westinghouse* for supply in 2011-2015 of its nuclear fuel for production run at three *VVER-1000* power units of the South Ukrainian NPP (total of 630 fuel assemblies). The contract provisions contain a number of reservations, as at the time of its signing, trial operation was still underway and was to be completed in 2009.

Conclusion of that contract was viewed as an important step towards real diversification of nuclear fuel supply sources for Ukrainian NPPs. However, it met rather a "painful" reaction in Russia that toughly competed with *Westinghouse* on the world market of nuclear fuel for *VVER* reactors.[24] That is why some experts suggested that fulfilment of the contract with *Westinghouse* would complicate relations with *TVEL*, the contract with which was to expire in 2010. Meanwhile, the State Nuclear Regulatory Committee rejected a licence to *Westinghouse* to commercial operation of its nuclear fuel at Ukrainian NPPs, insisting on further trials.[25]

In April, 2010, amongst negotiation of a new contract of fresh nuclear fuel supply with *TVEL*, *Energoatom* CEO reported that the company planned to fulfil a commercial contract with *Westinghouse* from 2011, having extended the licence to trial operation of its nuclear fuel. The report was deemed politically rather than economically motivated, but according to experts, the existence of an alternative supplier somehow helped *Energoatom* NNEGC to hold constructive talks with the Russian counterpart.[26] Ukraine's position at negotiations was further strengthened by the existence of a reserve stock of nuclear fuel and materials created mainly in 2009 (Insert "*Reserve of nuclear fuel and materials*").

The contract with *TVEL* was signed on June 1, 2010. Until that time, for confidentiality reasons, the contract parameters were not officially reported.[27] *Energoatom* NNEGC only assured that the contract was mutually advantageous, did not run contrary to the legislation or envisage ousting of *Westinghouse* company from the Ukrainian market of nuclear fuel.[28]

So, generally speaking, Ukraine and Russia are interdependent in supply of fresh nuclear fuel and its components. But while Russia successfully makes use of the advantages of being the supplier of the end product (fresh nuclear fuel), Ukraine failed to effectively use its advantages. The only exception from the generally passive stand of the state in that sector towards diversification of nuclear fuel supply was presented by signing a contract with *Westinghouse* company for nuclear fuel supply to three power units of the South Ukrainian NPP in 2011-2015.

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[22] For more detail see: Diversification projects in Ukraine's energy sector: progress, problems, and ways of implementation..., p.40-45.

[23] The other tender participants were *Westinghouse Electric* (USA) and *Combustion Engineering* (Switzerland).

[24] E.g., a large-scale PR campaign using rather dirty tricks was unleashed against *Westinghouse*. See: Diversification projects in Ukraine's energy sector: progress, problems, and ways of implementation…, p.44.

[25] The rejection was explained by complaints concerning the amendment in the design of some fuel assemblies made by *Westinghouse* after early discharge of its fuel from the Temelin NPP (the Czech Republic) in 2005. See: *http://www.rbc.ua/ukr/top/2008/12/18/479756.shtml (In Ukrainian)*.

[26] See, e.g., presentation by NNEGC vice-CEO Kravets published in this journal, p.56.

[27] In particular, there is no clarity as to the contract validity term. On June 9, 2010, *Rosatom* CEO Kirienko meeting with the Russian Prime Minister Putin said that the contract would be valid over the entire service life of Ukrainian power units. See: Head of Russian Government Putin had a working meeting with *Rosatom* State Corporation Head Kirienko. – Official website of the Russian Government, June 9, 2010, *http://premier.gov.ru (in Russian)*. Later it was reported that they spoke of nuclear fuel supply only to future power units 3 and 4 of the Khmelnytskyj NPP. However, at a meeting of the Russian Government's Presidium on October 5, 2010, Kirienko again said that the contract provided for Russian fuel supply to all power units of Ukrainian NPPs. See: Records of the beginning of the meeting of the Presidium of the Russian Federation Government of October 5, 2010. – *Ibid*.

[28] See: Long-term contract of *Energoatom* and *TVEL* is good for both companies and solves the problem of Ukrainian NPP provision with nuclear fuel – experts. June 2, 2010, *http://vlasti.net*; Contract with *TVEL* did not abolish *Westinghouse*. – AtomNews, June 6, 2010, *http://www.atomnews.info* (*in Russian*).

RESERVE OF NUCLEAR FUEL AND MATERIALS

The decision to create state reserves of nuclear fuel and materials (natural uranium concentrate and uranium hexafluoride) equal to the annual need of Ukrainian NPPs was taken yet in 2005.[29] Almost two years were spent to find a financial scheme of their creation, and only in 2007 there appeared the CMU Directive whereby those reserves were to be created in 2008-2010 at the expense of a special surcharge to the current electricity and heat tariff to be transferred to the special fund of the state budget.[30]

However, UAH 360 million allocated to the reserves were not used in 2007 since the Government had not completed execution of the required regulatory documents; later, creation of reserves was affected by the lack of funds, and in 2008-2009, the state budget allocated only UAH 450 million (out of totally needed UAH 3.6 billion).

As a result, in 2009, *Energoatom* NNEGC bought for the reserve 818 tons of uranium concentrate, including 374 tons worth UAH 450 million at the expense of the state budget, 444 tons at the expense of the company own funds.[31] By and large, as of the beginning of 2010, the branch reserve contained 2000 tons of uranium concentrate and nuclear fuel totally valued nearly 2 UAH billion (which roughly corresponds to Ukraine's annual need for fresh nuclear fuel).

According to estimates made by NNEGC experts, the reserves are sufficient for reliable supply of Ukrainian NPPs in case of interruption (breach) of fuel supply from Russia, Ukraine will have one year to make contracts with other suppliers.

Plans of a nuclear fuel fabrication plant building in Ukraine.[32] Given the high NPP share in electricity generation and to reduce dependence on nuclear fuel imports, in 1994, it was decided to organise domestic production of nuclear fuel in Ukraine.[33] An international tender was announced to choose the partner for a nuclear fuel fabrication plant building in Ukraine, and the Comprehensive Programme of Creation of NFC Elements in Ukraine was approved.[34]

Noteworthy, the Programme envisaged solution of tasks critical for both Ukrainian nuclear power engineering (production of uranium concentrate and organisation of production of metallic zirconium and fuel assembly parts covering 100% of Ukrainian NPP needs), and for Russian, in particular, production of zirconium concentrate covering the needs of nuclear power engineering of Ukraine and Russia.

In 1996, *TVEL* company was announced the tender winner. However, instead of creating new facilities for nuclear fuel production in Ukraine, the Russian side after a long delay proposed organisation of production in a trilateral format – involving Ukraine, Kazakhstan and the Russian Federation. In 2001, trilateral JV *UkrTVZ* was established, in 2003 – a trilateral intergovernmental agreement of its operation was signed. However, the JV has never begun to work. Furthermore, not a single target set by the Comprehensive Programme of Creation of NFC Elements in Ukraine was met, the NFC Fund was not activated either.[35]

Ukraine recurred to the plans of creating NFC elements only in late 2000s.[36] In 2008, the State Concern (SC) "Nuclear Fuel" was established[37]; in 2009 – **the State Target Economic Programme "Nuclear Fuel of Ukraine" was adopted,**[38] **and an international tender** for choice of technologies and partners for a nuclear fuel fabrication plant building in Ukraine announced.[39]

In early September, 2010, *TVEL* company was named the tender winner, with which, "Nuclear Fuel" SC signed a relevant agreement on October 27, 2010 (Insert "*Prospects of a nuclear fuel fabrication plant in Ukraine*").[40] A joint venture (JV) will be established shortly, where Ukraine will have 50%+1 share.

PROSPECTS OF A NUCLEAR FUEL FABRICATION PLANT IN UKRAINE

The first phase of the nuclear fuel fabrication plant **is expected to be commissioned in 2013 and to turn out fuel assemblies equivalent to 200 tons of uranium a year; in 2017, the second phase will be ready, using reconversion technologies and producing uranium pellets equivalent to 400 tons of uranium; by 2020, production of fuel assemblies is to reach equivalent of 400 tons of uranium.**

TVEL company will provide technological support for the production process, train the plant's personnel and is to transfer to Ukraine know-how of all stages of nuclear fuel production not later than 2020. Furthermore, after *TVEL* fuel for Western reactors is licensed in Europe, a *TVS-Kvadrat* production line may be launched at the Ukrainian plant that hypothetically may produce nuclear fuel for third countries in Ukraine.

[29] President of Ukraine Decree "On Ukraine's NSDC Decision of December 9, 2005 'On the State of Ukraine's Energy Security and Fundamentals of the State Policy in the Field of Its Provision'" No.1863 of December 27, 2005.
[30] CMU Directive No.646 of August 9, 2007.
[31] Pursuant to CMU Resolution No.641 of June 3, 2009, and under a long-term contract made in 2008 between *Energoatom* NNEGC and *SkhidGZK* to supply 800 tons of uranium concentrate a year in course of 10 years.
[32] For more detail see: Nuclear energy in the world and in Ukraine: state and prospects of development..., p.25-29.
[33] President of Ukraine Decree "On Immediate Measures at Nuclear Power Engineering Development and Nuclear Fuel Cycle Creation in Ukraine" of February 23, 1994.
[34] Intended for 1995-2004, approved by CMU Resolution No.267 of April 12, 1995, new wording – by Resolution No.634 of June 6 2001.
[35] The conclusion of the Programme disruption was made by the Verkhovna Rada of Ukraine Committee for the Fuel and Energy Sector, Nuclear Policy and Nuclear Safety on April 20, 2005.
[36] Over and above the failed attempt to establish *Ukratomprom* concern (2006-2007).
[37] Pursuant to CMU Directive No.650 of April 17, 2008. The concern includes state enterprises: Eastern Mining and Processing Complex (*SkhidGZK*), Directorate of the enterprise being built on the basis of Novokostiantyniv deposit of uranium ore, *Smoly*, Dnipropetrovsk Precision Pipe Plant, Ukrainian Scientific Research Enterprise of Industrial Technology.
[38] Approved by CMU Resolution No.1004 of September 23, 2009, intended for 2009-2013; goal – to ensure uranium and zirconium production growth and to create nuclear fuel production capacities in Ukraine.
[39] Pursuant to the President of Ukraine Decree No.681 of August 27, 2009, "On Ukraine's National Security and Defence Council Decision of June 5, 2009 'On Development of Markets of Fuel and Energy Resources within the Framework of Implementation of the Energy Strategy of Ukraine through 2030'".
[40] *Westinghouse* was the other tender participant. After the tender results were announced, on September 22, **the Government decided to use in the would-be plant process cycle the technology offered by TVEL company.** See: CMU Directive "On Priority Measures at Creation of an Enterprise for Nuclear Fuel Production for *VVER-1000* Type Reactors" No.1922 of September 22, 2010. On September 27, "Nuclear Fuel" SC announced a tender for the plant's feasibility study. The Ukrainian Scientific Research Enterprise of Industrial Technology was announced its winner. The other tender participants were *Derzhkomrehuliuvannia* and *SkhidGZK*. The feasibility study will cost UAH 4.2 million and is to be completed in April 2011.

The choice of technologies and the partner for a nuclear fuel fabrication plant building in Ukraine (*TVEL*) will have long-term consequences for the development of domestic nuclear power engineering. Even if the enterprise starts working, it will produce nuclear fuel under the *TVEL* technology intended for reactors of the Russian design. Therefore, Ukraine will actually have to build new power units under Russian designs, unable to diversify suppliers of reactor technologies and produce fuel for reactors of other than Russian design.

Spent nuclear fuel (SNF) management.[41] Ukraine has technologies and facilities for SNF processing and sufficient capacities for its storage, hence, it is transferred to Russia for processing and storage: from *VVER-1000* reactors of the South Ukrainian, Rivne and Khmelnytskyj NPPs – to the Krasnoyarsk Mining Chemical Combine, from *VVER-440* reactors of the Rivne NPP – to the Chelyabinsk-based *Mayak* Production Association.[42]

SNF from the Zaporizhya NPP reactors is collected in a dry storage built on its site and **commissioned** in 2001 – which saved the country nearly $40 million a year.

However, Ukraine continues to pay to Russia over 100 million a year for SNF processing and storage services despite that:

- *first*, SNF is viewed (including by the Ukrainian legislation[43]) as a valuable raw material for reactors of future generations, and its removal beyond the country borders is a short-sighted policy;
- *second*, according to estimates made by Russian experts themselves, only 50% of the paid funds was used by the Russian counterpart for processing and storage, 50% was actually invested in the Russian nuclear fuel industry development;[44]
- *third*, over the past decade, that sector repeatedly saw problems, in particular, due to the Russian party continuously and significantly raising prices of SNF processing and storage services: in particular, in 2008, NNEGC had to reduce the number of SNF removal runs, in 2009 to entirely stop them and to resume removal only in 2010.[45]

Meanwhile, pursuant to the *Energy Strategy of Ukraine* **and the Plan of Measures at its** implementation, Ukraine planned to have a Centralised Storage for Spent Nuclear Fuel (CSSNF) built by *Holtec International* of the USA (a relevant contract was signed in 2006) in 2008-2010.[46] However, the construction has not even started since the law of CSSNF location was not passed, now undergoing the procedure of repeated approval at central executive bodies.[47]

That is why a new long-term contract of SNF removal to Russia is being negotiated. According to *Energoatom* NNEGC, the basic rates have been agreed, efforts are being made to reduce the social-environmental surcharge introduced by Russia from 2011. Meanwhile, NNEGC assures that the contract will take into account the prospects of CSSNF building, as well as the plan of minimisation of SNF removal to Russia developed by the Concern jointly with the Ministry of Fuel and Energy providing that in course of three years, SNF from the Rivne NPP reactors 1 and 2 will not be removed, from the rest it will be removed in the minimum required volume.[48] The runs are to take place solely upon the receipt of orders from the Ukrainian party, with a separate commercial agreement made for each batch.

Therefore, by sending SNF for processing, Ukraine in fact invests into the Russian nuclear fuel industry and at the same time delays construction of a modern centralised storage for SNF from *VVER* reactors that would let Ukraine, *first*, preserve valuable raw materials for future reactors, *second*, save nearly $2 billion over the period of active NPP operation.

Summing up all this, it may be said that in such domains as fitting Ukrainian and Russian NPPs with appropriate equipment, extension of the service life of power units of Ukrainian NPPs, completion of previously started construction of new power units, guarantee of safe NPP operation,

[41] See also: Nuclear power engineering in Ukraine: safety and development problems…, p.19-20, 27. Radioactive waste management remains a separate problem that requires special study. The relevant Comprehensive Programme for 2002-2005 and through 2010 was actually not implemented. Only in 2008, a mechanism of filling the State Fund of Radioactive Waste Management was created (supposed to be active since 1996), and only in August, 2009, the Government approved the Strategy of Radioactive Waste Management in Ukraine. Meanwhile, as soon as 2013, radioactive waste will begin to arrive back in Ukraine after SNF processing at Russian enterprises.

[42] At that, the contract with the Mining Chemical Combine provides for the return of both radioactive waste of treatment and of valuable products of processing (uranium, plutonium); the contract with *Mayak* – of only the radioactive waste.

[43] In particular, the Law "On Radioactive Waste Management" treats SNF as a raw material for production of nuclear fuel for reactors of future generations. For more detail see: Nuclear power engineering in Ukraine: safety and development problems..., p.19-20.

[44] See: Feasibility study of bills related with expansion of Russian participation in the world market of irradiated nuclear fuel. – Moscow, Ministry of Atomic Industry of the Russian Federation, 2002, p.17 (*in Russian*).

[45] There were also reports of discriminatory treatment of Ukraine, when it was offered higher prices than Bulgaria (in 2006, $700 per 1 kg of heavy metal – against $610 for Bulgaria). See: http://www.tek.ua/news0$n!314181.htm (*in Russian*).

[46] For more detail see: Nuclear energy in the world and in Ukraine: state and prospects of development…, p.21-24. Public hearings have been held, and the construction feasibility study approved. See: CMU Directive "On Approval of Feasibility Study of Investments in Construction of a Centralised Storage of Spent Nuclear Fuel from VVER Type Reactors of Domestic Nuclear Power Plants" No.131 of February 4, 2009.

[47] Bill "On Location, Design and Construction of CSSNF for VVER type reactors of domestic NPPs", Reg. No.5050 of August 13, 2009.

[48] O.Kravets: *Energoatom* worked out a plan of minimisation of spent nuclear fuel removal to Russia. – Interfax Ukraine, October 21, 2010.

Ukraine-Russia cooperation is important for the parties and therefore, successful.

Meanwhile, despite provisions declared in bilateral documents, Ukrainian enterprises rarely take part in implementation of large-scale Russian projects in third countries. Problems exist with fresh nuclear fuel supply and removal of spent fuel, creation of NFC elements in Ukraine and identification of overall prospects of the Ukrainian nuclear sector development.

On the other hand, implementation of many measures envisaged by Ukrainian bylaws has been delayed for years or entirely disrupted, which prompts the assumption that the main reason for such situation lies not in insufficiency of funds or their sources, but in the lack of political will in Ukraine.

3.2. RUSSIAN NUCLEAR POWER ENGINEERING

Nuclear power engineering in Russia is one of the few branches that potentially can provide the basis for an innovative breakthrough and the country development. In particular, Russia's Memorandum of physical nuclear safety expressly says: "the Russian Federation makes a stake on the nuclear sector as one of the strategic lines of development".[49]

On the other hand, the Russian nuclear industry claims world leadership, and to that end, at least two vital and efficient steps have been made. *First*, in 2007, all Russian civilian and military nuclear assets were united under one umbrella – State Corporation (SC) *Rosatom* (Insert *Rosatom SC*).[50]

ROSATOM SC

The Corporation was established in 2007. At present, it unites over 270 enterprises and institutions that represent four research and production complexes: of the nuclear fuel cycle, nuclear power engineering, nuclear arms, and scientific research. The Corporation's enterprises and institutions employ almost 200 thousand workers. It also got under control the world only nuclear fleet (Federal State Enterprise *Atomflot*, 11 vessels, 6 of them – *icebreaker*s, including the world largest nuclear icebreaker *50 Let Pobedy* **commissioned** in 2007, whose mission encompasses provision of access to the Arctic shelf).

***Rosatom's* rank in the world**:

1st – by the number of NPPs being built beyond the country borders (simultaneous construction of five power units);

2nd – by explored uranium deposits (nearly 583 thousand tons) – with account of its share in three Russian-Kazakh joint ventures (*Zarechnoe*, *Akbastau*, *Karatau*) owned by *ARMZ Uranium Holding Co*, whereby *Rosatom* controls over 20% of Kazakh uranium deposits;

4th – by electricity generation at NPPs (10 power plants, 32 power units with the aggregate capacity exceeding 23 GW);

5th – by uranium extraction – over 3.8 tons (as of 2008).

Today, the corporation covers 8% of the world demand for natural uranium, 45% of the world market of uranium enrichment services, 17% – of the market of nuclear fuel (supplied to 74 power units in 15 countries of the world).[51] The total proceeds from exports of the corporation's goods and services are close to $1 billion/year.

Second, an active, aggressive, dynamic policy is pursued abroad. Russia not only pushes commercial projects in the nuclear sector, but also puts forward initiatives in the field of non-proliferation that have a strong image-making effect and in general strengthen its position on the international scene. The main thing about those initiatives is that Russia is insistently trying to implement them (Insert "*International Uranium Enrichment Centre and international reserve of nuclear fuel*").[52]

INTERNATIONAL URANIUM ENRICHMENT CENTRE AND INTERNATIONAL RESERVES OF NUCLEAR FUEL

At a meeting of the EurAsEC Interstate Council in St. Petersburg on January 25, 2006, the Russian President put forward the initiative of creation of the global infrastructure of nuclear power engineering to ensure equal access of all concerned countries nuclear energy on the condition of firm abidance by non-proliferation procedures.

Implementing that initiative, in 2007, Russia jointly with Kazakhstan established the International Uranium Enrichment Centre (*IUEC*) as a pilot project on the basis of the Angarsk Electrolysis *Chemical* Combine CJSC.

It the same time it proposed to *IAEA* creation of a guaranteed physical stock of reduced-enrichment uranium, to be kept at *IUEC* against the Agency's guarantees. The relevant agreement between the Russian Government and *IAEA* was signed on March 29, 2010, and as soon as December, Russia reported ready stock in the amount of 120 tons of uranium hexafluoride enriched to 2-4.95%. The stock is kept in the *IUEC* storage.

Ukraine acquired 10% of *IUEC* shares (worth UAH 688 thousand) in October, 2010.

Current *IUEC* shareholders are the companies: *Rosatom* (80%), *Kazatomprom* (Kazakhstan, 10%), Nuclear Fuel (Ukraine, 10%); 10% of shares is claimed by Armenia, supposed to complete the accession procedure at the beginning of 2011. Concerning extension of the shareholders list, *Rosatom* said that it would keep 50%+1 share under any circumstances.

It is worth notice that on **December 3, 2010, the *IAEA* Board of Governors acting in pursuance of the Nuclear Threat Initiative (NTI) approved the project of creation of the Agency's own reserve of nuclear fuel.** The project is financially supported by the EU, Kuwait, Norway, UAE, the USA. The reserve's parameters and location have not been reported yet.

The prospects of nuclear power engineering development are outlined in the *Energy Strategy of Russia through 2030* (hereinafter – the *Energy Strategy of Russia*) and the Federal Target Programme "Development of Russia's Nuclear Power Engineering Industry for 2007-2010 and through 2015".

[49] Memorandum of the Russian Federation of physical nuclear safety. – Website of the Russian President, *http://news.kremlin.ru*.

[50] Official websites of: *Rosatom* SC, *Atomenergoprom* OJSC, *Rosenergoatom* Concern OJSC.

[51] Source: Energy Strategy of Russia through 2030, *http://www.energystrategy.ru*.

[52] Source: Official website of IUEC, *http://www.iuec.ru*.

Expert discussion, October 20, 2010

Nuclear generation

Operating 32 power units at 10 NPPs (aggregate capacity – 23.4 GW) that generate nearly 16% of electricity in the country, the Russian Federation plans to further develop nuclear generation. In particular, the *Energy Strategy of Russia* envisages construction of new power units for 26 NPPs and an increase of their share in electricity generation to 25%. In 2009, the nuclear sector got support from the Russian Government in the amount of $4.5 billion. Another $2 billion were spent by the Government for additional capitalisation of *Rosatom* SC.

According to *Rosenergoatom's* forecasts, by 2050, a closed NFC may be introduced. At that, basic energy supply will be provided by advanced NPPs with *VVER* reactors (*AES-2006* project), additional reproduction of fuel at plants with super-*VVER* units (the project is at the initial development stage) and at commercial "breeders" (fast neutron reactors). Where needed, regional NPPs with small and average capacity reactors will also be built, as well as high-temperature reactors.

Raw material base. After the USSR break-up, a deficit of raw material arose in Russian nuclear power engineering. Most uranium mines and deposits stayed abroad – in Kazakhstan (17% of the world reserves, the second largest in the world), Uzbekistan and Ukraine. Russia was left only with the exhausted Streltsovka uranium ore area (Chita region) with residual uranium deposits of 152 thousand tons.[53] Against the annual need of 20.5 thousand tons (5,000 tons for Russian nuclear reactors, 4,200 tons for export of fuel assemblies, 11.3 thousand tons for export of reduced-enrichment uranium), uranium extraction in Russia currently does not exceed 4 thousand tons/year. Its deficit is covered at the expense of stockpiles (steadily going down) and import of uranium concentrate from Kazakhstan and Uzbekistan.

Russia's demand for uranium through 2050 is estimated at 650 thousand tons.[54] Meanwhile, extractable uranium reserves in Russia as of January 1, 2008, amounted to 547.8 thousand tons (95% of that in the Siberian and Far Eastern Federal Districts). Expected uranium reserves of the most probable categories amount to 830 thousand tons (60% in the Siberian Federal District). The most promising is the Elkon uranium ore area in Southern Yakutia – its deposits are estimated at 350 thousand tons. However, development of that area and further geological prospecting of uranium will require nearly 100 billion roubles ($3 billon) of investments.

This means that in a longer run, too, natural uranium extraction and production capacities in the Russian Federation will not cover the demand of domestic nuclear power engineering enterprises. The gap between annual uranium extraction and its predicted use is planned to be covered, in particular, at the expense of repeated use of SNF with simultaneous gradual transition to nuclear fuel reproduction in fast neutron reactors, as well as at the expense of uranium purchases and production in the CIS states.

Extension of service life of active nuclear power units. The Russian Concept of extension of service life of power units of the first generation with *VVER-440* and *RBMK-1000* reactors was adopted in 1999. Thereunder, the service life of the first generation power units is extended by 15 years (the total service life, including designed, will reach 45 years), of the second generation units (*VVER-1000* reactors) – by 25-30 years, to 60 years, and including the designed term.

All in all, in 2001-2009, the service life of 13 power units with the aggregate installed capacity of 6.8 MW was extended. In 2010-2015, it is planned to extend the service life of another 11 power units the aggregate installed capacity of 9.48 MW.[55]

Russian position on the world market of nuclear technologies. Despite all might of the Russian nuclear sector, due to the toughening competition with the largest energy corporations of the USA, EU and Japan, problems grow with promotion of its products abroad, including on Russia's traditional markets (India, China, CEE, CIS). Development and reformation of nuclear power engineering in developed countries are accompanied with mergers and takeovers, cooperation and integration of energy companies in transnational corporations capable of implementing large-scale investment and innovation projects.

Conclusion of NPP construction contracts shows a trend to a decrease in the weight of political and an increase of economic factors. Today, consumers demand, and producers offer advanced high-quality comprehensive services of NPP construction under convenient financial schemes with short implementation terms.

Currently, the greatest share in the world nuclear power engineering (nearly 50%) belongs to reactors of the *PWR* type (Western analogue of Russian *VVER*),

[53] Muratov O., Tikhonov M. Nuclear power engineering: new opportunities and problems – *antiatom.ru*. Safety and environment, April 16, 2007, *http://www.antiatom.ru*.

[54] Natural uranium production in Russia covers only 20% of Russian reactors' needs. – International industrial portal, *http://www.promvest.info/news/actual.php?ELEMENT_ID=27414*.

[55] Povarov A. Experience of extension of service life of power units of Russian NPPs. – Official website of international conference "Ukraine's nuclear energy sector: international interaction and cooperation, investments, nuclear fuel cycle", *http://www.ukrenergoatom.com* (*in Russian*).

over 21% – *BWR* (analogue of Russian *RBMK*), reactors built under Russian projects – below 17%. Meanwhile, Russian programmes envisage export of more than 40 reactors by 2030.

The international market of nuclear fuel is dominated by such producers as *AREVA* (30%), *Westinghouse/Toshiba* (26%), *Global Nuclear Fuel* joint venture set up by *General Electric*, *Toshiba* and *Hitachi* (17%), *TVEL* (17%). The main rivalry on the market of nuclear fuel for *PWR* and *BWR* type reactors that totally account for over 70% of NPP built all over the world is between the French *AREVA* and US-Japanese *Westinghouse*/*Toshiba* alliance.

Competition also goes on for the market of nuclear fuel for Russian *VVER-1000* reactors. *TVEL* supplies nuclear fuel to a number of Central and East European countries, China, deliveries to India and Iran are planned. In their turn, Western companies managed to win some orders in the Czech Republic and Finland, having squeezed Russia on its traditional markets. However, according to forecasts, after 2010 *TVEL* will again control almost the whole world market of nuclear fuel for reactors of the Russian design.

TVEL also seeks access to the US, EU, Asian and Pacific markets, in particular, with fuel for NPPs running reactors of the Western design – *TVS-Kvadrat*. To get a licence in EU, it plans to start its trial and commercial operation in one of the member-states in 2012.[56]

In the conditions of tough competition, *Rosatom* actively promotes joint projects with world leading energy companies. For instance, *TVEL* OJSC in cooperation with the French *AREVA* company already supplies fuel for *PWR* reactors, covering nearly 2.9% of the market, and negotiates supply with a number of other European and US companies.

Attainment of the tasks envisaged by the plans of world leadership in nuclear power engineering requires broad cooperation with foreign suppliers of nuclear technologies and equipment, purchase of assets of foreign machine-building companies, establishment of a JV for uranium concentrate extraction abroad, etc. Those requirements in fact determine the Russian interests in the Ukraine-Russia cooperation in the nuclear sector. What makes the difference is that using the dependence and passive policy of Ukraine, it can get what it wants for a song.

Russia pays huge attention to the development of nuclear power engineering as one of the few branches that can ensure innovative development of the Russian economy. In this connection, the branch faces a number of problems dealing with raw material supply, power engineering industry development, growth of competition with the world leading producers at international markets. Respectively, in Ukraine, *Rosatom* is mainly interested in raw materials (uranium, zirconium), competitive nuclear power engineering industry enterprises, and prospects of electricity export to the EU from the Ukrainian territory.

3.3. PROSPECTS AND POSSIBLE SCENARIOS OF UKRAINE-RUSSIA COOPERATION IN THE CONTEXT OF NATIONAL PRIORITIES OF THE PARTIES

The development of Ukraine-Russia cooperation is seriously influenced by the fact that national strategic priorities of the parties in nuclear sectors do not coincide. Specifically:

Russia is trying to preserve and strengthen its presence on the market of NPP construction in Ukraine. Ukraine, proceeding from its national interests, is interested in employment of advanced technologies of development of new generation reactors;

- the Russian Federation plans to consolidate and expand its presence on the Ukrainian market of fresh nuclear fuel. Ukraine is interested in its maximum possible diversification and removal of critical dependence on Russian deliveries;
- aware of toughening competition on the markets of nuclear technologies and nuclear fuel, Russia is trying to take over attractive Ukrainian nuclear power engineering assets, offering for that some incentives, mainly of a tactical nature, or to oust Ukrainian competitors from the market, while Ukraine, setting for itself ambitious goals of nuclear power engineering development, on the political level shows readiness to accept Russian initiatives, but on the level of state executive bodies and business entities (that is, where those initiatives are materialised and immediately touch corporate and personal interests) covert opposition to implementation of political decisions is observed.

Initiatives recently pushed by Russia in relations with Ukraine in the energy sector demonstratively show that its interests focus on establishment of control over Ukrainian raw materials, nuclear power engineering industry and nuclear generation.

For instance, starting from April, 2010, various projects of cooperation of nuclear sectors of the two countries are proposed, including quite realistic and useful for both parties.[57] However, the true, global nature of the Russian proposals is seen in the draft of the Intergovernmental Agreement between the Russian Federation and Ukraine of expansion of strategic cooperation in the field of power engineering drawn up by the Russian party and published in the Ukrainian media.[58] Their essence was the most expressly presented at a briefing after the sixth meeting of the Intergovernmental Ukraine-Russia Commission for Economic Cooperation

[56] *TVEL* hopes to start trials of its fuel in a reactor of one Western NPP in 2012. – *AtomNews* Internet resource, June 9, 2010 (*in Russian*).

[57] In particular, dealing with establishment of a JV for engineering and technical support for and operation of NPPs, co-founded by the All-Russian Scientific Research Institute NPP and the Ukrainian Engineering Technology Centre, and a JV for organisation and performance of repair of NPP power units, on the Russian side co-founded by *Atomenergoremont* OJSC.

[58] Energy occupation under the fleet pact – *Dzerkalo Tyzhnya*, April 24, 2010, *http://www.dt.ua*. Even a brief look at the draft reveals quite express unilateral Russian interests against the background of discrimination of Ukraine's rights and interests. In particular, the draft mentions only Ukrainian facilities interesting for the Russian Federation, not referring to a single facility proposed for cooperation on the Russian territory.

(April 30, 2010, Sochi) by the Russian Prime Minister Putin: "We presented concrete proposals of the Russian side… of **establishment of a large joint holding that will unite the sectors of nuclear power engineering industry, fuel cycle and nuclear generation**".[59] It should only be added that the mentioned draft Agreement also dealt with the Russian interest in Ukrainian raw materials, in particular, the largest in Europe Novokostiantyniv uranium deposit. [60]

Ukrainian and Russian Prime Ministers meeting of in Moscow in late June, 2010, agreed to slow down implementation of projects of asset merger – as they required more thorough examination. Meanwhile, it was planned to step up talks and finalisation of proposals on the ministry and agency level. Such slowdown might have been prompted by the negative echo of the release of the draft Agreement discussed above.

Therefore, strategic goals of the Russian Federation in the nuclear power engineering sector and its efforts for their attainment pose serious risks for Ukraine. However, not lesser risks arise within Ukraine from the openly pro-Russian policy of the authorities, absence of a clear energy strategy coordinated with all aspects of socio-economic development of the country, and not quite reasonable tactical steps of the Ukrainian authorities.

So, it may be said that the nature of the Ukraine-Russia relations in the nuclear sector will hardly change under the influence of the political situation in the foreseeable future. That sector is deemed strategic in Russia, while in Ukraine, no political force that in principle can compete with the Party of Regions in case of coming to power will venture to take steps openly opposite to the interests of the Russian Federation.

However, the proposals of merger of the countries' nuclear sectors announced by the Russian Prime Minister Putin are unlikely to be implemented, since Ukrainian political actors generally see those proposals as too odious, and Ukrainian FIGs – as an encroachment of their interests.

The Ukraine-Russia cooperation at operation and enhancement of safety of power units of Ukrainian NPPs and extension of their service life will be successfully developing. Russia will continue to show interest in cooperation with Ukrainian power engineering industry enterprises. If difficulties arise, privatisation of those enterprises will be something to bargain.

In the forthcoming years, supply of nuclear fuel to Ukrainian NPP will remain a prerogative of *TVEL*, although *Westinghouse* may remain present on the Ukrainian market, too. Meanwhile, Russia is unlikely ho hurry implementing agreements of arrangement of nuclear fuel production in Ukraine (at the first stage, construction of a nuclear fuel fabrication plant). Most probably, solution of that issue will be delayed under different pretexts, and when the time comes, it will be proposed to the Ukrainian party to revise the mechanisms of its implementation.

In construction of new NPP power units, most probably, choice will be made in favour of Russian designs which will limit the horizons of technological development of Ukrainian nuclear power engineering and enhance its dependence on Russian technologies.

By and large, it may well be predicted that the Ukraine-Russia relations in the nuclear sector will be steadily developing without any excesses, since conflicts in that sector similar to the gas conflict are much less likely to be tolerated by the European and world community.

CONCLUSIONS

At present, cooperation between Ukraine and the Russian Federation is on the rise, but its result cannot be described in definite terms due to the presence of both negative and positive factors. The negative for Ukraine factors include: the strong, actually total dependence of Ukraine on deliveries of Russian nuclear fuel, encompassing technology development (choice of future reactors); the dominant role of the Russian Federation in political and economic decision-making (both strategic and tactical); serious risks for Ukraine's political, economic and energy security conditioned by Russia trying to attain its strategic goals not always harmonised with Ukraine's national interests.

Those negative factors are somewhat diminished by the close attention to possible conflict situations in the nuclear sector and intolerant response to them by the European and world community, a cautious attitude of the political elite and FIGs in Ukraine to Russian plans and proposals, interdependence of the parties in deliveries of raw materials and production of nuclear fuel, and successful Ukraine-Russia cooperation in the domains of mutual interest.

Bilateral cooperation is especially fruitful in the domains of: nuclear machine-building and NPP fitout, supply of raw materials for fresh nuclear fuel, extension of the service life of existing and completion of new power units at Ukrainian NPPs, regulation and safe operation of NPPs. Problems with supply of fresh nuclear fuel and removal of spent fuel, development of nuclear fuel cycle elements so far have been resolved without conflicts.

Ukraine's movement towards diversification of nuclear fuel supply sources (cooperation with *Westinghouse company*) and accession to the European energy system are hindered by Russia competing for a place on the relevant world markets. But despite the strong Russian influence, the main reason for the mentioned problems and risks, low pace, not always effective orientation and unsatisfactory results of Ukraine's nuclear sector development is presented by the lack of political will, divergence of national and corporate interests and inadequate quality of state governance.

[59] Russia and Ukraine may establish a joint gas holding. – *Rossiyskaya Gazeta*, May 4, 2010, *http://www.rg.ru* (*in Russian*).

[60] In June, 2010, the *Rosatom* SC CEO made a number of statements in which he actually confirmed readiness to cooperate with Ukraine in development of its uranium deposits (in particular, Novokostiantyniv) and invest in that project up $500 million. See, e.g.: Russian atom abroad. – *Ekho Moskvy* radio station, June 7, 2010, *http://www.echo.msk.ru*.

INTERNATIONAL LEGAL RELATIONS BETWEEN UKRAINE AND RUSSIA IN THE FIELD OF NUCLEAR POWER ENGINEERING AND ATOMIC INDUSTRY

EFFECTIVE INTERNATIONAL AND BILATERAL DOCUMENTS CONCERNING COOPERATION IN THE FIELD OF NUCLEAR POWER ENGINEERING AND ATOMIC INDUSTRY

Document title / conclusion (signing) date	Brief contents	Progress of implementation / notes
INTERNATIONAL AGREEMENTS		
Agreement of basic principles of cooperation in the field of peaceful use of nuclear energy Signed by Governments of the CIS member states **June 26, 1992**	**The Agreement** **set out** (Article 2) cooperation in use of nuclear energy for peaceful goals to cover a wide range of joint activities, in particular: • joint ownership or operation of nuclear plants, equipment, industrial property and industrial enterprises; • coordination and conduct of joint research and development; • development and implementation of joint projects, in particular, of power generation, as well as exploration and development of uranium deposits.	In order to implement the Agreement the Council of CIS Heads of Government approved the Strategic Plan for the CIS countries community development in the peaceful use of nuclear energy, improving security of nuclear facilities; the Commission of the CIS member states has been established on use of nuclear energy for peaceful purposes. Being implemented; in particular, on the agreement's basis contracts are concluded on safe transit through Ukraine of fresh nuclear fuel
INTERGOVERNMENTAL AGREEMENTS		
Agreement between the Government of Ukraine and the Government of the Russian Federation on scientific-technological and economic cooperation in the field of nuclear power engineering **January 14, 1993**	**The Agreement** **provided for** cooperation, in particular, in the following domains: • design, construction and operation of NPPs and research reactors; • industrial production, including in cooperation, supply of equipment, component parts, devices, spare parts and materials, including nuclear materials, necessary for power generating and research reactors; • improvement of the nuclear fuel cycle using raw materials and production facilities of both parties.	Being implemented; in particular, on the basis of the Agreement, contracts are being made for nuclear fuel supply to Ukrainian NPPs, removal of spent nuclear fuel, etc.
Agreement between the Government of the Republic of Kazakhstan, the Government of the Russian Federation and the Cabinet of Ministers of Ukraine on encouragement of development and operation of closed joint-stock company "Ukrainian-Kazakh-Russian Joint Venture for nuclear fuel production" **Signed on May 13, 2003** **Effective from April 2, 2004**	**The Agreement** **set out** parity principles of the parties' cooperation in development and operation of UkrTVZ CJSC; **specified** obligations of each party, in particular, of Ukraine: • to deem the joint venture (JV) as an independent supplier of nuclear fuel providing the full range of services of end product supply; • to facilitate supply of equipment, component parts and materials necessary for production of nuclear fuel to the JV; • till December 31, 2010, to buy nuclear fuel produced solely by the JV; if it cannot provide all Ukrainian NPPs, to buy nuclear fuel of the Russian origin. This commitment remains valid after December 31, 2010, if authorised bodies of the parties come to terms as to the price of enriched raw uranium for nuclear fuel production, to be approved by the Russian party.	Not implemented
Agreement between the Cabinet of Ministers of Ukraine and the Government of the Russian Federation on cooperation at construction of power units 3 and 4 of Khmelnytskyj NPP **June 9, 2010**	**The Agreement** **provided for** cooperation of the parties at design, construction and commissioning of power units 3 and 4 of Khmelnytskyj NPP with account of use of the existing structures with reactor units of VVER-1000 type, project B-392; **nominated** authorised bodies of the parties: • the Russian party vested the building contractor functions in Atomstroyexport CJSC; the Ukrainian party vested the customer functions in Enerhoatom NNEGC; for coordination and control of activities, the parties set up a Coordinating Committee; • divided functions and duties among the parties, specifically: • the Russian party is to provide for funding in the amount necessary for design, construction and commissioning of the power units, including for payment for goods, works and services supplied from the Russian Federation to Ukraine or procured in Ukraine, on the condition of partial co-funding by the Ukrainian party; • power units 3 and 4 of Khmelnytskyj NPP built pursuant to the Agreement are to use nuclear fuel only in fuel assemblies manufactured under Russian technologies over the entire period of their operation; • spent nuclear fuel from reactors of those power units may be carried to the Russian Federation for technological storage and/or processing	The Agreement did not cover issues of: • **the project crediting** (a separate credit agreement to be made); • **ownership of intellectual property created by joint intellectual activity of the parties** (the title to them is to be covered by special written agreements)

[1] Mass media reported that the Russian party would provide for funding of 85% of the total project value, the Ukrainian – 15%, estimated at $4-5 billion. See: "the Russian Federation agreed to credit part of deliveries for completion of Khmelnytskyj NPP". – *RBC Ukraine news* agency, October 29, 2010, *http://www.rbc.ua*.

INTERNATIONAL LEGAL RELATIONS BETWEEN UKRAINE AND RUSSIA IN THE FIELD OF NUCLEAR POWER ENGINEERING AND ATOMIC INDUSTRY		
Document title / conclusion (signing) date	**Brief contents**	**Progress of implementation / notes**
INTERGOVERNMENTAL AND INTERDEPARTMENTAL PROTOCOLS		
Protocol of a working meeting of the Minister of Fuel and Energy of Ukraine and the Minister of Nuclear Power Engineering of the Russian Federation of January 26, 2000	**The Protocol** **provided** that "guided by the Agreement and Programme of Economic Cooperation between the Russian Federation and Ukraine for 1998-2007, the Ministry of Fuel and Energy makes efforts to increase production of nuclear fuel components at Ukrainian enterprises, steadily raising the share in co-production. With the establishment of the concerned organisational structures, new production facilities and growth of production volumes, a joint venture may be established for production of nuclear fuel".	Not implemented
Protocol of a working meeting of the Minister of Fuel and Energy of Ukraine and the Minister of Nuclear Power Engineering of the Russian Federation of February 1, 2001	**The Protocol** **provided** an obligation to buy nuclear fuel for Ukrainian NPPs from the would-be UkrTVZ CJSC joint venture (see above).	Not implemented
Protocol of a working meeting of the Minister of Fuel and Energy of Ukraine and the Minister of Nuclear Power Engineering of the Russian Federation of February 22, 2002	**The Protocol** **specified** (with a reference to the 1993 intergovernmental Agreement of scientific-technological and economic cooperation in the field of nuclear power engineering) concrete agreements of nuclear fuel supply to Ukrainian NPPs, removal of spent nuclear fuel, completion and commissioning of K2-R4 nuclear power units and facilitation of UkrTVZ CJSC JV operation.	Implemented, except for the portion dealing with *UkrTVZ* CJSC JV operation.
Protocol of a working meeting of the Minister of Fuel and Energy of Ukraine Plachkov, the Head of the State Committee of Ukraine for Nuclear Regulation Mykolaychuk with the Head of the Federal Agency for Nuclear Energy of the Russian Federation Kiriyenko of January 21, 2006 (the meeting was held by commission of the Presidents of Ukraine and the Russian Federation).	**The Protocol** **read** that: • the parties agreed that joint efforts of institutions and enterprises from Ukraine and Russia for development of new NPP types, production and supply of equipment for them and cooperation at development of production of nuclear fuel for NPPs, including development of the raw material base, should rest on a long-term basis for satisfaction of the interests of both parties; • the parties stressed that joint use of the scientific-technological and production potential and the raw material base enabled both countries to solve the tasks of nuclear power engineering development set for them. The parties termed as the most important lines of interaction and cooperation, in particular: • enhancement of safety, modernisation, growth of efficiency and extension of the service life of nuclear power units operated in Ukraine and Russia; • development of nuclear power unit designs competitive on the world markets; • cooperation at construction of nuclear power plants in Russia, Ukraine and third countries, including supply of equipment for them; cooperation at production of nuclear fuel for NPPs.	Being implemented partially. First of all, concerning cooperation at enhancement of safety, efficiency and extension of the service life of nuclear power units.
Protocol No.7 of the meeting of the Committee for Economic Cooperation of the Ukraine-Russia Interstate Commission of October 27, 2010	**The Protocol** **identified** the key issues of cooperation in the nuclear sector between the Russian Federation and Ukraine, including construction of a plant for nuclear fuel fabrication on the territory of Ukraine.	Being implemented partially. Talks of cooperation are underway. The Ukrainian Scientific Research and Design Institute of Industrial Technology State Enterprise is to complete feasibility study for the plant construction by April, 2011.

4. CONCLUSIONS AND PROPOSALS

Ukraine-Russia relations in the energy sector are quite dynamic, but cannot be assessed definitely because of the combination of both positive and negative factors and trends. They largely depend on the general state of relations between the two capitals and sometimes have a decisive influence on them.

1. The Ukraine-Russia relations, as well as Russia's relations with other CIS countries, presume presence of a dominating partner, Russia. That is why all issues of cooperation are viewed by it through the prism of its interests and cannot be solved to the partner's benefit in a bilateral format, except very rare instances of concurrence of interests or in the sectors where inequality of partners does not strike the eye. The energy sector is not among such sectors, moreover the factor of inequality of partnership in it is critical for Russia.

2. Ukraine's economic potential, including in the energy sector, is viewed by Russia as a resource at its modernisation, but not post-modernisation phase. Hence, Russia's cooperation with Ukraine is mainly intended for a limited period and cannot be deemed unambiguously positive for Ukraine, which requires from it formulation of its own development strategy, building of a model of mutually advantageous cooperation with both Russia and the EU within its framework and effective employment of the achieved results.

3. The main mechanisms of Russian pressure on Ukraine include: discredit of Ukraine's policy in the EU; attempts to remove it from the "extraction (production) – supply – consumption of energy resources" process cycle; interruption of supply; insistent encouragement of merger of strategic assets; hindrance of diversification projects; the price pressure. In particular, pushing for the Energy Charter modification talks, supposed to involve Ukraine, Russia is trying to force merger of assets in the gas and nuclear sectors, after which, Ukraine will not be able to acts as an independent and equal party to negotiations.

4. The bilateral format of Ukraine-Russia cooperation is organisationally imperfect (and hit by corruption), inefficient and cannot guarantee respect for Ukraine's interests. In such conditions, questions of the energy sector operation and development and disputed issues should be settled in the format meeting elements of the above-mentioned lifecycle, that is, involving Russia, Ukraine and the EU. Relations in that triangle should be transparent over the entire lifecycle chain and rest on mutually advantageous, agreed and legally binding rules.

5. The existing cooperative ties that remained from the Soviet times, Russia's stand of the monopoly supplier in actually all segments of Ukraine's energy sector, along with the institutional weakness of the Ukrainian authorities and a strong Russian lobby, give economic and political advantages to Russian proposals at identification of the goals of Ukraine-Russia cooperation and ways of their attainment.

In such conditions Ukraine's interests are often victimised to those of Russia, corporate interests of FIGs (both Russian and Ukrainian), posing risks for the national energy security. Proceeding from the national interests, the situation requires prompt implementation of cooperation diversification projects in the energy sector, not refusal but equal partnership with Russia, on the principles of thoroughly reasoned alternatives (i.e., with account of economic, political, social, environmental factors).

6. Economic and political expediency of diversification projects should be viewed as part of the overall state policy of socio-economic development, first of all, programmes of economy restructuring, regional development, revision of the energy balance in favour of energy resources easily accessible for Ukraine.

7. Promising lines of Ukraine-Russia cooperation may include:

Joint participation in a trilateral format (with an option of further expansion) in the Energy Charter modification talks, introduction of clear, transparent and mutually advantageous rules in the energy sector;

- **participation in the work of the International Uranium Enrichment Centre (Angarsk) with account of intentions of building a nuclear fuel production plant in Ukraine. Growth of uranium and zirconium concentrate extraction in Ukraine and supply to Russia;**
- **scientific and technological support for operation of active nuclear reactors of the Russian design, extension of reactor service life, preparation for decommissioning of NPPs whose term of operation is not planned to be extended;**
- **joint (involving Turboatom) construction of NPPs abroad;**
- **cooperation in issues of nuclear non-proliferation, NPP protection, countering nuclear terrorism.**

Therefore, both Ukraine and Russia should thoroughly study the partner's proposals and take mutually advantageous compromise decisions for further legal execution with the purpose of encouragement of strategic cooperation in the energy sector. Reformatting of the legal framework of the Ukraine-Russia cooperation is high on the agenda and should be implemented along two lines: execution of intergovernmental agreements under appropriate governmental guarantees and simultaneous termination of obsolete agreements; improvement of branch contracts by execution of relevant amendments to them.

SOME PROPOSALS

Ukraine's energy sector

- **in the 1st half of 2011, to arrange parliamentary hearings on issues of the state and development of the Ukraine-Russia relations in the energy sector**, first of all, on the expediency of merger (or establishment of joint ventures) in the oil, gas and nuclear sectors of Ukraine and Russia;
- **by the results of parliamentary hearings, to arrange a joint meeting of specialised committees of the Verkhovna Rada of Ukraine and the State Duma of the Russian Federation** on issues of development of cooperation in the energy sector;
- to finalise and agree the lines of restructuring and development of the economy, to adjust the energy balance, **to review and update the *Energy Strategy of Ukraine through 2030***, its goals being:
  - enhancement of the efficiency of reproduction, extraction and processing of energy resources to best meet the domestic demand;
  - modernisation, overhaul and creation of new energy infrastructure on the basis of technological renovation of the energy sector of the national economy;
  - formation of a favourable investment environment in the energy sector;
  - enhancement of the energy and environmental efficiency of the Ukrainian economy and energy sector, including through structural changes and intensification of practical energy conservation;
  - further integration of the Ukrainian energy sector with the EU energy sector;
- **to establish an Interdepartmental Commission for development of the energy sector (headed by the First Vice Prime Minister of Ukraine) as an advisory body** (to meet quarterly) with the functions of:
  - coordination of drafting and harmonisation of the new *Energy Strategy* and the state programme of reformation and development of the energy sector, and issues of its funding;
  - arrangement of measures at optimisation of the state energy balance structure;
  - coordination of implementation of large-scale interstate energy projects;
  - coordination of projects of diversification of oil, natural gas and fresh nuclear fuel supply to Ukraine;
- **to set up a special section at the Ministry of Fuel and Energy – Administrator of the State Programme of Reformation and Development of the Energy Sector** with functions of coordination and control of its implementation;
- to draft Laws **"On the National Electricity Regulatory Commission of Ukraine"** and **"On the National Nuclear Regulatory Commission of Ukraine"** to create conditions for enhancement of independence of those commissions through: provision of collegial work of regulatory bodies; a transparent mechanism of rotation; validation of a commission member's office for not less than five years, to provide continuity in case of the government change.

Oil and gas sector

- **to accomplish restructuring of *Naftohaz Ukrajiny* NJSC by 2012** in line with requirements of the Law of Ukraine "On Fundamentals of Operation of the Gas Sector", in particular:
  - to take Ukraine's GTS from *Naftohaz Ukrajiny* NJSC management by assigning functions of an operator for its operation, development and current process management to a 100% state-owned independent company;
  - to provide for independence of the gas distribution network operators from *Naftohaz Ukrajiny* NJSC at passage of decisions necessary for operation, maintenance or development of the gas distribution pipeline infrastructure on the condition of state control of target use of funds and tariff regulation;
  - to establish a separate state company on the basis of state blocs of shares of oil and gas extracting enterprises managed by *Naftohaz Ukrajiny* NJSC, with subsequent sale by public auction of part of its corporate rights to a strategic investor from among the leading international oil and gas companies, leaving 50% +1 share in state ownership;
- **to get from the Russian partner a consent to amendment of long-term gas contracts**:
  - *of purchase and sale of gas* – with account of the EU pricing practice, first of all, reduction of the basic price ($450 for 1,000 m^3) by $70-100 for 1,000 m^3 with a possibility to buy up to 15% of gas at spot prices set at European market places;
  - *of gas transit* – to guarantee transit of at least 80-90 BCM of Russian gas a year across Ukraine (with account of the expected commissioning of the *North Stream* gas pipeline);
- **to develop and implement in 2010-2012 a plan of a gradual increase of natural gas prices** for households, municipal heating and power supply companies, budget institutions and industrial enterprises to the level guaranteeing profitability and investment attractiveness of the gas extracting sector; to gradually cancel preferential prices of gas for separate industries; to provide adequate target cash subsidies for low-income groups of the population;
- **within the framework of the state programme of reformation and development of the energy sector, to draw up target programmes**:
  - **of diversification of oil and gas supply sources** specifying concrete measures: at the Odesa-Brody oil pipeline system use in the straight mode; at construction of infrastructure for admission of liquefied natural gas (LNG);
  - **of reduction of gas losses during transportation** thanks to replacement of obsolete gas pumping units with new ones of much better performance;
  - **of restoration of the petroleum product pipeline system** for enhancement of the investment attractiveness of the petroleum product supply sector through a decrease in the self-cost of motor fuel transportation and enhancement of reliability and promptness of deliveries;
- **to amend the Laws of Ukraine**:
  - "**On Principles of Operation of Natural Gas Market**", to take into account provisions of the

Third Energy Package adopted by the EU in November 2009 (energy market operation rules and regulator's role) and specify: the procedure of *Naftohaz Ukrajiny* NJSC division by lines of activity; enhancement of independence of the National Electricity Regulatory Commission of Ukraine from political influences; mechanisms of the gas market and GTS protection from potential outside expansion;

- **"On the Bowels of the Earth", "On Oil and Gas", "On Product Sharing Agreements"** – to specify, streamline and regiment departmental procedures conducive to improvement of the investment climate and raising investments in exploration and development of oil and gas fields, i.e., gradual growth of hydrocarbon extraction on the territory of Ukraine, growth of the state budget proceeds, creation of new jobs and a decrease in dependence on Russian gas imports.

To specify in the laws: the procedure of issue and transfer of licences to the use of the bowels of the earth; auction procedures; the list of grounds for cancellation and invalidation of licences to the use of the bowels of the earth; tough licensing requirements for observance of environmental norms during exploration and development of deep shelf fields; and to **envisage norms** ruling out suspension of validity of separate articles of laws on the use of the bowels of the earth by the Law on the state budget;

- **"On Alternative Fuels"** – to create advantageous investment conditions for better provision of the economy with domestic energy resources and decrease dependence on their imports, in particular, by inclusion of shale gas in the energy balance (to enter it on the list of alternative fuels);
- **"On Customs Tariff", "On Value Added Tax"** – to encourage investments in construction of the LNG admission infrastructure, which will make it possible to reduce the share of imported Russian gas in Ukraine's gas balance. To exempt from import duty and value added tax operations of import of equipment and machinery used for construction of the LNG infrastructure;
- **"On Pipeline Transport"** – to establish the regulatory framework for enhancement of the quality of state company management in the oil and gas sector and raise investments in overhaul and modernisation of main gas pipelines, gas distribution networks and hydrocarbon extraction during and after the company restructuring;
- **"On Joint-Stock Companies"** – to restore effective rights of the state participation in management of *Ukrnafta* OJSC and *UkrTatNafta* PJSC; to provide for permission to hold general meetings of joint-stock companies on the condition of registration of shareholders totally holding not less than 50% +1 voting share (currently – 60%);

- **to draft and sign with the Russian Government agreements**:
  - **of cooperation in the gas industry, including natural gas transit** – to establish responsibility and provide guarantees on the governmental level;
  - **of oil supply and transit across Ukraine** – to enable *Ukrtransnafta* OJSC to make direct contracts with Russian oil companies by the principle "pump or pay".

Nuclear sector

- to perform feasibility study of alternative ways of nuclear power engineering development in all segments of the "*extraction – processing – enrichment – fabrication – use – burial/repeated processing and use*" process cycle, to hold public consultations and expert discussions involving Russian representatives for choice of a trade-off option;
- to enter the project of creation of domestic production of nuclear fuel in Ukraine on the list of national projects;
- to review possibilities for cooperation in relation to the nuclear fuel cycle with such states as India, Kazakhstan, China, Japan;
- within the framework of the state programme of reformation and development of the energy sector, to draw up a target programme of nuclear power engineering development through 2020;
- to speed up reformation of the wholesale electricity market in Ukraine;
- **to draft Laws of Ukraine**:
  - **"On State Policy in the Nuclear Sector"** – to specify mechanisms of state-private partnership, powers of concerned bodies of power at promotion of such partnership in Ukraine, provisions of protection and financial repayment of investments, encouragement of partner relations to ensure implementation of the updated Energy Strategy of Ukraine;
  - "**On the Procedure of Effectuation in Ukraine of Foreign Investments in Enterprises of Strategic Importance for the Country's Economy and Security" –** to identify activities of strategic importance for Ukraine's national security (including in use of nuclear energy) and legally regiment foreign investors' participation in authorised funds of enterprises active in those sectors;
  - **To amend the Tax Code of Ukraine** in order to: create a mechanism of encouragement of innovative-investment development of nuclear power engineering; ease the tax pressure in terms of the income tax for companies investing in development of innovative technologies in the sector.

UKRAINE-RUSSIA RELATIONS IN THE ENERGY SECTOR: TODAY AND TOMORROW*

EFFECTS OF THE KHARKIV AGREEMENTS AND INTENTIONS OF CUTS IN THE COAL INDUSTRY MAY DESTABILISE THE SITUATION IN UKRAINE

Mykhaylo VOLYNETS,
Deputy Chairman of the Verkhovna Rada of Ukraine Committee for the Fuel and Energy Sector, Nuclear Policy and Nuclear Safety of Ukraine

I would like to add that I am not only a National Deputy, but also the Head of the Trade Union of Miners of Ukraine, and will speak mainly from the standpoint of the trade union. The Centre's experts, as usual, approached the analysis of the Ukraine-Russia relations carefully, but, in my opinion, too cautiously, especially with respect to the situation emerging in Ukraine's energy sector. That is why I would like to stress that **the Kharkiv agreements may have unpredictable effects**.

We are being told that those agreements and so-called "preferential prices" of gas are intended to stabilise the situation not only in the energy sector, but also in metallurgy and other industries.

In reality, the so-called preferential price of gas is now used to subsidise metallurgical enterprises owned by foreign oligarchs, first of all Russian. At that, the share of wages in the price of finished goods at those enterprises makes 2-7%, 5% on the average. This is a very low share, but Ukraine continues to give preferences to metallurgical magnates, owners of chemical enterprises working for export and not tired of complaining about losses from their operation. But we know that this is not true. Those enterprises are not modernised since it is profitable to use cheap labour, enjoy preferences for gas, electricity, transport fares, taxes, etc. and at the expense of all that get superprofits leaving them in offshore areas.

In the end result, **Ukraine appears entirely dependent on Russia, now formulating a transit policy not only in Europe, but also in Asia, formulating it solely in its own interests, interests of its economy, profits, and finally, its policy**. There is a real threat that Russia will now encroach on the Ukrainian GTS, claim gas storages and so on. We cannot admit such a situation.

Just recall: on January 1, 2009, Russia stopped gas supply by the line going to Donbas, continuing deliveries to Europe by northern branches. What did Tymoshenko's Government do? Raised gas from storages located mainly in Western Ukraine and reversed gas to Ukraine's eastern regions, not to freeze miner and industrial towns, to save industry. Luckily, we were in a deep crisis at that time, and gas and energy consumption at metallurgical enterprises was minimal. The main thing is that the Government demonstrated its will. But we appeared in a critical situation. Europe did not understand what was going on and did not want to feel cold or lose profits. That is why we had to sign the agreements, now called "fettering". But are the Kharkiv agreements any better?!

What have we got from them? A rise of the gas price for households. One may argue that this is not connected with the Kharkiv agreements. It is not true, this is directly connected since promises of "cheap gas" calmed down society that expected cheaper gas, a decrease in commodity prices on the domestic market, etc. Meanwhile, we got something entirely different – a new round of inflation, job cuts, other negative trends that will grow, deepening the budget deficit. And nothing at all has been done to effectively lead Ukraine out of the crisis situation.

The next thing I would like to stress. Today, we have **asymmetric relations with both Russia and the EU**. The EU has no integrated policy towards Ukraine, while the Russian policy is a policy of flat and open pressure on Ukraine. Let us recall, for instance, the EU intention to invest in overhaul of the Ukrainian GTS. What was Russia's reaction? It reacted negatively, proceeding solely from its own economic and political interests and cherishing own plans with respect to the GTS.

Has the Russian policy changed? Have the top-level relations between Ukraine and Russia changed towards greater regard of Ukraine's interests? No. That is why I flatly oppose transfer of the GTS and gas storages into joint ownership, this is a step for them to appear in the hands of Russia and Russian financial-industrial groups.

* The expert discussion took place on October 20, 2010. The texts are transcribed according to the audio record, abridged, and placed in order of the presentations.

Concerning the *Energy Strategy of Ukraine through 2030*. It requires fundamental change. The main thing is that it has not shaped the balance of energy resources. We have a domestic coal industry, have coal reserves for at least 350-400 years. But now, it deals about cuts in Ukraine's coal industry. The Government announced closure of 100 mines in the near future. As a result we will, *first*, have terrible social effects – over 100 thousand miners (together with their families) will be thrown away to the labour market where nobody needs them. *Second*, we find ourselves in total energy dependence from other states. And how does Ukraine's NSDC assess that situation?! ■

DECISIONS IN THE ENERGY SECTOR SHOULD BE ASSESSED FROM THE VIEWPOINT OF NATIONAL INTERESTS OF UKRAINE

Dmytro BOBRO,
Head of Energy and Nuclear Security Department of Ukraine's National Security and Defence Council Secretariate

In the first place I wish to say: we as officers of the NSDC assess all events and processes from the viewpoint of influence on national interests, the main of them being state sovereignty and guarantee of sustainable progressive development. This is written in the Law on NSDC, so, it makes sense to start with sovereignty.

Sovereignty without clearly delimited borders is a fake. So**, if the Kharkiv agreements are viewed as one of the means of achievement of real sovereignty, first of all – clear delimitation of borders with the Russian Federation, this gain, in my opinion, outbalances all potential risks**.

Regarding guarantee of sustainable progressive development. In reality, our situation is real grave – both from the viewpoint of the state of fixed assets in the energy sector and from the viewpoint of dependence. The way out of the situation lies in the development of new energy capacities – this is impossible without investments. Where to take them?

The problem is wider and deals not only with our relations with Russia. But as far as it deals with the GTS, it can be assessed. I will quote two extreme assessments. On one hand, our GTS is the shortest way of gas transportation from Russia to the EU that may also be the cheapest and the most economic. Another extreme assessment: GTS is a metal pipe buried in the ground.

How to make the GTS the only economic route, not a pipe buried in the ground? We ourselves cannot answer this question, since Russia alone may guarantee a full "pipe". But in this respect, this "dependence" may be viewed as *interdependence*, including because Ukraine is one of the biggest consumers of the Russian gas in the western direction.

So, on one hand, we may be sure that Ukraine will always get volumes of the Russian gas necessary for its *domestic needs*. But not always – for transit to the West. Why?

First, bypass routes are being built and will be built, we should be aware of that, since diversification of supply routes is an issue of energy security both for the EU and Russia. This is a reality we must recon with. Both Russian and Central Asian gas (if we mention the South Stream and/or NABUCCO) may bypass the territory of Ukraine.

Second, maybe even a greater threat than the North Stream is posed for us by the construction of internal gas pipelines in Russia that will take part of the gas flow, in particular, from Urengoi. As we know, fields may be exhausted, and in 10 years Urengoi will be able to cover only the domestic demand in Russia and Ukraine. To be sure, Russia has promising fields: Yamal, later – Shtokman. However, the routes of transportation of its gas are its choice, and in five years it will have that choice. We will not have such an opportunity in five years. We have a choice only now.

That is, I return to the above – **without Russia, we will not fill our GTS**. Joint actions are needed. Beyond doubt, they should be mutually advantageous. So, if we speak about the establishment of a JV, it is important not to allow a takeover, even "friendly", but to secure the establishment of a true joint venture that would guarantee mutual interests. In this respect, investments in GTS modernisation are important for us, whose volume is assessed differently, but in any case, in billions of dollars – two or five, dependent on the scope of modernisation. Ukraine does not have such funds.

Concerning the **nuclear sector**. We have a great common history, but, unfortunately, we also have a dependency. We alone can break it – if we speak about building a plant providing fuel for Ukrainian NPPs in full volume. Only our consistent actions can ensure independence.

Drawbacks in **Ukraine's Energy Strategy** were also mentioned here. In our opinion, development of Ukrainian resources, first of all, coal and uranium, should make the basis of the national energy independence. Regarding mines, the main thing is to revise the lines of support: to maintain not the price of coal, but the social sector. That is, if mines are closed down, support should target miner families; if it deals with privatisation, its conditions should specify the social aspect.

However, **the basis of the Energy Strategy review should lie in formation of an energy balance resting on outpacing development of domestic energy resources, first of all, coal and uranium.** ■

UKRAINE'S GTS CAN ATTRACT INVESTMENTS ON ITS OWN

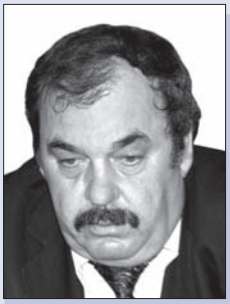
Oleksandr TRETYAKOV,
National Deputy of Ukraine

Reliability of deliveries of the Russian gas to other European countries via the territory of Ukraine should not be related with privatisation of the Ukrainian GTS and establishment of a joint venture by *Naftohaz Ukrajiny* NJSC and *Gazprom* OJSC, since this will pose a threat to the energy security of this state due to monopolisation of the Ukrainian gas market by the Russian gas concern.

Ukraine's GTS is one of the biggest in the world and can on its own attract necessary investments not only for overhaul and modernisation of gas pipelines and underground storage facilities, but also for their development. Those investments may come from a portion of gas transport tariffs or from credits borrowed from international financial institutions.

Additionally, I would like to note a not quite clear stand of the Russian Embassy representative who said that merger of the GTS would not benefit Russia. If it does not benefit Russia, a question arises: "What is being discussed for almost six months on the top level by Ukraine and Russia?" It is hard to believe that the Russian party cares so much about Ukraine's benefit… ■

NAFTOHAZ UKRAJINY NJSC GUARANTEES CURRENT RELIABILITY OF THE UKRAINIAN GTS AND PREPARES PROJECTS FOR ATTRACTION OF INVESTMENTS IN ITS MODERNISATION



Anatoliy CHEREDNICHENKO,
Director, Oil and Gas Transportation Department of Naftohaz Ukrajiny NJSC

All participants of our discussion know that in the recent years, gas and oil agreements between Ukraine and Russia are made on the top level – on the level of ministers, prime ministers, finally, the presidents. The contracts signed by *Naftohaz Ukrajiny* NJSC with *Gazprom* OJSC or the Ministry of Energy concerning oil transportation rest on said agreements. That is why I would not like to comment on top level agreements. We are performing what is envisaged by contracts.

The **issue of the progress of talks between NJSC and *Gazprom*** about amendment of provisions of the contract of Russian gas transportation by our GTS was raised here, regarding guarantees of transit volumes by the Russian side. I can only say that talks go on on the top level, are very difficult, and we may only hope for positive results.

It is no secret that today, the Russian side concentrates on establishment of a joint-venture involving NJSC and *Gazprom*. Statements by the *Gazprom* CEO, government officials and members of the State Duma of the Russian Federation prove huge interest to its establishment. Such is the stand of the Russian side. They promise cheap gas for Ukraine, investments in GTS, appropriate guaranteed volumes of transit. However, I cannot even predict the result of those talks, I wish only to say that, *first*, the effective legislation of Ukraine does not allow this, *second* – we have received no assignments concerning preparation of documents for the joint-venture establishment.

The panellists have also touched upon **the issue of the state of the Ukrainian GTS and the degree of readiness of the investment programme**, technical documentation of separate projects, generally, the degree of our readiness to utilise investment funds, if available.

So, concerning the GTS status. Every year, we invest in the GTS reconstruction, repair, technical re-equipment, etc. over UAH 2 billion. So, I cannot say that it is "in a deplorable state". **Thanks to continuously performed works, the GTS is now reliable**. To be sure, we would like to modernise the GTS in line with present-day capabilities and requirements. That will be the purpose of the investments the EU plans to give us.

As regards the value and number of ready projects that might be presented to banks – potential investors as profitable: one project is nearing completion, dealing with overhaul of the linear portion of Urengoi-Pomary-Uzhhorod main gas pipeline, valued over €300 million – as the first phase of crediting under the Brussels agreements. I believe that preparation of the full package of documents on that project will be completed and presented to the EU bodies in November this year.

All in all, for the entire volume of crediting/investment under the Brussels agreements (in excess of €2 billion), feasibility studies have been fully developed for modernisation of all three transit main gas pipelines: Urengoi-Pomary-Uzhhorod, *Progress* and *Soyuz*. They provide for modernisation of the linear portion, compressor and gas metering stations, as well as underground gas storages. Our design organisations performed feasibility studies for all three transit main gas pipelines, they were submitted to the European Commission, and on their basis, documents are being prepared meeting the requirements of European banks. ■

WE NEED NO MORATORIUMS ON MERGER OF ASSETS, WE NEED EFFECTIVE GOVERNMENT

Oleksandr NARBUT,
independent expert

I guess that in course of our discussion we could speak of ideas for negotiations with the Russian side – if any.

Meanwhile, European partners more than once showed us examples of preparation for uneasy negotiations with *Gazprom*. I will stress two points. *First*, publicity. First of all, it is reported that a company (say, *Gaz de France* or *Eni*) considers it necessary to discuss amendment of the pricing formula. Simultaneously appear detailed comments, I stress – by the *top officials* of those companies. Nothing of the kind has been heard here. *Second*, elaboration, calculation of proposals. State officials present here know how "thoroughly" negotiations are prepared because they more than once got assignments "to present proposals" right on the eve of negotiations.

If one wants to play a game, he should get ready for it. Not during a year of the moratorium proposed by the colleagues. Soon, the 20th anniversary of a ban on merger and unification of energy assets may be marked. What has it given to us?

The prospects of reduction of the Ukraine-Russia relations to the model of equal and mutually advantageous cooperation depend on many factors and conditions.

(1). The ability of the Ukrainian authorities, starting from the President, to build an independent matrix of protection of national interests in the energy sector, independent, not conditioned by the will of one or another friendly state (although, to be sure, its interests should be taken into account).

In this context it should be said that prospects of effective employment of the Ukrainian GTS depend on us alone. Despite the construction of bypass routes, we can modernise our GTS and demonstrate such effectiveness of its management that all the gas will be pumped through it. However, so far, everything has been reduced to its repair and overhaul, while modernisation is not considered.

To be sure, partnership should be mutually advantageous. However, only the initiative and the country readiness to build an active paradigm of relations and a sound project basis for operation will make partnership demanded. If we sit on our hands, the prospects of developments are shown in the Razumkov Centre analysis: reduction of transit to 10 BCM.

(2). Solution of the problem of the conflict of interests barring formulation of an effective negotiating position of Ukrainian representatives. I guess, everybody understands what is meant. This conflict is not confined to *RusUkrEnergo* alone. The problem should be resolved, and this should be initiated by the President.

(3). Ukraine's ability to take part in discussion of improvement of the European Energy Charter and push the terms whereby the role of the transit country will be no less important than of the supplier or consumer. After all, high-ranking Russian officials have repeatedly said that transit is a service function and a transit country should not be reckoned with. We know from the example of our Polish colleagues that transit interests are very difficult to defend, but this can be done – if the level of political self-consciousness of the elite is high. We lack this.

(4). Readiness to practically implement a dynamic plan of reforms in energy, first of all, the oil and gas sector. A corresponding section is present in the presidential programme, there is a special commission led by a Deputy Minister of Fuel and Energy. However, the capabilities of that commission are limited by the presence of political will and true interest in reforms. The same refers to the guarantee of true independence of the national regulator in the energy sector, the effectiveness of the Antimonopoly Committee, and many other questions.

That is why **people are the main factor and condition for both development of a model of equal Ukraine-Russia relations and implementation of reforms.** The ability of our political establishment, despite the strong fragmentation of economic and political interests, to rise to the level where common goals and objectives, a common strategy of the country modernisation and effective management for the sake of national interests can be found. More specifically: the ability and readiness of the executive branch – from the Government to managers of state companies – to fundamentally change the quality of the state energy management and the energy policy.

Concerning the Kharkiv agreements. One cannot speak about a discount of the gas price for Ukraine. A discount means price reduction at the expense of the seller. But what if the gas price is reduced at the expense of the buyer? We know that the agreements envisage an equivalent increase in Ukraine's debt to the amount of that price "reduction". Indeed, the Ukrainian debt may be reduced and written off, but only thanks to services of the Black Sea Fleet stationing. To be true, not all provisions are specified so far, there is no package of additional agreements, so hastily drawn up for the forthcoming meeting of the Presidents, after which, I hope, we will be able to analyse the entire set of issues. And **today, we state that the Ukrainian debt accrues, but may be written off**.

Concerning the contract, it was really somewhat modified due to refusal from unacceptable sanctions for undertaken gas. But this in no way affected the "take or pay" principle, and the discussion of reduction of contractual volumes in 2011 is still underway. Half a year has passed, but we have not managed to adjust the "fettering", as the Prime Minister put it, contract provisions. Let us wait for the winter and then try to argue?!

Concerning the merger of assets. This could be the case, if we consider the option of merger of the gas transportation systems and, possibly, storage facilities. However, I have never heard the Russian side offering use of its portion of the gas transportation system in the joint venture. I would support merger of Russian, Ukrainian and European gas transportation assets – this would really raise their effectiveness.

To sum up, I wish to say: **we need no moratoriums, we need effective government**. And each of us can either draw such effective government closer, or just watch the present, the former (and, possibly, the future) governments generating vain expectations and myths not backed with practical deeds… ■

DECISIONS OF THE INTERSTATE LEVEL IN THE ENERGY SECTOR SHOULD BE TAKEN ON THE INTERSTATE LEVEL

Oleksandr SVETELIK,
Deputy Head of the Energy and Nuclear Security Departments, Ukraine's National Security and Defence Council Secretariate

First of all, I would like to draw the attention of the discussion participants to some confusion in the addressees of questions and critical comments. For instance, *Naftohaz* was criticised for the Kharkiv agreements. Indeed, technical projects are up to it. But the energy *policy*, the Kharkiv agreements are none of its business.

Proceeding from my experience of participation in several rounds of talks, when contractual provisions were modified, I wish to say that *Naftohaz* had never lost. It quite staunchly defends its corporate interests, interests of a business entity. Believe me, everything is okay with it there. Problems arise with Ukraine.

It was further said that after the agreements reducing the price of the imported gas, the gas price was raised for households. Those two things are not connected, and this is not a question for *Naftohaz*. We have a system of state regulation whereby prices are set on the state level. The main thing for *Naftohaz* is that its costs are covered. State executive bodies decide for whom to raise or to lower prices. But if we raise prices for households, we will be able to maintain prices for industry. If we don't raise prices for households, they need to be raised for industry, to ensure operation of the gas system. Let us count our common economy and guarantee its stability.

Regarding the policy of relations with the Russian Federation. We many times proposed that *Naftohaz* plays a very simple game: if the Russian side proposes something in the contracts, we say: put the same for us. Russians write: "Ukraine is obliged to transport gas across its territory". We say: "No problem, but there should be parity. Let us put down: Russia is obliged to transport our gas across its territory". After all, there are no obstacles for a talk on equal footing.

But the problem is that after all our discussions on the political level, a business entity comes to negotiate with Russia, first of all solving its corporate problems.

I believe that issues of the interstate level should be solved by specialists in foreign political and foreign economic activity, employing experts from the gas and other sectors to draw up proposals. The policy and interests of a separate business entity should be assessed from the viewpoint of their effect on the entire national economy, on its relations with the country with which we negotiate – and not exert excessive influence on operation of the entire national economy and its energy sector. ■

WE WORK TOGETHER WITH RUSSIAN COLLEAGUES IN THE INTERESTS OF UKRAINE

Olha KRAVETS,
Vice-President, NNEGC Enerhoatom

A few words on the presented materials and the overall situation in the nuclear sector. It so happened that this year sees completion of many long-term contracts: of fresh nuclear fuel delivery, of removal of spent fuel (new, we have it transported to Russia). So, tasks were many, including in connection with the establishment of a nuclear fuel fabrication plant, as determined by state programmes and the subject of out discussion – the need to reduce dependence on Russian counterparts.

I would like to note that we are not 100% dependent on the nuclear fuel supplier and mention **two factors that helped us wage constructive talks with the *TVEL* company and with representatives of the Russian authorities**.

The first factor is the presence of an alternative supplier of nuclear fuel, *Westinghouse* company. **The second – a reserve of nuclear fuel** created by NNEGC *Enerhoatom* for its account (since the relevant governmental resolutions have not been implemented).[1] Those two factors let us rather seriously speak with our partners.

[1] The Cabinet of Ministers Resolutions No.641 of June 3, 2009, and No.534 of June 30, 2010, approving the Procedure of use of funds earmarked for the Ministry of Fuel and Energy under some budget programmes for the concerned year. – ***Ed***.

What was done this year? A contract signed for nuclear fuel delivery to all power units of Ukrainian NPPs, except three units where obligations were contracted with *Westinghouse* company. A long-term contract for removal of spent fuel is being finalised for signing.

I wish to note that NNEGC *Enerhoatom* jointly with the Ministry of Fuel and Energy have prepared a detailed plan of minimisation of spent nuclear fuel removal to the Russian Federation. According to that plan, over the next three years spent fuel from VVER-440 reactors will be removed to Russia only in the minimum required volumes. To store the bulk of spent fuel, construction of centralised storage facilities is planned. The construction project has rather a long history. However, according to the legislation, it envisaged many rather lengthy procedures – conduct of a number of expert examinations, public hearings and so on. All of them are to be completed before the submission of the relevant bill to Parliament, which is to pass the final decision.

So, using the opportunity of presence of national deputies, including members of the specialised parliamentary committee, I wish to draw their attention that fulfilment of our plans depends on the promptness of Parliament consideration of the bill "On Location, Design and Construction of a Centralised Storage for Spent Nuclear Fuel from VVER Type Reactors of Domestic NPPs" and its decision.[2] If this is not done before 2013 (when Russia begins returning to us radioactive waste obtained in the result of processing of spent fuel from Ukrainian NPPs), serious problems may arise. Then, we will be absolutely dependent on Russia.

Concerning the Kharkiv agreements. Over the past six months, working groups have been set up (in particular, within the energy subcommittee of the Ukraine-Russia Intergovernmental Committee for Economic Cooperation), specialists met many times, but so far, the issue of merger of assets has not come to the forefront.

Concerning **promotion of joint activity with the Russian side**, we have several projects. First of all, it is **the project of construction of a nuclear fuel fabrication plant** – rather active efforts are being made for establishment of a JV, finalisation of its constituent and registration documents.

I wish to note (I have not seen that in the presented materials) that the Nuclear Fuel of Ukraine Concern has been set up, uniting enterprises of the nuclear fuel cycle engaged in zirconium production, uranium extraction and so on. Those enterprises include those not subject to privatisation, that is, not too attractive for investors. However, according to the effective legislation, the Concern has all opportunities to raise investments. The effectiveness of its operation will largely determine the progress of implementation of our projects, including construction of a fabrication plant. The Concern has acquired 10% of shares of the International Uranium Enrichment Centre. So far, this is presented as a political project, but it can be expanded and made operational.

If we build a plant on the territory of Ukraine, we will practically solve issues of fabrication, of uranium, of zirconium – as envisaged by the current state programmes. Funding is the only problem. Unfortunately, it often happens that the budget envisages money, but later it is allocated to other needs. That is why I wish to stress: with sufficient funding, we will really be able to get rid of dependence on Russia in uranium (by the way, the possibilities of joint activities with Kazakhstan may be explored).

Concerning **enrichment**. Here, we are not directly dependent on Russia because, according to the contract, we buy not a complete assembly, but component parts. The world market of enrichment is rather competitive, and given the prospects of the so-called "nuclear renaissance", it will be even more saturated and competitive. That is why in twelve to eighteen months an alternative supplier may be found. One should not forget however that the cost of enrichment in Russia is lower, that is, one probably should not fear full dependence on the Russian side since there are mechanisms enabling us to defend our interests. This is not the dependency and monopolisation observed previously.

Completion and extension of service life of power units of Ukrainian NPPs. Those efforts are being made actively enough on the company level, but not sufficiently supported by the Government. Such projects require investments. Unfortunately, understated rates of electricity supplied by NNEGC *Enerhoatom* do not allow us to implement them on our own. Meanwhile, with proper support, projects of completion and extension of service life of power units may well be implemented with sufficient effectiveness and within the required deadlines.

I do not entirely agree with some data quoted in the presented materials in terms of methods, but this is not of fundamental importance. **Speaking in general, we plan rather an intense constructive dialogue with our Russian colleagues. We will continue our joint efforts that will by no means infringe upon Ukraine's interests**. ■

RUSSIA IS INTERESTED AND READY TO HELP UKRAINIAN GTS TO BE A RELIABLE AND SAFE MECHANISM OF RUSSIAN GAS TRANSPORTATION TO EUROPE

Aleksei URIN,
Head of Economic Policy Group of the Russian Embassy in Ukraine

Unfortunately, politically motivated emotions cannot always be avoided when speaking about gas and the energy sector in general. We would like to avoid this,

[2] Said bill has been submitted to the Verkhovna Rada of Ukraine, reg. No. 5050 of August 13, 2009. – ***Ed***.

but we realise that the issue is very sensitive, and this probably cannot be done without for the time being. But in that case some things need elaboration.

Firstly, the Kharkiv agreements. Unfortunately, few people know what is written there. Often, untrue information is presented. It is not true that the discount provided by the Russian side accrues to Ukraine's debt. This may happen only in case of withdrawal from the Kharkiv agreements. That discount is provided from the Russian budget as a cancelled export duty.

By the way, I would like to say about the Kharkiv agreements. From the viewpoint of Ukrainian interests, they contain a very important point, very rarely mentioned. Those agreements in practice and *de jure* removed the principle "take or pay", i.e. the Ukrainian side today does not pay penalties for undertaken gas (as envisaged by the January 2009 agreements). This is very important for Ukraine, and this fact should never be underestimated nor neglected.

Secondly, *"Gazprom's* debts". Unfortunately, that subject also arises in the Ukrainian expert community, conclusions are made of huge debts and a grave financial standing of *Gazprom*, because of which it allegedly will be unable to implement specific projects. I do not want to be *Gazprom's* advocate, it needs no advocates. Nevertheless, two figures should be quoted that will entirely refute those conclusions. Explored geological reserves of gas in the Russian Federation amount to nearly 50 trillion m^3. In money terms, it is about $10 trillion – to be sure, with such amounts, a heavy debt burden is out of the question. Prospective reserves are close to 160 trillion m^3, an astronomical sum. Of course, those reserves need to be extracted and developed yet, but it is a matter of technology and time. Apparently, there are no grounds for concern about *Gazprom's* standing.

Thirdly, unification of *Naftohaz Ukrajiny* NJSC and *Gazprom*. The essence of the Russian proposal lies in natural restoration of the single mechanism presented by the oil and gas sector in the Soviet Union. Evidently, the gas transportation system of Russia and Ukraine (and Belarus too, by the way) is a single organism, and experts are well aware of that. In this respect, some reunification of a single technological and economic organism seems logical and reasonable. This is kind of a supertask.

As far as I know, the Russian side has never claimed the Ukrainian GTS, making clear its desire to seize it, swallow, take over. I am unaware of such proposals of the Russian side. The Russian side feels comfortable enough, as does *Gazprom*. In this respect, I see no direct economic benefits for the Russian side from a takeover. Maybe somebody will explain to me, but I personally do not see them.

Meanwhile, the Ukrainian side has food for thought. I believe that unification of gas transportation assets in one or another form would be in many aspects useful

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for Ukraine. This might solve the issue of repayment of investments, mentioned today, and the issue of GTS load. Questions are many, fundamentally important for Ukraine from the pragmatic viewpoint. Again, I see no political implications coming to the forefront here.

What else I would like to say about this rather painful issue. What is important, everything depends on Ukraine, nobody prevented it from upgrading the GTS, making it competitive over the past 20 years. It is not late even now, there are no problems here. This can be done for own or for borrowed funds. In this respect, the competitiveness of Ukraine's GTS lies within the competence of *Naftohaz* and, in may opinion, can well be achieved through the efforts of the company itself.

Another matter is that with time, rivalry for resources may toughen. But this is a global problem, including for European companies also facing rivalry. Nobody may be guaranteed "a quiet life" in this respect, so, we well realize that something needs to be done here. Here, *Gazprom* is open, it is ready to help *Naftohaz Ukrajiny* and the Ukrainian side to make the Ukrainian GTS more modern, more economic. We are absolutely open here. The same refers to the growth of gas extraction in Ukraine, mentioned today. The Russian side is ready to take part. No imperial ambitions are seen here. That is why I would like to call upon my colleagues to view that subject pragmatically. I believe that Russia and Ukraine have every opportunity to make progress in the oil and gas sector no less actively and dynamically than in the nuclear. There are all opportunities for that.

And to sum up, on Russia's alleged negative reaction to the EU proposals to invest in overhaul of the Ukrainian GTS.

I would like to remind you of the essence of Russia's reaction. The thing was that the Ukrainian and the EU leadership had assumed some commitments. First of all, this referred to Ukraine and amendment of the format of, so to speak, provision of gas transportation services. In particular, Ukraine's obligations of the gas sector reform were meant, including separation of the main pipeline operator as an independent business entity. Those issues directly dealt with the supplier of fuel to European consumers – *Gazprom*, that had a contract with *Naftohaz*

Ukrajiny NJSC**,** but nevertheless was not involved in those arrangements. That is why they met a negative reaction, quite justified and in no way related with plans of raising funds for the GTS overhaul. So please don't mix up, these are entirely different things. Nobody has ever protested against attracting funds of European banks for the GTS overhaul.

In this respect, nothing has changed. **We are still interested in the Ukrainian GTS being a reliable and safe mechanism of Russian gas transportation, including to EU consumers**. ■

WE ARE IN FACT PURSUING AS POLICY OF TOADYISM IN THE FACE OF RUSSIA

Valerij BOROVYK,
President of the New Energy of Ukraine Alliance

First of all, I would like to briefly dwell upon two problems of the Ukraine-Russia relations. The first and **the main problem is in Ukraine itself. It is the problem of decision-making by the top state officials independent of their own private interests**. This is the common and main problem of modern Ukraine's history. No matter what government comes, the energy sector is led by the people directly and privately interested not in a decrease, but in an increase in Ukraine's gas consumption. More than that, every following contract with the Russian Federation is worse than the previous one for Ukraine's national interests. There is an established trend: the opposition criticises the government for the contract, but as soon as it comes to power it makes an even worse contract, while the former government goes into opposition and begins criticising it. A vicious circle.

The present Minister of Fuel and Energy was a minister of the shadow government that strongly criticised the contract signed under the former Government. The present Prime Minister of Ukraine Azarov, having just occupied that post, said that "we will change that contract, we will hold tough negotiations" and so on. Where are the results of those tough statements? Where are changes in the formula approach, the basic rate of $450 for 1,000 m^3?

The second problem is presented by the crisis of analytical capabilities of the authorities and their ability to staunchly defend Ukraine's national interests – the way this is done by Russia. The charge – emotional, analytical and strategic – of our negotiators is rather weak. This problem affects all aspects of relations. In fact, we are pursuing as policy of toadyism in the face of Russia that will never ensure deliberateness, defence of national interests and strategic development.

We pass good memoranda, laws of transparency of the energy market, the fuel and energy sector, report to Brussels about them, but all these are only good intentions, since at the same time we sign rigid and strict agreements with Russia that do not let us implement those good slogans and intentions. That is, declarations on one hand, tough obligations on the other.

Such is the history of decisions of the Ukrainian authorities, irrespective of their colours. So, as long as the rulers have a private interest in deliveries of Russian gas, as long as the same persons are shuffled in power and in opposition, we will have no balanced, clear and transparent relations with our eastern strategic partner.

Concerning the Kharkiv agreements. Having signed them, Ukraine exchanged its long-term strategic interests for short-term tactical gains. More than that, the gas price has not been reduced. In reality, Russia "removed the export duty" that may be re-imposed just by a decision of the head of the Russian Government at any time. No decision of Parliament or amendment of provisions of the Kharkiv agreements are needed – with a stroke of the pen, the head of the Russian Government may return the previous price. Are the NSDC representatives present here really sure that the Kharkiv agreements are a step towards Ukraine's energy independence?!

As regards merger of assets, there is a very serious problem – conflict of commercial interests. Ukraine needs to sell its capabilities of raw material transportation to expensive European markets as dearly as it can. Russia wants its gas delivered as cheap as possible, desirably *at a zero price* (not to Ukraine, allegedly sponsored by Russia), to expensive European markets. At that, Russia perfectly accomplished its assignment, including with the establishment of *RusUkrEnergo* that cut us from the Asian gas – which nobody had expected, including the President of Turkmenistan. People learned from TV that 30 BCM of gas were transferred to a structure previously not known to anyone…

Meanwhile, we can and must modernise our GTS. And there are, or, rather, there were modernisation projects. In due time, *Ukrtransgas* company developed projects of GTS overhaul (including compressor stations) with repayment terms from 5 to 7 years. Where are those projects? Investors were ready to invest funds, if those funds had been invested 5 years ago, they would have already paid off, and less gas would have been used for GTS operation. It was said here that UAH 2 billion a year are spent on the GTS. What are those funds spent on? Overhaul, or procurement of some "blades"? Most experts involved in the gas market know how and through what companies this is done, with procurement prices overstated by 100%. What a shame it is to say that those funds are invested in the GTS – in reality, they go to those who deliver those "blades".

Finally, a few words **about gas reserves in Russia and prospects of investment in their extraction**. You know that gas first needs to be "raised" and "sold", and next speak about investments. Otherwise it may happen as in Turkmenistan that also has huge reserves, uneasy to sell. And what do we see now? When Russia cut gas purchase from 30 to 10 (or even 4) BCM, a gas pipeline to China was laid with the capacity of 30 BCM, while in times less gas is delivered. It appeared that the expected volumes cannot be exported, the rest lies in fields, and the funds for development of ambitious projects are disastrously missing! So, if you speak about huge reserves of *Gazprom* – take money and "raise" at least the Shtokman field… ■

PROBLEMS OF UKRAINE-RUSSIA RELATIONS IN THE ENERGY SECTOR CAN BE SOLVED ONLY IF OUR POLITICIANS ARE GUIDED BY THE COUNTRY'S INTERESTS AND CONSIDER RECOMMENDATIONS OF THE EXPERT COMMUNITY

Hennadiy RIABTSEV,
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Doctoral Student of the President of Ukraine's National Academy of Public Administration

I would like to dwell upon two aspects of Ukraine-Russia relations in the energy sector. The first one, not mentioned here, seems very important to me; it is about **Ukraine seriously losing to Russia in the media space**. *First of all*, for some reason, nobody mentions here that gas export to Ukraine brings *Gazprom* 50% more profit than export to Germany. It may be said that today, *Naftohaz* subsidises the Russian monopolist, not vice versa. One needs only to correctly count and to present the calculation results as an argument to the Russian side.

Second: Ukraine has never performed so-called "unauthorised withdrawal of gas". But who knows about that in Russia? In due time, Russia's Accounting Chamber Chairman Stepashin released the results of work of the Accounting Chambers of both countries that proved that Ukraine had not taken Russian gas above the contractual volumes – not "smooged", as the present Russian Partner put it. By the way, what equal partner relations can we speak about if a top official dares speaking of a partner like that?[1]

Third: nobody says at whose expense *Gazprom* offset the decline of its proceeds in early 2010. This was primarily achieved at the expense of growth of deliveries to Ukraine and high gas prices for Ukraine, only after that, at the expense of sale of more expensive gas on the Russian domestic market. That is, a paradox goes out: the more you buy, the higher price you pay.

The second aspect. I as a citizen cannot but be concerned with ***Gazprom's* appetites in Ukraine. Its plans are not limited to beneficial sales of gas**. Rather an aggressive strategy is being implemented, targeting many other things except gas. For instance, in 1995 it proposed repayment of gas debts with enterprise shares. The list included 15 Ukrainian infrastructural (by the way, budget-forming) enterprises wanted by the Russian side. It is enough to mention them to understand that the Russian side is interest not only and not as much in the Ukrainian GTS: Nikopol and Zaporizhya ferroalloy plants; *Oriyana* Concern; Vinnytsia Integrated Chemical Plant; Mykolajiv Alumina Refinery; Odesa Port Plant; *Styrol* Concern; *Azot* production associations in Siverodonetsk, Dniprodzerzhynsk, Rivne, Cherkasy. In fact, the entire cream of our chemical and metallurgical industry. To be sure, not all companies were bought after 1995. Then, our politicians timely cared to think twice, and no shares were transferred to the account of the Ukrainian debt. However, the Russian interests in them are cherished and promoted…

Given such appetites, I do not think that *Gazprom* will be satisfied with establishment of a joint-venture with *Naftohaz* on a parity basis and with account of our national interests. I think that *Gazprom* will be followed in this country by *Gazprom Extraction*, *Gazprom Oil*, *Gazprom Energy Holding*. To be sure, they will not be welcome by the national power engineers, metallurgists and chemists.

What conclusions follow from all this?

1. **Ukraine has no strategy of development** of the national economy and the energy sector, since *the Energy Strategy of Ukraine through 2030* is a purely political documents nobody even planned to implement.
2. **Ukraine has no state information policy**, that is why we are losing all information wars to the Russian Federation.
3. **Ukraine has no interest in the opinion and conclusions of the expert community, in using the results of analytical studies**. Unfortunately, documents presented by Razumkov Centre, NSDC Staff, independent consulting companies really working and proposing practical ways to improve the situation more than once appeared uncalled.

That is why problems of Ukraine-Russia relations in the energy sector may be practically solved only after politicians, *first*, are guided not by interests of their political parties and their own business interests, but by the country interests, and *second*, when they pay attention to proposals, in particular, those formulated today. ■

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[3] A statement by Vladimir Putin at a press conference after the G8 summit (July 8, 2005, Gleneagles, Scotland). Then, the Russian President said that Russia was ready to cooperate with Ukraine in the energy sector "if they don't smooge our gas". See: Putin ready to expand the pipe if Ukraine does not "smooge" from it. – *korrespondent.net*, July 11, 2005 (*in Ukrainian*).

UKRAINE'S ENERGY DEPENDENCE ON RUSSIA: REALITY OR A MYTH?

Hennadiy RIABTSEV,
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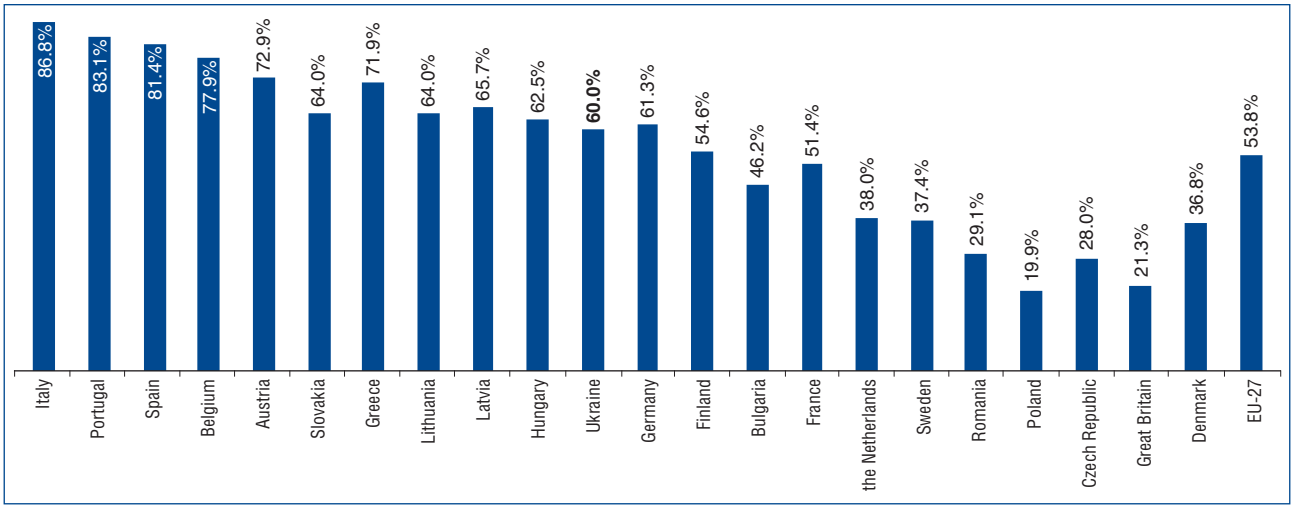
Once and again, supernovas flare on Ukraine's energy firmament. Rape ether and bioethanol, coal methane and shale gas, wood and straw, sawdust pellets and diesel fuel from Malay algae. However, ardour for another alternative fades away as soon as it appears that development of the new resources requires 3, 5, 10 years and $10, 20, 30 billion. Government officials, realizing that development of alternatives requires efforts, time and money, as usual, go for gas to Moscow. The situation is dramatic because the hypertrophied reaction of the authorities to aggravation of the energy disease creates favourable conditions for adventurers willing to profit by budget funds and complicates sound decision-making for those who are concerned by inefficient use of energy resources. But what is the point? Maybe our energy dependence is nothing, but a myth thoroughly cultivated by Russians and very convenient for some Ukrainians?

This may seem strange, but Ukraine depends on imports of fuel and energy resources less than most European states, although more than the EU in general (thanks to Denmark with its energy surplus and countries with a low energy dependence (below 30%) – Poland, Great Britain, the Czech Republic, Romania).

The degree of Ukraine's dependence on deliveries of organic fuel is close to 60%, while in the EU-27 that index equals 54%. Ukraine is roughly on a par with such countries as Germany – 61%, Hungary – 63%, Slovakia and Lithuania – 64%, Latvia – 66% (Diagram "*Dependence of EU countries on imports of energy resources*").[1] At that, the share of domestic extraction in Ukraine's consumption gas makes nearly one-third, while in Austria, Hungary, Germany, Italy it does not exceed 20%, and Spain, the Czech Republic and Slovakia extract no gas at all.

Dependence of EU countries on imports of energy resources, %



[1] As of 2008. Source: Europe's Energy Portal – *http://www.energy.eu*.

Things look even worse with diversification. Only in Belgium, Germany, Italy and France the share of the main is below 40%, while Spain gets more than half of its imports from Algeria, and Hungary, Austria, the Czech Republic and Slovakia mainly import Russian gas.

Furthermore, Ukraine today can diversify deliveries by buying liquefied methane whose value, even if it is transported from the other side of the globe, is much lower than of Russian fuel delivered by pipeline. This is especially important given that the Hlibovska underground storage in the Crimea can contain up to 4 BCM of gas.

Another thing is that Ukraine spends per unit of produce four times more energy than any country in Old Europe. According to the author's calculations, even with account of the purchasing power parity and climatic conditions, 1 kWh of energy consumed in Ukraine corresponds to $1.7 of the GDP, while in Poland – $3.9, in Germany – $4.5. And if the efficiency of energy use is assessed by the value of GDP obtained at combustion of 1 kg of conventional fuel, Ukraine with $0.5-0.6 will share with the Russian Federation the last rank among countries with similar climatic conditions (in Poland – $1.7, in Germany – $7.7). Over the years of independence that ratio has not seriously changed, witnessing conservation of technologies in all branches of the national economy. Similarly low energy efficiency is observed only in one country, Russia. But if Russia, possessing huge reserves of fuel and energy resources, can afford that, Ukraine that from 1999 spent over $100 billion to buy oil and gas (first of all, Russian) has no right to do the same.

Relevance of European experience of energy supply for Ukraine

The present state of Ukraine's energy supply very much resembles the situation in Denmark in 1990s, when the lion's share of its currency proceeds (earned through fishing, shipbuilding and agriculture) was used to buy energy resources. However, actively introducing energy-efficient and energy-saving technologies, wind and solar power engineering, widely using biomass and biogas, Denmark in course of 15 years became a country with a high level of socio-economic development that can pursue an independent policy on the world scene.

The Danish experience proves that enhancement of the **efficiency of energy use** should be common for modernisation strategies of fuel and energy sectors in all countries, first of all at the stages of end use, by means of introduction of energy saving equipment and technologies; modernisation of equipment and technologies using organic fuel; large-scale employment of new and renewable energy sources. The most effective, at the first stage, are legal measures that require minimum costs: drafting and passage of laws, standards, taxes on hazardous discharges and inefficient use of energy resources, arrangement of effective accounting and control by installation of meters, state support for introduction of efficient equipment and technologies.

A good example for Ukraine may be presented by Poland that managed to refuse from centralised heat supply in course of 10 years, thanks to which, its utility companies decreased consumption of gas, fuel oil and coal five-fold.

Such priority is quite logical since expenditures on energy saving are 3-4 times lower than on its generation. However, the problem of energy supply cannot be solved by resource and energy saving measures alone. They can really ensure reduction of fuel and energy consumption by a third, but will be exhausted in 15-20 years. Further on, **the most rational methods of energy generation** should be employed. It is not enough to replace one energy-intensive production with another (even more environment friendly). Transition to a new stage of development presumes not as much employment of "alternative" fuel and energy resources as use of traditional technologies with higher coefficients of energy transformation.

Impracticability of prompt refusal from traditional sources of fuel and energy is also conditioned by the existence of developed infrastructure whose replacement requires huge funds. For instance, transfer of the domestic heat supply system to fuel alternative to gas and coal requires not less than $20 billion. The problem can be solved in principle only by means of gradual replacement of worn out traditional capacities with facilities using renewable energy sources. But Ukraine, judging by the volumes of the fuel and energy sector funding planned by the *Energy Strategy*, does not intend to maintain their development till 2030. At that, top executives keep on saying that Ukraine will not survive without a "fuel alternative".

This statement is both right and wrong at a time. Right, because the share of renewable energy sources in the world balance (even without our participation) should reach 27-54% by 2050 (the UN Development Programme forecast). Wrong, because **Ukraine has quite sufficient for it reserves of traditional fuel and energy resources.** The Dnipro-Donetsk depression alone contains over 1 trillion m^3 of gas, and Subotynske field (according to some estimates) – up to 70 million tons of "black gold". Its development can double oil extraction, development of other structures of the eastern shelf can lead it to several million tons a year.

In other words, **Ukraine has traditional energy resources, but they need to be found and effectively extracted**. If, for instance, the scope of prospective drilling is raised to the level envisaged by the National Programme "Oil and Gas of Ukraine through 2010", by 2030, explored reserves may reach 1.02 trillion m^3 of gas and 150 million tons of oil and gas condensate. If funds are invested in exploration only onshore, domestic gas extraction at current fields can be raised to 29 BCM a year. For that, branches of *Naftohaz Ukrajiny* NJSC should commence exploratory drilling at 30 prospective areas a year, conducting seismic operations at 40-45.

Unfortunately, national geological agencies cannot work at such a pace. The problem lies not only in poor funding (UAH 1.1 billion on gas and UAH 0.3 billion on oil a year). **The overwhelming majority out of 500 (!) enterprises specialising in well drilling has no economic and HR potential necessary for operation abreast of times**. Shortage of experts is very painful. The reasons include collapse of the national machine building, because of which, companies mainly operate Western equipment, while students are trained at obsolete Soviet makes since higher educational establishments lack funds to buy new equipment. It is no wonder that

young specialists – geologists, drillers, mechanical engineers – are not ready for practical work. However, they should not be blamed that the policy of national oil, gas and geological enterprises was mainly shaped by people loyal to the government, but unaware of the sector's needs.

Old executives were replaced with political managers unfamiliar of oil and gas technologies and barely aware of the specifics of market operation. Top managers are often unaware what really happens in the companies they manage and become hostages to their subordinates – semiliteral graduates of second-class institutes. In such conditions, actual leadership in the fuel and energy sector passes to politicians free of responsibility for proposed decisions. They impart to management the mentality of timeservers, technologies of "covering tracks", justification of managerial failures with "unpredictability of the energy market".

The dominance of dilettantes in the sector's leadership against the background of the two-tier higher education imposed on Ukraine has led to the drain of qualified lecturers and excess of managers trained under obsolete and detached from reality Western methods. **The country is gradually losing not only the opportunity to create new knowledge, but also the ability to promptly adopt world achievements**. Today, domestic business employs only 1% of the results of research, while in the USA more than 70%.

Advanced technologies, technical means of field exploration and development, growth of recovery from oil reservoirs and maximum extraction of raw materials from low-yield wells developed by the Ukrainian oil and gas science are not applied. The country seriously lags by all indices of innovation. For instance, investments in fixed assets per ton of oil extracted in Ukraine are at least twice lower than in other European countries.

Today, great hopes are pinned to extraction of fuel and energy resources in the Black Sea and the Sea of Azov that contain more than half of Ukraine's energy resources. However, shelf development requires new technologies and equipment, in particular, for horizontal drilling (60% of operational wells in the world are drilled like that), not available in this country. While Russia opted to import advanced technologies that have no parallel in the country, in Ukraine, no funds are allocated to buy Western equipment and technologies, while domestic research has been reduced to zero. The experience shows that because of the short-sighted state policy, branches of *Naftohaz Ukrajiny* NJSC cannot properly act as an investor or customer at large-scale geological prospecting and field operation.

Steps towards optimisation of energy consumption

Over the past 20 years, the world demand for energy increased by 40%. Now, mankind consumes over 11.2 billion tons of oil equivalent of organic fuel and energy resources, which is 22 times more than in 1900. At that, the demand for energy is growing faster than the population (in the ratio of 2:1). The level of energy development of separate countries and the whole world becomes the decisive indicator of economy and society development. The notions of national security and reliable energy supply converge.

Since with exhaustion of fossil fuel reserves the rise in the cost of traditional energy resources will be natural, and "unexpected" price jumps will be attributed to politics and speculations, in the energy development, the EU countries fearful of falling under the influence of exporters will further demonstrate a multi-vector approach. For instance, thanks to economy and wide use of biofuel, Germany plans to reduce demand for diesel fuel by 8% and for gasoline – more than two-fold by 2030. (The *Energy Strategy of Ukraine* plans for the same year a five-fold increase in production of petroleum products for domestic consumption). This approach may mitigate the effects of the growing cost of traditional fuel and energy resources, reduction of their share in consumption and the lack of electricity to be felt in Europe before 2015. But its implementation is impossible without decentralisation of fuel and energy production, creation of a multipolar, cellular power engineering resting on the use of different (including so-called "small", dispersed, i.e., local) sources of energy with account of priority lines of national and regional energy supply.

Given all that, there arises **the need of drafting a concept of development of the domestic fuel and energy sector that should rest (unlike the narrow departmental *Energy Strategy of Ukraine*) on the following forecasts**:

- of the economy development, its trend, scale, energy, capital and labour intensity, environmental friendliness;
- demographic;
- of the cost of labour and capital;
- of the world prices of energy resources (with account of the dynamic of reserves and environmental specifics of their use) and energy equipment (with account of their linkage with metal prices);
- of the reliability of delivery of different energy resources (with account of the political dimension in the countries of their extraction and transportation);
- of enhancement of the effectiveness of traditional and emergence of new technologies of production, transmission and use of energy resources.

Implementation of that approach will make it possible to identify Ukraine's needs for fuel and energy (balanced in terms of possibilities of their meeting at the expense of domestic sources and imports), acceptable options of the energy sector development (corresponding to the scale and nature of economy development), investment possibilities at implementation of different scenarios of energy supply.

Unfortunately, the government shows no disposition to forward-looking, strategic vision, thinking and planning. Why do officials with such zeal hold on to the myth of Ukraine's energy dependence? Why are tens of billions of dollars a year spent to buy imported resources, but domestic extraction and development of small, "dispersed" sources is not encouraged?

The answer is trivial: such policy enables preservation of centralised management of the sector and an army of bureaucrats bearing no responsibility for present and future decisions. ■

UKRAINE, RUSSIA, THE EU – PROSPECTS OF COOPERATION IN THE FIELD OF ENERGY SECURITY*

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Implementation of many transnational energy projects is optimal exactly in a trilateral mode, since it meets the underlying logic of the triple process chain of the energy sector operation: production – transportation – consumption. Russia, Ukraine and the EU present the geographic and economic links of such chain. However, joint implementation of energy projects in a trilateral format by the EU-Ukraine-Russia is dependent on at least three conditions:

- existence of "rules of the game" agreed by all parties;
- political will of the concerned parties with respect to project implementation and cooperation in a trilateral format;
- repudiation from discriminatory approaches or economically unreasonable preferences at the expense of other participants' interests.

The main problem now is presented by the absence of a framework for multilateral cooperation in the energy sector, i.e. common rules of the game. In August 2009, Russia withdrew its signature under the Energy Charter Treaty. We may argue a lot about the imperfection of the Energy Charter Treaty, but it was the only common legal framework in the Eurasian energy space. Russia put itself beyond the Energy Charter Treaty – maybe unsatisfactory, but agreed in the first half of 1990s by 51 member states rules of the game in the energy sector. So, today, before tackling concrete projects, rules of the game should be worked out. Without that, any project initiated in a trilateral format will turn bilateral or entirely stall in the result of conflict of interests. Therefore, projects contingently titled "Creation of mutually acceptable rules of the game" acquire priority importance.

– What projects may be jointly implemented by Russia, Ukraine and the EU (maybe in cooperation with other countries, or in a bilateral format) in the oil and gas sector in the short and middle run?

The legal procedure of natural gas transit via Ukraine existing on the corporate level, whereby *Gazprom* transfers gas to European buyers on Ukraine's western border with the EU and bears responsibility for its transit via Ukraine before European buyers, continues the legal procedure of long-term Soviet contracts of gas delivery to European countries, which is an anachronism.

Legal correction of that situation requires alteration of the legal procedure of natural gas deliveries to the EU:

(*a*) European buyers should get gas from *Gazprom* at the Ukraine-Russia border;

(*b*) transit of Russian gas via Ukraine is to be performed on the basis of transportation contracts made between *Naftohaz Ukrajiny* and European buyers.

Then, legal responsibility for natural gas transit via Ukraine in relations with European buyers will directly rest with *Naftohaz Ukrajiny* or *UkrTransGaz*, getting a fee for transit services from European buyers. Transition to such scheme requires cooperation in a trilateral format.

The same refers to another project – creation of a mechanism of energy crisis prevention. The events of 2006 and 2009 demonstrated the absence on both the interstate ("Russia – Ukraine – the EU") and corporate ("*Gazprom* – *Naftohaz* – European buyers") levels of legal mechanisms of *trilateral settlement in one legal framework* of pan-European gas crises developing in a *trilateral format* and involving *three lead actors*: the Russian side as the gas supplier, the Ukrainian – as the transit country and the EU as the consumer. During the January 2009 gas crisis, unbiased information was missing most of all: "At the EU level, a major difficulty in assessing how best to respond to the crisis was the

* The interviews were taken between September 30 and October 10, 2010. The experts are placed in alphabetical order.

limited access to important technical information with respect to the gas system and gas flows at a national and an EU level. There was not enough reliable information about gas flows, how much gas was in the system, and demand patterns. This situation reflected on the fact that qualitatively different systems exist across Member States, with unequal access to information by market players and others, including public authorities. <...> the market was hampered by inadequate information on crossborder gas flows and transparent information on the flow of gas into the EU."[1]

Bilateral settlement mechanisms available on the interstate ("Ukraine – EU" and "Ukraine – Russia") level have a political (diplomatic) nature and are not applicable to disputes (crises) developing in a trilateral format. This prompts the need of development and creation of an accomplished and uniform legal procedure providing for prompt, fair and legitimate trilateral settlement of gas disputes and crises, where all the three key actors (Russia, Ukraine and the EU) will be involved.

During the Ukraine-Spain talks on the foreign minister level (Madrid, January 10-11, 2010) Ukraine's Minister Poroshenko touched the issue of creating a mechanism for early warning of energy crises in a trilateral format. The Spanish Minister Moratinos as a representative of the EU Presidency since January, 2010, showed interest in the proposal of his Ukrainian counterpart. During his Moscow visit on January 12, 2010, and talks with the Russian Foreign Minister Lavrov, Mr. Moratinos raised the issue of creation of said mechanism in the proposed format. Mr. Lavrov generally welcomed said proposal.[2] Noteworthy, Mr. Lavrov even before that quite constructively spoke about the creation of a trilateral mechanism. This was witnessed by his words at a press conference in Brussels on October 19, 2009, after a meeting of the Russia-EU Permanent Partnership Council: "We are sure that the solutions should be sought, including the so-called early warning scheme, on a trilateral basis involving the main producer, the main transit country and the main consumers. We are sure that the solutions should be sought on the basis of the balance of interests of all parties to that triangle."[3]

In that context an effective mechanism enhancing the energy security on the European continent could be provided by declaration and implementation of the Energy Transparency Regime (*ETR*) intended to cover the entire process chain – from production to consumption of energy resources. That initiative should rest on the fundamental right to know. Consumers in all countries (Russia, Ukraine, the EU countries) have the right to know parameters of delivery of energy resources since they pay for them. Sectoral varieties of the regime are to cover the flow of energy resources – gas (*ETR-gas*), oil (*ETR-oil*), electric power (*ETR-electricity*).

Transparency of the "production – transportation – consumption" chain is actually intended to create an atmosphere of trust, and mutual access to telemetric information on the parameters of physical flow of energy resources could promote transparency. In the energy sector, and the gas segment in particular, this requires a special procedure, moreover that monopoly companies are engaged exactly in that sector. Such transparency system might provide a mechanism of diagnostics and warning of potential problems.

Proceeding from the above, it seems logical to create an online system to monitor telemetric data coming from the concerned gas metering stations, with the parties' consent. The system would day and night record mutually agreed basic parameters dealing only with numeric indices of physical movement of gas flows. Commercial or financial indices are not on their list. Those parameters should be available to all parties to the "production – transportation – consumption" process chain (Russia – Ukraine – the EU). Comparison of the parameters will make it possible to identify bottlenecks along the entire route of gas flow from the well to the consumer and to spot those responsible in case of breach of the energy supply traffic (See diagram).

ETR may become a readiness test of all parties to the process chain to work under transparent rules. For Russia, always declaring exceptional approaches, this would also be consistent with at least two principles declared by the Russian President in his own draft of the Energy Charter:

- transparency of all segments of international energy markets (production/export, transit, consumption/import);
- creation and improvement of early warning mechanisms involving suppliers, consumers and transit states.[4]

It might be reasonable to involve in the process of creation of the Energy Transparency Regime Turkmenistan that since 2008 on the UN level (UN General Assembly Resolution of December 19, 2008, No. A/RES/63/210) has been putting forward an initiative of establishment of an international legal mechanism of security of energy resources transit under the UN auspices.

If the parties agree to implementation of *ETR-gas*, they might return to the idea of Turkmen and other Central Asian gas supply to the EU via the Russian and Ukrainian GTS.

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1 *Commission Staff Working Document*. – Accompanying document to the Proposal for a Regulation of the European Parliament and of the Council concerning measures to safeguard security of gas supply and repealing Directive 2004/67/EC. The January 2009 gas supply disruption to the EU: an assessment. Brussels, p.5-6, 10.

2 Information bulleting of the Working Group 3 of the Eastern Partnership Civil Society Forum Coordinator Office, No.2, February 2010, p.12.

3 Minutes of the Russian Foreign Minister Lavrov speech and answers to questions of mass media at a joint press conference following a plenary meeting of the Russia-EU Permanent Partnership Council on the foreign minister level in Brussels, October 19, 2009.

4 Conceptual approaches to the new legal framework of international cooperation in the energy sector (goals and principles). – Official website of the President of the Russian Federation, April 21, 2009, *http://www.kremlin.ru/text/docs/2009/04/215303.shtml*

– What projects may be jointly implemented by Russia, Ukraine and the EU (maybe in cooperation with other countries, or in a bilateral format) in the field of nuclear energy and atomic industry in the short and middle run?

Large-scale projects involving third parties are unlikely. Even in better times such cooperation was absent in the nuclear sector. The Russian Federation has always preferred bilateral formats where it is *a priori* in the heaviest weight class. The Ukrainian case is an illustrative evidence of that. Russia has got all possible preferences from Ukraine – contracts for delivery of fuel assemblies for Khmelnitsky NPP unit 2 and Rivne NPP unit 4 through 2034, two new power units of the Khmelnytskyi NPP will be constructed by a Russian contractor, an enterprise producing nuclear fuel will also (if any) be built by the Russian side. The Russian proposals in the nuclear sector are aimed at conservation of the *status quo* – monopoly of Russian companies and prevention of creation in Ukraine of NPPs and nuclear fuel production facilities using other than Russian technology. If proposals of the Japanese-US *Westinghouse* company concerning construction of a nuclear fuel fabrication plant were not aimed at complete exclusion of Ukraine's cooperation with Russia, the Russian proposals clearly pursue Ukraine's isolation from cooperation with the USA and the EU in the sector.

Probably the only project that may be interesting for all parties involves joint monitoring of the safety status at Russian-made nuclear reactors in the Russian Federation, Ukraine and the EU, joint environmental and technical expert examinations in case of extension of power units' life.

– What are the prospects of merger of the Ukrainian and Russian oil, gas and nuclear sectors, including in the context of developing Russian-Ukrainian-EU cooperation in those sectors?

Scenarios of merger do not seem relevant after Ukraine acceded to the Energy Community Treaty, that is, September 24, 2010. However, it is still waiting for ratification in Parliament. From the national interests viewpoint, the merger of *Naftohaz Ukrajiny* NJSC and *Gazprom* OJSC is impossible since it will actually mean NJSC takeover by *Gazprom*. The Ukrainian so-called counterproposal of unification on a parity basis (50:50) in unacceptable for the Russian monopolist, since its capitalisation is by an order greater than of *Naftohaz*. The option of exchange of assets or establishment of a joint venture according to the principle "fields in Russia to *Naftohaz*, Ukrainian GTS to *Gazprom*" is basically asymmetric, since Siberian fields are a thing in itself that may bring profit somewhere in the future (if any), while the Ukrainian GTS is a concrete thing, running and generating profit for *Gazprom* from the very first days.

So, conservation of the status quo is the best option. Cooperation instead of integration. Traditional cooperation in natural gas transportation to Europe instead of takeover. Implementation of joint projects of enhancing transit capacities, if the demand for the Russian gas goes up in Europe. It may be reanimation of the Bohorodchany-Uzhhorod gas pipeline project. We have the experience of successful implementation of such projects – upgrade of the Balkan corridor system of main gas pipelines on the territory of Ukraine, implemented through Ukrainian, Russian and Turkish joint efforts, united in *Gas-Transit* JV in 1997. Why not come back to the good past experience? But again, construction not for the sake of construction, but in presence of demand in Europe.

For that, a continuous dialogue of the three parties is needed. This logically puts to the forefront the project of initiation of a trilateral Eastern Energy Dialogue of "suppliers – transit countries – consumers", with Russia – Ukraine – the EU being one of its possible formats. This format can be further extended to include Central Asian states and Azerbaijan as suppliers, Belarus, Georgia and Turkey as the transit countries. ■

Andrey KONOPLIANIK,
Consultant to Gazprombank Board (Russia)

– How would you describe the prospects of merger of Naftohaz Ukrajiny NJSC and Gazprom OJSC after Ukraine's accession to the Energy Community?

If the Energy Community is understood as the Treaty of the Energy Community established between the EU and countries of South East Europe (2006), which Ukraine intends to join, the prospects of such merger seem to me more limited and impeded if Ukraine joins the Agreement. As we know, membership in that Agreement means extension of the EU Energy Directives (at least the Second (2003), cannot say for sure about the Third (2009)) to the concerned country. In line with those requirements, in the summer of 2010 Ukraine adopted the Law "On Principles of Functioning of Natural Gas Market" developed in order to bring the Ukrainian energy legislation in compliance with the requirements of the EU Energy Directives. The requirements of the Second Directives (reflected in said Ukrainian Law) include segmentation of vertically integrated companies, which means division of *Naftohaz Ukrajiny* NJSC into transporting and extracting/producing facilities. This will inevitably pull down capitalisation of the separated entities (new companies established in place of *Naftohaz Ukrajiny* NJSC), compared to the united company, which will reduce capabilities for adequate exchange/merger of assets. Much time will be needed for due diligence of the new companies established in place of *Naftohaz Ukrajiny* NJSC and their legal obligations assumed by right of legal succession. If the Treaty (Agreement) of the Energy Community envisagei extension also of the

Third EU Directives to a new member country, this (due to the Third Directives' provisions of third country companies) may further complicate, if not entirely bar, the merger of the two companies, since it will require segmentation of *Gazprom* OJSC (politically unfeasible in the foreseeable future) if the statutory activity of the united company is to take place on the territory of Ukraine.

– What role will spot contracts of gas play in Europe through 2020, and will Ukraine be able to get significant volumes of Russian gas at spot prices?

In short: the role of spot contracts (in terms of "urgency-pricing": one-time deliveries plus exchange pricing) of gas in continental Europe will grow, but not become neither the dominant contract practice or the dominant pricing mechanism (the UK is one exception, being, along with the US, a specific, different from Eurasia instance of the dominant contract practice and pricing mechanisms in the international gas business). Ukraine cannot and will not get Russian gas at spot prices even under long-term contracts. I guess that in both cases (European and Russian-Ukrainian gas trade) this will not happen not only before, but even after 2020. The European market and the Russian-Ukrainian gas trade will remain dominated by long-term gas export contracts with an adapted (departing from oil linkage) pricing formula and reduced duration as the general trend. The European spot market will continue to play a subordinate role, smaller than now, after Europe goes out of the economic crisis.

In more detail

On Europe. Today, long-term gas export contracts of the so-called Groningen type remain the dominant contract practice in international gas trade in continental Europe. They were first practiced in the Netherlands in 1962 in connection with the beginning of development of the Groningen field. Specific of those long-term gas export contracts are their long duration (currently, European average, 20-30 years) and regularly adapted mechanism of formula pricing tying the gas price to the value of replacing energy resources.

Long-term gas export contracts, by contrast to spot contracts, are not just a trade instrument, but a trade and investment instrument, for they are an indispensable element of the structure of gas extraction and transportation project investment. Long-term gas export contracts make the basis of present-day European gas supply. According to an assessment by Peter Vozer (Shell), now (at a time of the overproduction crisis, when the share of one-time and short-term transactions goes up), long-term gas export contracts make 70%, against 30% falling on spot transactions. The Energy Charter Secretariat estimates that in the middle of the decade, different types of long-term gas export contracts (with oil indexation and more) accounted for 95% of the international gas trade.

The ratio between long-term and spot contracts is cyclical, and in the periods of overproduction crises (such as the current excessive gas supply in Europe) the share of spot transactions goes up (suppliers begin dumping fighting for a market share). As a result, spot prices fall below contractual. But today's excessive gas supply in Europe is a temporary result of concurrence of several non-systemic factors: reduction of the demand for gas in the result of the world economic crisis, growth of shale gas extraction in the USA (that reduced the demand for LNG in that country and redirected its flows in the Atlantic basin intended for the USA to Europe), further growth of deliveries of previously contracted pipeline gas and LNG to Europe. At the climax of the crisis, spot prices were twice lower than contractual, which is natural, since long-term gas export contracts involve a mechanism of delayed adaptation and deferred levelling of current price fluctuations. The key gas suppliers to Europe, such as *Gazprom* and *E.ON Ruhrgas*, estimate that the excessive demand will go down in the next 2-3 years and spot prices will return to the contractual level.

It is a sovereign right of a country possessing non-renewable natural energy resources to have an economically reasoned desire to get the maximum rent from their development, that is, to set the maximum long-term export price for their sale. The latter refers to the entire term of deposit development, which (in case of large and unique deposits making the basis, in particular, of the Russian gas sector) may be measured in decades. That economically reasoned interest of the producing country is protected by the present-day international law – the UN General Assembly Resolution 1803 of December 1962 and Article 18 of the Energy Charter Treaty effective from April, 1998, regarding (inalienable) sovereignty of states over their natural resources.

The pricing mechanism applied in long-term gas export contracts of the Groningen type enabling the exercise of that right provides for gas sale at the highest price that may be set in the long run on a competitive market, that is, when the consumer can use alternative to gas energy resources and get deliveries of gas from several sources (several suppliers). For that, the contractual price of gas should be lower (offering the consumer a price premium for the use of gas) than maximum long-term production costs of alternative to gas energy resources, or of gas from other suppliers (i.e., below the cost of replacement of gas under such contract). In 1960s, the main energy resources replacing gas were black oil (industry and power engineering) and gas oil/fuel oil (the housing and utilities sector). Exactly they became the main ingredients of the pricing formula for long-term gas export contracts of the Groningen type. They remain such even now, although the list of energy resources replacing gas in different sectors of consumption was substantially extended.

The price of gas in European long-term gas export contracts even now mainly remains tied to the price

of petroleum products: according to a European Commission survey, in the middle of the decade, 75% of the average imported gas price in the EU is tied to black oil and gas oil/fuel oil. For the main countries exporting gas to Europe that index is even higher: Norway – 87%, the Netherlands and Russia – 92%. However, the share of petroleum products in the gas price basket goes down with energy market development. In the basic Groningen contract of 1962 those petroleum products account for 100%, their specific shares being 40:60, respectively. In the middle of the current decade, in East European EU member states they make 95%, in West European (without the United Kingdom) – 80%, in the United Kingdom – 30%. We see a trend towards the long-term gas export contracts pricing formula drift from the dominant oil linkage (oil indexation) at the expense of expansion of the basket of pricing ingredients, in particular, incorporation of other energy resources competing with gas (coal, primary electric power), non-energy components (inflation), along with the spot component and exchange indices (an element reflecting "gas-gas" competition).

I see this method as the mutually acceptable and economically sound way of adapting present-day contractual structures and mechanisms of gas pricing in Europe to the new realities of the energy market development, instead of attempts of maintaining or strengthening the oil linkage (indexation) of long-term gas export contracts, on one hand, or forced reduction of gas pricing in Europe to spot/exchange quotations, on the other.

The area of application of the Groningen type long-term gas export contracts is gradually expanding from West to East along the main routes of gas supply to the EU, reaching Central Asian exporter countries only in 2009-2010 (when Russia began buying Central Asian gas at the value of gas replacement on the EU market, reduced to the external border of the Central Asian exporter country). Therefore, formation of a uniform mechanism of gas export pricing along the entire infrastructure of gas transportation to the EU from the main suppliers beyond the EU (including Algeria, Norway, Russia, Central Asian countries) took almost 50 years. That transition saw periods of certain complications caused (in terms of economics) by large extra costs (rocketing rent) of gas importers switching from politically determined pricing mechanisms of the "costs+" type to economically motivated pricing on the basis of the value of replacement of alternative to gas energy resources on the most solvent and capacious gas export market of the EU. To be sure, overnight ruination of that contractual pricing mechanism formed for half a century in the capital-intensive gas sector on the vast Eurasian space by trying to switch it to spot/futures pricing would be counterproductive, to say the least.

In my opinion, the future architecture of the single EU gas market introduced by the Third EU Energy package, being a set of regional areas of trade with "in-out" rates and liquid virtual hubs (centres of spot trade) within each area, will remain inoperable for a long time. Today's gas hubs of continental Europe are not liquid and unlikely to become such in the near future. The "churn" liquidity index (the ratio of the trade volume on a market place to the volume of physical deliveries from it) at hubs in continental Europe amounts to 3-5, on the most liquid European market – in the UK – wobbles around 15, being the minimum critical level for categorisation of a specific market place as conventionally liquid (for comparison: at the US Henry Hub, the (gas) churn equals 400, at the New York and London oil exchanges quoting two basic marker oil grades in its global trade it exceeds 2000). Meanwhile, the strong growth of trade at gas hubs in continental Europe observed recently is attributed, firstly, to the critical excessive supply, where additional volumes of gas uncalled under long-term gas export contracts and exceeding minimum obligations of intake are dropped to those market places, and, secondly, to the statistic effect, when any additional volumes of trade exceeding a small basic level demonstrates a high surplus. That is why prices at European gas hubs are highly volatile, not free of intentional manipulation and cannot provide pricing targets for steady long-term gas supply. However, as an additional element, they will be – and already are – widely incorporated in pricing formulas of the main gas suppliers (for instance, Norway and Russia introduced to the pricing formula a spot component at a level of 25% and 15%, respectively).

However, one should be aware that after introduction to the pricing formula as an additional element, spot quotations will contribute to reduction of contractual prices at the stage of overproduction (excessive supply) of gas, but at the stage of excessive demand, when spot quotations usually exceed contractual prices, they will whip them up.

On Ukraine and Russia

In the gas transportation infrastructure created under the USSR and inherited by sovereign states established on its territory, designed for export deliveries of gas from East to West, Europe was and remains the export market for Russia and other gas suppliers from the former USSR, offering the highest export price for gas, much higher than the former Soviet states lying along the route of export pipelines (Ukraine, Belarus, etc.) may offer. This predetermines – if prices are set economically, not politically – the economic interest and the internationally recognised legitimate right of the exporter country (Russia) to tie the export price of gas deliveries to countries lying between Russia and the EU to the value of gas replacement on the EU market, since exactly that market guarantees the exporter country the highest – in the long run (short-term market fluctuations, like we see now, not counted) – export price for its non-renewable energy resource. As long as there remains long-term excessive demand for the

Russian gas in Europe (not to mix up with short-term current excessive gas supply in Europe) – the exporter country (owner of energy resources) and its commercial organisations will not be interested in refusal/departure from that model.

The above means, in my opinion, *first*, the absence of prospects for Ukraine to get Russian gas at current EU spot prices. *Second*, this predetermines inevitable adaptation of the Russian-Ukrainian long-term gas export contract made in January, 2009, towards departure from strict oil indexation to a wider basket of ingredients, using the traditional mechanism of the pricing formula adaptation provided in that contract. *Third*, preservation of the linkage of the export price of Russian (not by the place of extraction, but by the title of ownership) gas in Ukraine to the value of replacement on the EU market. ■

Serhiy SAPEHIN,
Director, Psyche Scientific-Technological Centre

– What projects may be jointly implemented by Russia, Ukraine and the EU (maybe in cooperation with other countries, or in a bilateral format) in the oil and gas sector in the short and middle run?

Probably nobody has doubts that Ukraine acting on its own cannot modernise its oil and gas transportation system in line with present-day safety norms. Meanwhile, some 40% of domestic pipelines have been operated for over 30, one-fifth – over 40 ears. If no funds are found in the forthcoming years, one of the main sources of foreign currency proceeds for this country will dry out without any efforts by our opponents. To be sure, nobody in the world will fund a project "for a song". That is why Ukraine badly needs to make Moscow and Brussels alike interested by attractive proposals. This does not mean however that bilateral agreements will automatically lead to economic and political losses for our state. The best way out – oil and gas transportation projects harmonising interests of consumers, transit countries and exporters.

In this connection, another topical for Ukraine question arises. It is a great drawback in the present EU policy that it cannot directly fund the energy sector. Traditionally, the European contribution to the energy policy has been regulatory rather than financial. But in the forthcoming years the European Union will not manage without infrastructural investments, first of all, where market mechanisms are not enough.

– What projects may be jointly implemented by Russia, Ukraine and the EU (maybe in cooperation with other countries, or in a bilateral format) in the field of nuclear energy and atomic industry in the short and middle run?

The European Commission efforts intended to reduce emission of greenhouse gases offer to Ukraine broad opportunities in the field of energy conservation and rational use of energy resources. The Kyoto mechanisms enable funding environment-friendly and efficient projects promoting technical development and enhancing competitiveness of industrial enterprises.

Ukraine and the EU have the common headache in energy project funding – shortage of funds. The way out may be found in enhancement of the effectiveness of their use, one of its possible ways being guarantee of credits to encourage private investments and programmes, as this is done within the framework of the energy fund of the European Economic Recovery Plan. At that, instead of traditional credits, innovative financial instruments should be more actively used.

Ukraine should have put forward new initiatives in the field of Europe's collective energy security resting on the following assumptions:

- every consumer should have an opportunity to use different sources of energy at different times;
- the structure of energy consumption should be determined on the basis of economic and environmental expediency;
- fuel and energy production should be decentralised, energy flows – disaggregated;
- in each region, reserves of fuel and energy supply should be created with account of the structure of energy consumption and different seasonal load, while preserving the state function of their management in an emergency situation.

– What are the prospects of merger of the Ukrainian and Russian oil, gas and nuclear sectors, including in the context of developing Russia-Ukraine-EU cooperation in those sectors?

There can be no merger of oil, gas or any other branches of different countries. Indeed, one can jointly plan, coordinate, control their activity, can even jointly manage a united energy or transport system, but this refers only to separate projects, joint ventures, consortia, holdings. The main problem is that gas, oil, nuclear fuel are not just commodities or even infrastructural goods. They are tools of home and foreign policy. In Russia, this is officially provided in documents shaping its national security strategy. If so, any proposals of unification of energy sectors in the first place conceal not economic, but political goals that cannot be the same in different countries. Just note: over almost 20 years of the EU history, its member states have not even managed to work out a common energy policy.

To be sure, no universal energy policy can be created, but there are points common for any branch strategies. That is why, taking an active part in rethinking of the Russian and European energy plans, Ukraine can well find ways of solution of its own problems. ■

Konstantin SIMONOV
General Director,
National Energy
Security Fund (Russia)

– What projects may be jointly implemented by Russia, Ukraine and the EU (maybe in cooperation with other countries, or in a bilateral format) in the oil and gas sector in the short and middle run?

One should well realise that both Ukraine and Russia, moreover, the entire post-Soviet space are not the best place for investments, so when Ukraine speaks of some investment projects, in reality, the following four categories of projects are meant.

The first category – growth of hydrocarbon extraction on the territory of Ukraine itself. There is no room for illusion: such projects are unfeasible. Statistics of eight months of 2010 prove this: gas extraction in Ukraine is declining.

The second category of projects – hydrocarbon extraction by Ukraine on the Russian territory. Currently, this subject is high on the agenda in Ukrainian circles, causing vivid discussion. More than that, there are Russian statements on that matter, there is even a list of projects to which Russians are ready to admit the Ukrainian side. However, a realistic approach is needed there: should Ukraine be admitted to fields so developed that extraction is falling there? Even western investors are not admitted to those projects since such investments make no sense.

Russia is indeed holding talks with Ukraine, but in reality, they focus on the subject of "Ukrainian pipes" and are intended to kind of "sweeten the pill". It is kind of a euphemism: instead of "give us the pipe" – "let us unite our systems", or "let us admit Ukraine to extraction", although everybody well understands that Ukraine is not too welcome in the Russian extracting sector. Nobody is going to give up operational fields whose structure is nearing completion. Foreign investments are badly needed in regions with many rough projects, having no infrastructure, requiring much money and employment of new technologies. A logical question arises, where will Ukraine take new technologies? Will it really help extracting gas in the Arctic area, or can it build an LNG terminal? Does Ukraine have spare money, if we all the time hear about a grave standing of the Ukrainian finance? That is why there should be no illusions either – Ukraine will hardly be a partner in extraction projects on the Russian territory.

The third category of projects deals with energy efficiency in Ukraine. Beyond doubt, one will find here a vast open field for work and even greater potential. However, there is a long distance between words and deeds. Colossal investments are needed there, and Russia will not take part because it has a similar to the Ukrainian problem: a colossal, excessive and energy inefficient economy. It will be logical to solve one's own problems first, and only then to tackle similar problems of the neighbours. And all this requires serious funds.

EU also has a programme, 20-20-20, that provides for a 20% reduction in the greenhouse gases emission, rise of renewable energies' share in the energy balance to 20%, and energy efficiency increase by 20%, which also requires quite serious resources. And I doubt if the EU will now actively invest in Ukrainian projects.

Mines in Donetsk region have some gains in coalmine methane utilisation for generation for mines themselves, but as soon as it deals with, say, deliveries of such methane to the common gas transportation system, it appears that nobody even thought about that. The thing is that, first, new gas pipelines need to be built, and second, mining in Ukraine, namely, the coal-mining industry, is in a state that is far from perfect. It would be illogical to start investing money in utilisation of coalmine methane, but not care about the main thing – the situation in the extracting sector proper.

That is why the only feasible group of projects is the fourth – the pipe. This question is interesting both for Ukraine and for Russia, and this is a sincere interest, unlike extraction in Ukraine – if Ukraine wants to speak about that, okay, let it be so. It is really a project that has a chance to be implemented to the benefit of three parties: Russia, Ukraine, and the EU. But despite strong ambitions and pathos, the situation is not too optimistic. Europe says that it can do without the Russian gas, without the Ukrainian transit, that it now has huge many offers, many those willing to supply LNG and so on. But the real situation is far less optimistic. The declining domestic extraction of gas in the EU is a showy illustration. Furthermore, there is an example of Poland that was especially loudly screaming that they did not need Russian gas, that they had Qatari LNG, that they were building a terminal, and that they would soon have shale gas. As a result, on the 25th of October the Polish contract with Russia expires, and they found no way out of the situation, talks were many, but gas is absent. That is why reliable transit from Russia is important for Europe.

Ukraine also says a lot about refusal from the Russian gas. There are even suggestions that in five years, Ukraine will not use gas at all. It remains a secret what such estimates and suggestions rest on. Of course, one may cogitate about LNG terminals near Odesa, but all these are lyrical disgressions. It may be admitted that Ukraine will be engaged in getting LNG from Qatar. But will it continue to engage in transit, or it is of no interest for it? That is, approximately $3 billion a year earned from transit is of no interest? If it is of no interest and Ukraine does not need that money, the subject should really be closed.

As regards Russia, it also says a lot about the South and North Streams, although, to be frank, is well aware that the transit route via Ukraine is the cheapest and economically the most optimal. First, this pipe already exists, not without questions about its state, but it is real. In principle, a possible upgrade of the transit capacity to 170-180 BCM is no problem. That is why economic interests of all three parties come together here, everything sticks in politics. Namely, the matter is that some actor in Ukraine should come out and honestly say: "guys, if politics are removed, economically, the decision is good for us, we stay in that business". Economically, the South Stream is not a very profitable project. But if Ukraine continues to use its pipe as an element of political pressure, one has to decide how to behave in that situation. It goes out that the South Stream is kind of a forced measure that might be avoided if Ukraine agreed to the establishment of a consortium in one or another form. But if the South Stream begins to be built, Ukraine will gradually disappear from the European transit map, which is surely not the most optimal option for it.

– What projects may be jointly implemented by Russia, Ukraine and the EU (maybe in cooperation with other countries, or in a bilateral format) in the field of nuclear energy and atomic industry in the short and middle run?

One shouldn't flatter oneself about the EU involvement either. Indeed, there is a number of attractive facilities on the territory Ukraine being in the focus of rivalry between Russia and the USA, in the person of *Westinghouse* company. However, Russia has many competitive advantages here, namely past cooperative ties between Russia and Ukraine, including in the nuclear sector. Although many believe that everything has been lost irretrievably and any cooperation is out of the question, intense talks are underway now about joint ventures, including for NPP fuel production. Russia's competitive advantage here is that it has the technologies, it has uranium, and it can produce fuel elements that can be used at Ukrainian NPPs.

The US interest shown by *Westinghouse* company to some assets is not finally clear. Does Ukraine need the *Westinghouse* company? Of course, Ukraine is delighted

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because someone else except Russia is interested in its enterprises, but this situation strongly resembles the picture in the aircraft industry: Ukraine has assets fit for nothing except cooperation with Russia. They cannot develop on their own and are not interesting for other manufacturers. Meanwhile, the American interest remains "mere reflections". As regards Russia, the progress is evident – implementation of nuclear fuel projects began after Yanukovych was elected the country's President. That is why Ukraine has no other option in this sector except Russia, one should just stop viewing this as restoration of some empire or takeover of the Ukrainian nuclear sector. On the contrary, this is normal restoration of process chains, where everyone preserves his share of sovereignty, but nevertheless gets some gain and an opportunity to implement a new project.

Ukraine is already among the leaders of the world nuclear sector and in the top five nuclear energy producers in Europe. If Ukraine wants to develop that already well-established industry, it will need serious funds, now lacking, and external actors will not be willing to invest in the near future.

– What are the prospects of merger of the Ukrainian and Russian oil, gas and nuclear sectors, including in the context of developing Russia-Ukraine-EU cooperation in those sectors?

Many are afraid of the very word "merger", there are fears in Ukraine that all this is a crafty Russian imperial policy intended to swallow Ukraine. However, in many sectors of the Ukrainian economy (such as metallurgy, power engineering, aircraft industry) assets have already been transferred to Russian companies, which in no way affected the level of Ukraine's sovereignty. On top of political phobias, the nuclear sector is a specific branch by itself. *On one hand*, it is a hi-tech branch, *on the second* – it involves high risks, *on the third* – dual-use technologies, which surely adds fear and blackens the picture concerning such integration. Meanwhile, Ukraine-Russia cooperation is logical, since all that was part of a single industrial complex: uranium production, enrichment, and so on.

Russia, already possessing a developed system of nuclear energy generation, realises that Ukraine's main problem deals with fuel production and waste disposal. In terms of fuel, Europe will not seriously help Ukraine – this is quite evident, but Russia will. So, if this is treated as business and political fears are removed, the nuclear sector gives food for thought, and opportunities for cooperation do exist. ■

Oleksandr TODIYCHUK,
President, Kyiv International Energy Club

– What projects may be jointly implemented by Russia, Ukraine and the EU (maybe in cooperation with other countries, or in a bilateral format) in the oil and gas sector in the short and middle run?

I believe that Russia, Ukraine and the EU (possibly in cooperation with other countries) may jointly implement the following projects in the oil and gas sector:

projects of modernisation and upgrade of capacities of the Ukrainian oil and gas transportation systems and storages for international storage of oil and gas (on the condition that only new facilities are co-owned by the project participants);

- restoration and development of the system of petroleum product pipelines in Ukraine;
- construction of a shore terminal for liquefied gas;
- extraction of alternative gases, processing of "bituminous" shale and brown coal into motor fuel and oil;
- joint extraction of hydrocarbons offshore, on the border of territorial waters;
- joint activities beyond Ukraine's borders.

Expert discussion, October 20, 2010

– What projects may be jointly implemented by Russia, Ukraine and the EU (maybe in cooperation with other countries, or in a bilateral format) in the field of nuclear energy and atomic industry in the short and middle run?

In the field of nuclear power engineering and atomic industry, new power units of NPPs may be built, and joint activities may be performed associated with safe decommissioning of power units.

– What are the prospects of merger of the Ukrainian and Russian oil, gas and nuclear sectors, including in the context of developing Russia-Ukraine-EU cooperation in those sectors?

The merger of the oil, gas and nuclear sectors will strengthen the stand of the current monopolists and not benefit the sensitive energy market. Also dangerous, Russia increasingly uses "energy tools" in its political and geopolitical play. Ukraine has already given under Russian control up to 70% of its energy sector. In the new conditions, the Ukrainian economy will continue to lose its competitiveness. ■

Leonid UNIHOVSKYI,
General Director, Naftohazbudinformatyka LLC

Joint projects of Russia, Ukraine and the EU in the oil and gas sector will focus on the Ukrainian GTS, in particular, its transit component. The main on them, in my opinion, will include:

- establishment of a joint venture (Ukraine, Russia, the EU) for overhaul and subsequent operation of Ukrainian underground gas storages (UGS). The purpose of such overhaul is to diversify UGS operation, i.e., to enable prompt transition from the mode of gas pumping to its withdrawal, and vice versa;
- separation of the "transit component" from the Ukrainian GTS and establishment on the basis of "transit pipelines" of a joint venture of Naftohaz Ukrajiny NJSC, Gazprom OJSC and, possibly, EU companies (such separation will require significant capital investments);
- joint (Ukraine and Russia) upgrade of transit capacities of the Ukrainian GTS;
- harmonisation of regulatory documents of Ukraine, Russia and the EU dealing with construction and operation of facilities in the oil and gas sector. ■

UKRAINE-RUSSIA RELATIONS IN THE ENERGY SECTOR IN THE EYES OF UKRAINIAN CITIZENS

There is a wide range of option as to how the public opinion may be taken into account at political decision-making on the national level: from the assertion that the state leadership cannot take decisions contrary to public spirits and expectations to the opposite stand that the public opinion, due to its incompetence, should be totally ignored.

As part of long-standing studies of Ukraine-Russian relations, Razumkov Centre monitors the public opinion, including on problems and prospects of contacts in the energy sector. For the expert discussion "Ukraine-Russian relations in the energy sector: today and tomorrow" Razumkov Centre conducted new polls of Ukrainian citizens.[1] The presented results prompt some observations and generalisations dealing with specific aspects of the public policy in the energy sector.

The survey results reveal some features of the public opinion that should be taken into account by Ukrainian policy makers in the field of Ukraine-Russia relations.

1. Citizens of Ukraine welcome development of Ukraine-Russia cooperation in the energy sector (as well as cooperation with the EU).

According to the August poll, half of all polled citizens agreed that the Kharkiv agreements ("gas-fleet") marked a breakthrough for Ukraine in the Russo-Ukrainian energy relations – 50.1%, against 32.3% of those polled who disagreed with that opinion. The opinion that Ukraine won economically from signing of the Kharkiv agreements is shared by 47% of those polled, 32.6% disagrees with it.

The majority (70.8%) of those polled in April agreed that deliveries of cheaper Russian gas would give a boost to the Ukrainian economy, only 12.9% of respondents remained sceptical. In August those indices slightly changed: the number of optimists slightly went down (to 66.6%), while the number of respondents who disagreed with this assertion respectively increased (to 19.1%).

The opinion that deliveries of cheaper Russian gas would retard development of energy saving technologies in Ukraine was shared by respondents neither in April nor in August (it was supported, respectively, by 22.4% and 25.8% of respondents, not supported by 49.3% and 52.4%, respectively).

51.2% of those polled hopes that Ukraine will simultaneously develop cooperation in the energy sector with both the European Union and Russia (only 24% disagreed with that).

2. Meanwhile, provisions of the agreements made by Ukraine and Russia in the energy sector arouse concern among many Ukrainians. The reason for the concern may arise from the suggestion that tactical concessions from Russia (including a temporary reduction of prices of energy resources) are achieved at the expense of strategic concession from Ukraine.

A relative majority (41.4%) of those polled is sure that gas prices for Ukraine might be reduced by means other than extension of the term of the Russian Navy stationing in the Crimea. This opinion is shared not only by the majority (58%, against 18% disagreed) of residents in the West, but also a relative majority in the Centre (respectively, 39.7% and 28.5%) and East (respectively, 36.1% and 26.1%); only in the South, a relative majority (respectively, 34.6% and 43.9%) disagreed with that opinion.

Although a relative majority (44.8%) of those polled disagreed that Ukraine had lost part of its sovereignty in the result of signing of the Kharkiv agreements, quite many (37.2%) citizens disagreed with that statement,

[1] The Razumkov Centre Sociological Service held two nationwide public opinion polls: the first – on April 27-30, 2010 (1,004 respondents aged above 18 years polled, the sample theoretical error does not exceed 3.2%); the second – on August 10-15, 2010 (2,009 respondents polled, the sample theoretical error is 2.3%). If there is no reference to the time of the polls, the August poll is meant.

The regional division is as follows: the **West**: Volyn, Transcarpathian, Ivano-Frankivsk, Lviv, Rivne, Ternopil, Chernivtsi regions, the **Centre**: city of Kyiv, Vinnytsya, Zhytomyr, Kyiv, Kirovohrad, Poltava, Sumy, Khmelnytskyi, Cherkasy, Chernihiv regions, the **South**: the Autonomous Republic of Crimea, Odesa, Kherson, Mykolayiv regions, the **East**: Dnipropetrovsk, Donetsk, Zaporizhya, Luhansk, Kharkiv regions.

more often in the West (60.8%) and Centre (40.4%); in the South and the East this suggestion is shared, respectively, by 19.9% and 28.2% of those polled.

Public expectations from development of cooperation with the Russian Federation in the energy sector

According to the polls, overall prospects of further cooperation with the Russian Federation in the energy sector look not too optimistic. In particular, 53.8% of those polled believes that Ukraine's energy dependence on Russia will continue to grow, and only a quarter disagreed with that judgement.

Also, nearly half (49.6%) of respondents believes that extension of the term of the Russian Fleet stationing in the Crimea by Ukraine will be not the only or the final payment for a discount on the Russian gas price.

Uncertainty of the public opinion about the future of the Ukrainian energy sector is also witnessed by respondents' agreement or disagreement with the assertion that "the Ukrainian energy sector will be taken over by Russia and will become a dumb appendage to the Russian energy sector" – 39.2% of respondents agreed with that, 35.2% disagreed. That "uncertainty" on the national level is largely conditioned by differences in opinions of different regions' residents. The above assertion is shared by the majority of those polled in the West (53.1%), a relative majority (41.9%) of residents in the Centre, and refuted by the majority (52%) of residents in the South and a relative majority (41.4%) of residents in the East.

Similarly, while almost a third (32%) of those polled believes that closer cooperation of Ukraine with Russia in the energy sector will stall the sector reforms in Ukraine, a bit more (36.3%) is sure that this will not happen. While a relative majority (44.8%) of residents in the West believes that such cooperation will stall reforms, the majority (52%) of residents in the South and a relative majority (39.5%) of residents in the East stick to the opposite opinion. In the Centre, adherents of both opinions split almost equally (respectively 29.7% and 32.9%).

3. The public widely fears that the Ukrainian negotiators in talks with Russia seek to defend not the national interests, but primarily the corporate interests of the business elite connected with the government. Those fears only grew up after the price of gas for households was raised (contrary to earlier promises).

Both in April and in August, 2010, respondents were largely convinced that the gas price reduction benefited mainly big enterprise owners rather than the population (and the share of those who though like that increased between the two polls from 47.7% to 53%). 26.9% and 21.6%, respectively, disagreed with that suggestion. In August, that opinion was shared by the absolute or relative majority population in all regions. Residents of the South fundamentally changed their opinion, compared to April (then, only 27% of those polled in that region agreed with that suggestion, in August – 42.2%).

As Ukrainians remember, after the Kharkiv agreements were signed, representatives of the authorities assured that this would make it possible to do without a gas price rise for households. Nevertheless, such rise took place (by 50% from August 1, 2010).

The attitude to the Kharkiv agreements substantially changes if respondents focus on the government's non-fulfilment of its promise not to raise gas prices for households. In particular, less than a third (30.4%) of those polled agreed that the Kharkiv agreements should have been signed irrespective of the gas price rise for households, a relative majority (45%) disagreed with that.

36.2% of those polled believes that the country leadership planned no rise in gas prices, but was forced to do that by external circumstances, while nearly half (48%) is sure that the country leadership consciously deceived citizens, saying that gas prices would not rise.

The government's non-fulfilment of its promise not to raise gas prices for households caused deterioration in public perception of the Kharkiv agreements. From April till August, 2010, among those who reported good or general knowledge of the content of the documents signed in Kharkiv, the share of people who believed that signing of the agreements would be more favourable for Ukraine decreased from 59.3% to 46.9%. Meanwhile, the number of people convinced that their signing would do Ukraine more harm increased from 24.2% to 33%.

Over the period under review the public attitude to the extension of the Russian Black Sea Fleet stationing in Ukraine also changed. While 53.6% of those polled supported that decision in April, in August, their number was much lower – 44.2%. It was not supported by 32.6% in April; in August, their number rose to 37%.

4. Society is very cautious of merger of separate segments of the Ukrainian fuel and energy sector with the Russian. Citizens rather sceptically assess the idea of establishment of "gas" and "nuclear" holdings promoted by the Russian side. Against the background of repeated Ukrainian concessions to the Russian Federation in the energy sector, fears are strong that Ukraine will continue to surrender and lose energy independence.

The overwhelming majority of Ukrainians has no doubts that national nuclear and gas industries are indispensable for the economy of an independent state.

Attitude of Ukrainians to the idea of setting up a joint Russian-Ukrainian gas holding. As we know, the Russian leadership expressed its willingness to unite the Russian and Ukrainian gas sectors (*Naftohaz Ukrajiny* NJSC and *Gazprom* OJSC) in one holding. More than a third (34.6%) of those polled believes that Ukraine would lose more from such a step, 28.3% – that Ukraine will only win from it. 22.3% of those polled suggests that Ukraine will neither win nor lose from the establishment of a joint holding. So, the opinion of fallacy of the gas sector merger slightly prevails.

Regional differences in opinions make us believe that the ideas of benefits or losses from merger of separate energy sectors of the two countries depend on foreign political preferences of citizens (the stronger the

pro-Russian vector in those orientations is, the more they tend to believe in the benefits of the merger of the Ukrainian and Russian energy sectors).

Ideas of disadvantageousness of *Gazprom* and *Naftohaz Ukrajiny* merger for Ukraine also grow with the growth of the educational level of respondents – 40.5% of respondents with higher education believes that Ukraine will lose from that, and only 22.4% of them believes that it will win (among respondents with incomplete secondary education those figures make, respectively, 29.6% and 30.4%). While representatives of younger and medium age groups mainly believe that Ukraine will lose from the establishment of a joint gas holding with Russia, among representatives of elder age groups (50 years and above) the shares of adherents of both opinions are almost equal.

Attitude of Ukrainians to the idea of setting up a joint Russian-Ukrainian nuclear holding. Simultaneously with the gas holding, Russia promotes a nuclear holding (merger of Ukrainian and Russian nuclear power engineering and nuclear industries).

A relative majority (42.8%) of those polled sees no reason to unite Ukrainian nuclear power engineering and nuclear industry enterprises in one holding with the Russian. 33.6% of respondents supports that idea.

When asked whether cooperation will be equal in case of establishment of a single holding, citizens answered as follows: a relative majority (42.9%) of respondents believes that decisions would be taken mainly by the Russian side, while Ukraine's influence will be limited, only 7% of respondents responded that decisions would be taken mainly by the Ukrainian side. 31.6% of those polled believes that the key decisions would be taken with account of interests of both parties.

Meanwhile, the number of those polled sure that merger of the gas and nuclear sectors will give Ukraine investments and access to foreign markets make a relative majority (41.7% of those polled, 28.7% of those polled does not think so). The prevalence of the latter, most probably, may be attributed to the actually 100% dependence of Ukraine's nuclear sector on Russia.

A relative majority (42.2%) of those polled does not believe that the Ukrainian state will be able to control assets of Ukrainian enterprises incorporated in the joint holding, if set up. 34.7% of respondents, on the contrary, believes that it will be able to do that.

34.4% of respondents sticks to the opinion that Ukraine will lose from the establishment of a joint holding with Russia in nuclear power engineering and nuclear industry, against 28.8% of those who believe that Ukraine will only lose from it.

Summing up assessments of those polled, it should be noted that although a relative majority of citizens considers the establishment of Russian-Ukrainian gas and nuclear holdings unreasonable, the difference between adherents and opponents of such holdings is relatively small. This is largely conditioned by traditional for Ukraine regional differences in treatment of such issues – while in the West and Centre a negative attitude to establishment of gas and nuclear holdings prevails, in the East and South, they are more welcome.

The public largely believes that the Russian side negotiating agreements with Ukraine mainly proceeds from its national interests and interests of the Russian energy monopolies, so, the Ukrainian side negotiating such agreements should take a clear and consistent stand defending Ukraine's national interests.

According to the August poll, 25.6% of respondents cited as the main reason behind Russia's idea to merge the Russian and Ukrainian gas sectors its desire to control strategic for the Ukrainian economy oil and gas transportation systems, gas storages, etc. 19.2% sees the main reason in expansion of the Russian presence on the Ukrainian market, to sell oil, gas and petroleum products. Roughly as many polled suggested that the Russian idea of merger of the Russian and Ukrainian gas sectors was meant to step up political influence on Ukraine. 16% of respondents attributes this to the desire to help Ukraine with funds and raw materials (oil and gas) for considerations of good-neighbourly relations. 10.9% of those polled referred to the desire to use Ukraine's geographic location, intellectual, scientific potential and manpower as the true reason.

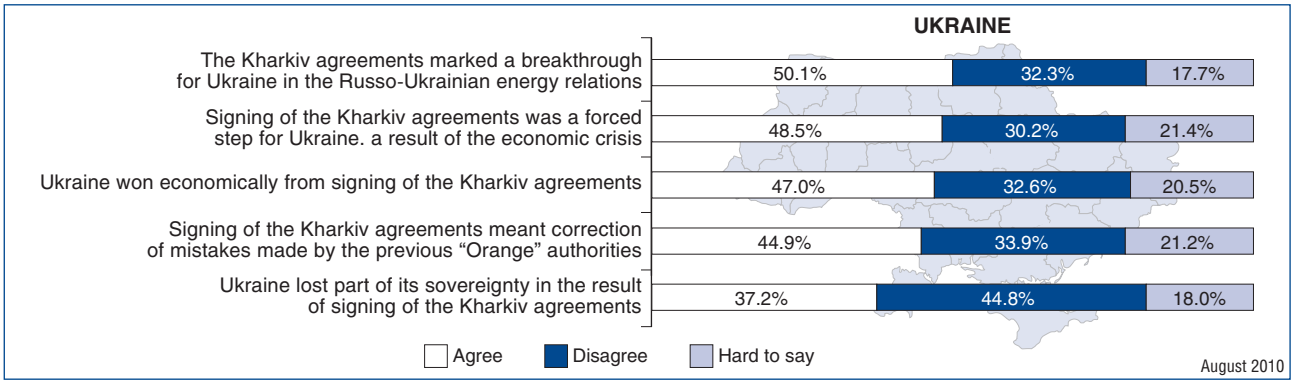
25.8% of respondents sees the main reason behind Russia's desire to merge together Ukrainian and Russian nuclear power engineering and nuclear industries (similarly to the joint gas holding) in its willingness to control strategic for Ukraine's economy nuclear power engineering, nuclear power plant industry and get access to Ukrainian uranium deposits. 20.1% of those polled attributes that step to the desire to expand Russian presence on the Ukrainian market, to sell equipment and services in the nuclear sector. Russia's desire to step up political influence on Ukraine was noted by 16.5% of respondents, and roughly the same number of those polled believes that Russia is mainly guided by the desire to help Ukraine.

Public assessments of problems and prospects of the Ukraine-Russia energy cooperation are controversial, sometimes hard to distinguish. This may largely be attributed to the non-transparency of the energy dialogue. Important strategic decisions (including the Kharkiv agreements) were taken behind the scene, without prior public discussion.

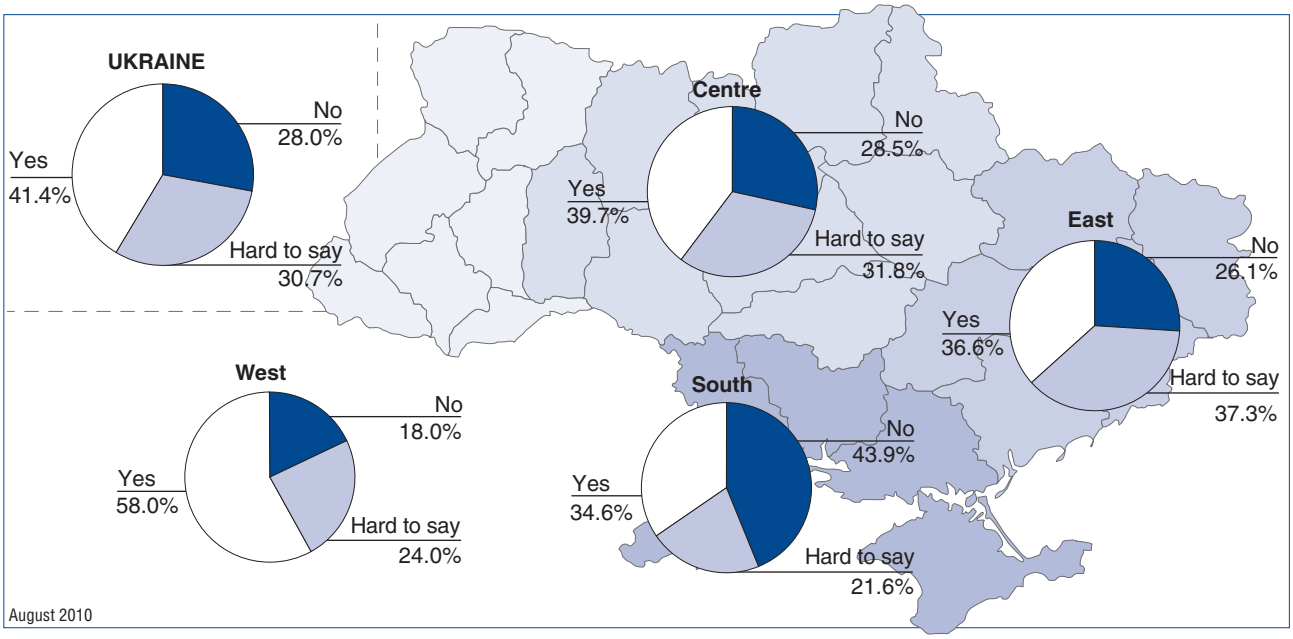
Non-transparency of preparation of Ukraine-Russia agreements in the energy sector hinders formation of the public opinion about further cooperation of the two countries. Given the lack or shortage of information, the public opinion on Ukraine-Russia relations in the energy sector often only reproduces foreign policy preferences dominating in different regions.

Therefore, enhancement of public awareness about strategic plans of interstate energy relations is high on the agenda. Apparently, this may be achieved only in presence of a detailed and elaborate state strategy of the sector development. ■

Politicians and experts differently assess the Kharkiv agreements ("gas-fleet") between Ukraine and Russia. To what extent do you agree with the following assessments of those agreements?
% of those polled



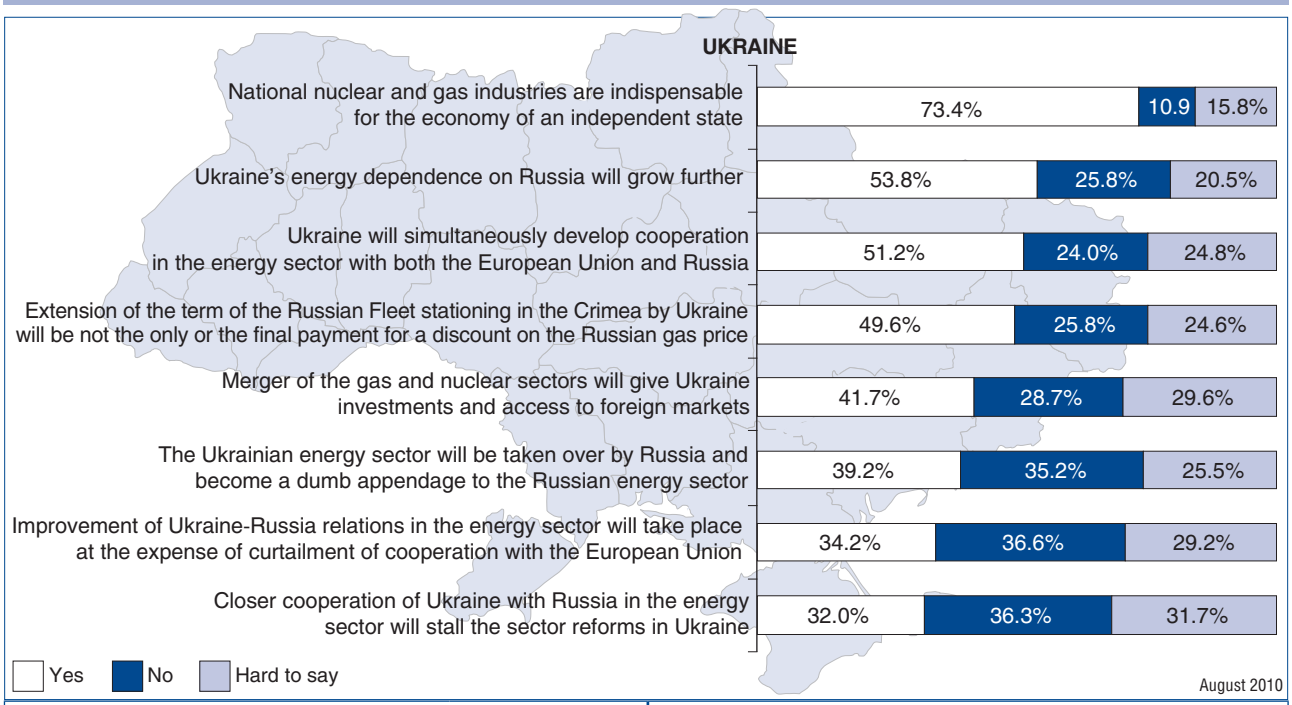
Could the gas prices for Ukraine be reduced by means other than extension of the term of the Russian Navy stationing in the Crimea?
% of those polled



Do you agree with the following judgements?
% of those polled

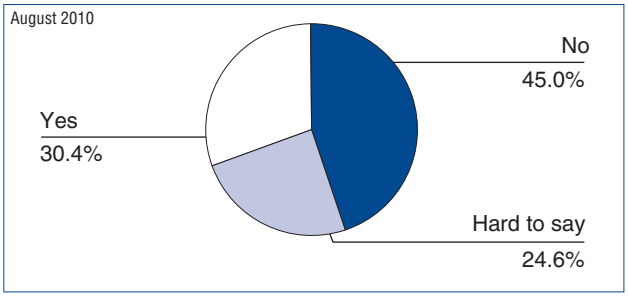
	Deliveries of cheaper Russian gas will facilitate development of the Ukrainian economy										The gas price reduction benefits mainly big enterprise owners rather than the population									
	UKRAINE		West		Centre		South		East		UKRAINE		West		Centre		South		East	
	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010
Yes	70.8	**66.6**	47.4	**47.4**	66.4	**59.6**	90.1	**73.8**	79.9	**81.2**	47.7	**53.0**	64.1	**66.1**	50.2	**46.8**	27.0	**42.2**	45.3	**56.8**
No	12.9	**19.1**	20.8	**28.6**	19.1	**22.9**	5.9	**15.0**	5.4	**11.9**	26.9	**21.6**	7.3	**14.6**	28.3	**26.0**	55.3	**30.2**	23.7	**17.3**
Hard to say	16.3	**14.3**	31.8	**24.0**	14.5	**17.5**	3.9	**11.3**	14.7	**6.9**	25.5	**25.3**	28.6	**19.3**	21.5	**27.2**	17.8	**27.6**	30.9	**25.9**
	Deliveries of cheaper Russian gas will retard development of energy saving technologies in Ukraine										**Signing of those agreements will make it possible to do without a gas price rise for households**									
	UKRAINE		West		Centre		South		East		UKRAINE		West		Centre		South		East	
	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010	April 2010	August 2010
Yes	22.4	**25.8**	37.0	**36.3**	31.3	**25.7**	11.1	**22.2**	10.5	**21.5**	64.2	**24.3**	37.5	**15.4**	61.3	**23.0**	82.9	**24.9**	73.9	**30.2**
No	49.3	**52.4**	25.0	**39.7**	39.9	**48.2**	75.2	**62.9**	60.7	**58.9**	14.8	**51.4**	27.6	**62.4**	19.3	**48.5**	8.6	**55.8**	6.0	**45.9**
Hard to say	28.3	**21.9**	38.0	**24.0**	28.8	**26.2**	13.7	**14.9**	28.8	**19.6**	21.0	**24.4**	34.9	**22.2**	19.3	**28.4**	8.6	**19.3**	20.1	**23.9**

Do you agree with each of the following statements?
% of those polled

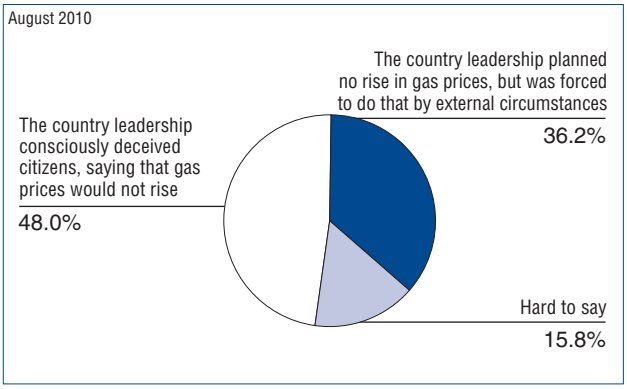


		REGIONS			
		West	Centre	South	East
National nuclear and gas industries are indispensable for the economy of an independent state	Yes	76.8	62.0	85.1	77.1
	No	11.7	16.3	2.6	8.7
	Hard to say	11.5	21.7	12.2	14.2
Ukraine's energy dependence on Russia will grow further	Yes	68.2	54.7	40.9	50.6
	No	15.9	22.0	43.2	27.3
	Hard to say	15.9	23.3	15.9	22.1
Ukraine will simultaneously develop cooperation in the energy sector with both the European Union and Russia	Yes	32.9	49.2	67.9	56.0
	No	32.1	27.6	15.6	19.7
	Hard to say	35.0	23.2	16.6	24.2
Extension of the term of the Russian Fleet stationing in the Crimea by Ukraine will be not the only or the final payment for a discount on the Russian gas price	Yes	61.7	54.7	33.6	45.0
	No	19.5	22.4	42.2	25.3
	Hard to say	18.8	22.9	24.3	29.8
Merger of the gas and nuclear sectors will give Ukraine investments and access to foreign markets	Yes	28.1	35.2	60.9	47.4
	No	41.9	29.2	19.9	24.4
	Hard to say	29.9	35.6	19.2	28.2
The Ukrainian energy sector will be taken over by Russia and become a dumb appendage to the Russian energy sector	Yes	53.1	41.9	30.1	32.5
	No	19.3	30.6	52.0	41.4
	Hard to say	27.6	27.5	17.9	26.1
Improvement of Ukraine-Russia relations in the energy sector will take place at the expense of curtailment of cooperation with the European Union	Yes	40.2	35.0	26.8	33.3
	No	30.5	36.1	53.0	33.0
	Hard to say	29.2	28.9	20.2	33.7
Closer cooperation of Ukraine with Russia in the energy sector will stall the sector reforms in Ukraine	Yes	44.8	29.7	28.5	28.5
	No	24.2	32.9	52.0	39.5
	Hard to say	31.0	37.4	19.5	32.1

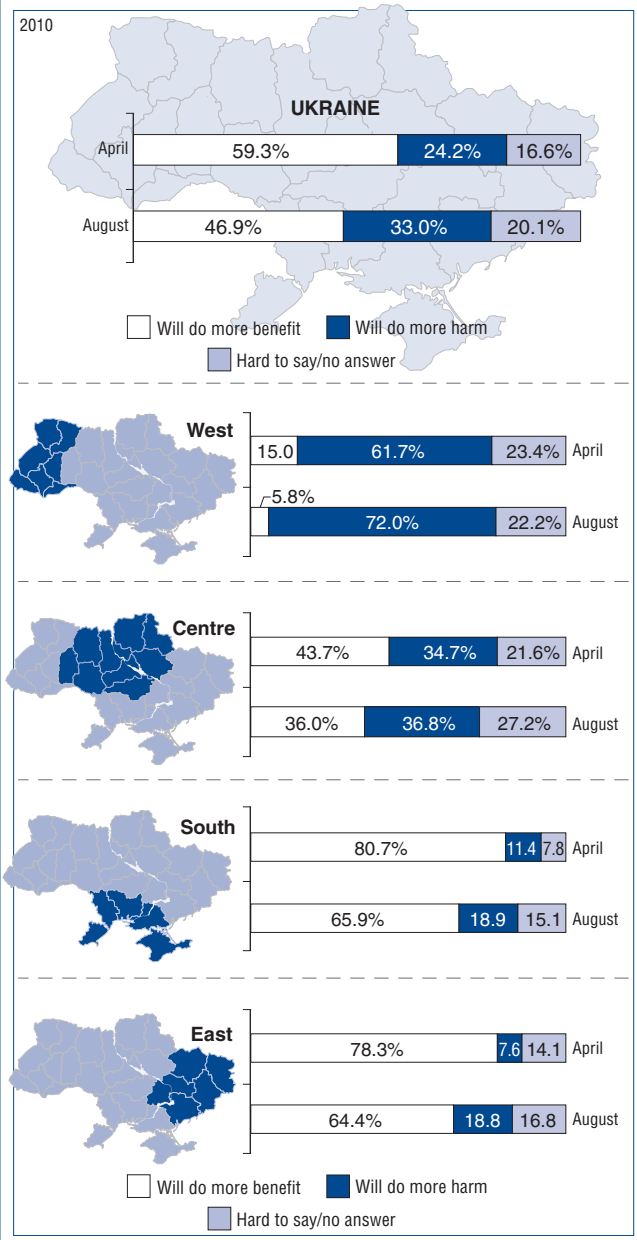
When the Kharkiv agreements were signed, representatives of the Ukrainian authorities assured that this would make it possible to do without a gas price rise for consumers. Now, the authorities announce plans of raising gas prices. Given such developments, should the Kharkiv agreements have been signed?
% of those polled



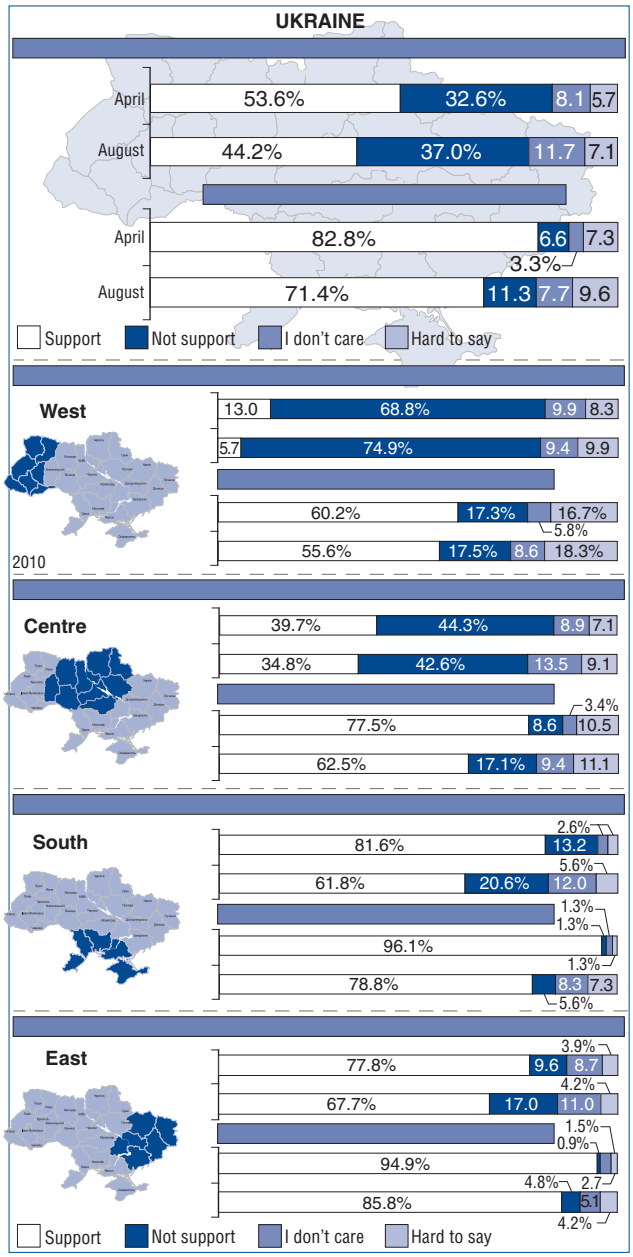
With which opinion on this matter do you agree the most
% of those polled



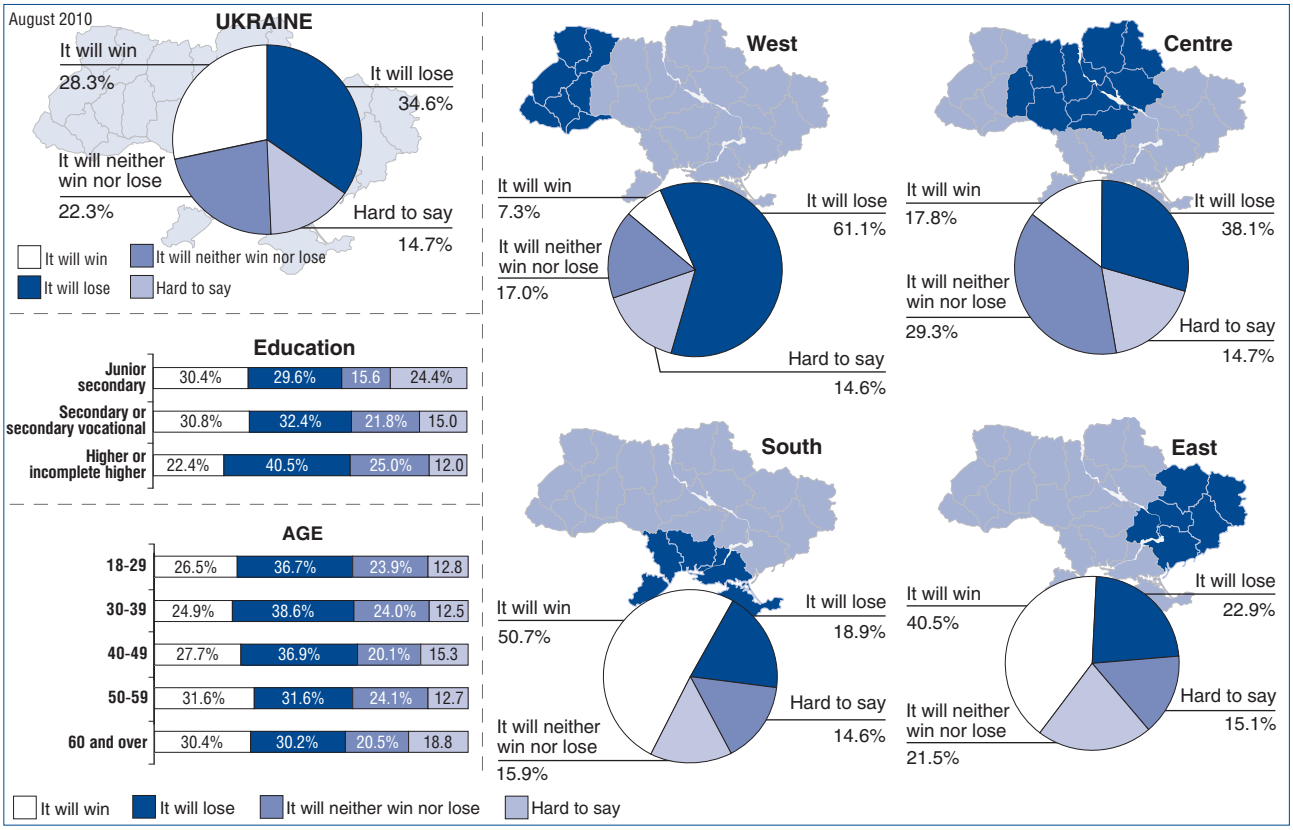
Will signing of those agreements do Ukraine more benefit or harm?
% of those who reported good or general knowledge of the content of the documents



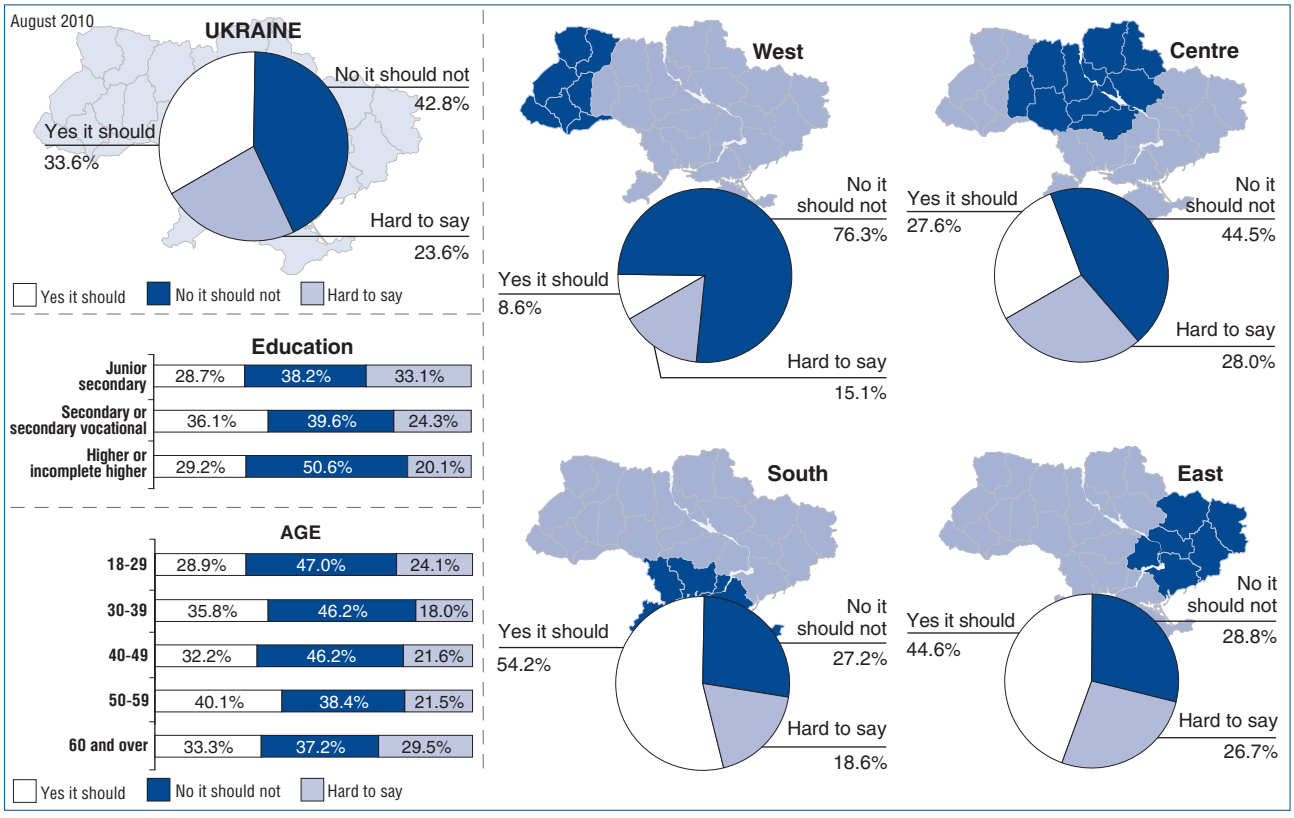
Do you support each of the following provisions of those documents?
% of those polled



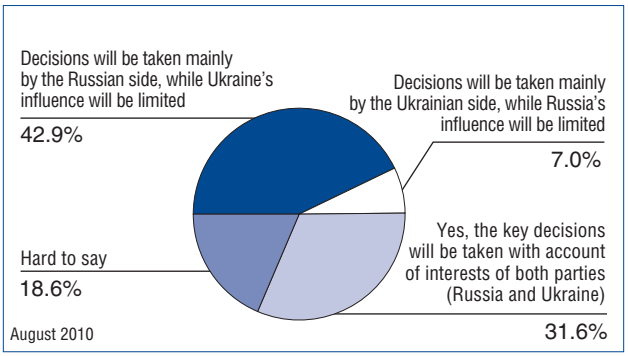
Will Ukraine win or lose more from setting up a joint holding (merger of *Gazprom* OJSC and *Naftohaz Ukrajiny* NJSC) with Russia in the oil and gas sector?
% of those polled



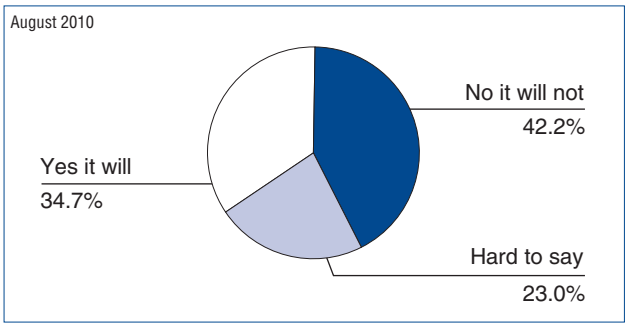
Should Ukraine unite its enterprises of nuclear power engineering and nuclear industry in one holding (joint venture) with Russian enterprises in those sectors. as proposed by the Russian Prime Minister Putin?
% of those polled



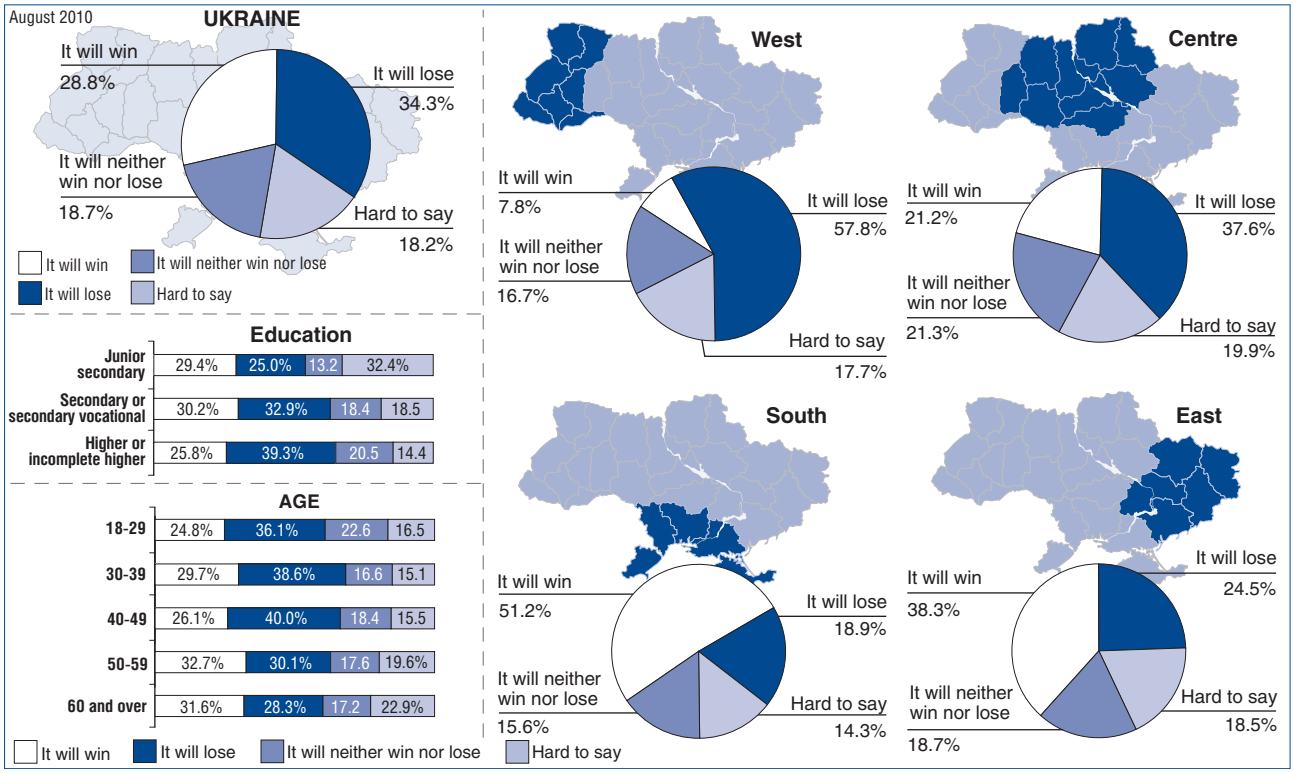
If that holding is established. will such cooperation be equal?
% of those polled



If such holding is established, will the Ukrainian state be able to control assets of Ukrainian enterprises incorporated in that holding?
% of those polled



Will Ukraine win or lose more from setting up a joint holding (joint venture) with Russia in nuclear power engineering and nuclear industry?
% of those polled



The Russian leadership proposed an idea of merger of the Russian and Ukrainian gas sectors (*Gazprom* OJSC and *Naftohaz Ukrajiny* NJSC). What is the main reason for such Russia's desire?
% of those polled

The Russian leadership proposed an idea of merger of the Russian and Ukrainian nuclear power engineering and nuclear industries. What is the main reason for such Russia's desire?
% of those polled