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# Chapter 9

Russia, Gazprom and the CAC: Interests and Relations

### By Leonid Grigoriev

#### Introduction

Russian foreign and energy policy have been formatting through several tracks during the 1990s and 2000s. Few important periods may be distinguished along these years. First, the dissolution of the USSR brought about the unbundling of the Soviet integrated pipeline system transiting through all newly independent states (NIS). Second, the next period was marked by low demand and therefore low gas prices on the international markets in the late 90-s and early 2000s. Some portion of income from Gazprom had been used by the Russian government as a source of domestic social and economic spending till at least 2004. Low gas domestic tariffs ("gas pause") were imposed by the government after the 1998 crisis. This step helped the manufacturing and households to survive but dragged further down the country's investment in the energy sector. In the third period the fast growth of demand for oil and gas during the global economic boom of 2003-2008 changed the situation completely, notably by pushing up prices. New unexpected situation provided a new stimulus to Russian actors, spurring the

search for a new strategy for the country and for the oil and gas companies.

During this period the Kremlin continued to keep politically motivated low gas prices for some CIS consumer countries, leaving Gazprom incomes hostage to Russian foreign policy.

In this new context, Caspian oil and gas became one of the most promising sources of energy outside Middle East for future growth potential. As new sources of gas were being developed in Kazakhstan and expectations were growing with regard to Turkmenistan's export capacity, Central Asia's gas pipeline network, the Central Asia-Center (CAC), became a focus of international politics. The whole story in these recent years was affected by few key worries and actual events: the presumed danger of gas gap in EU; the issue of sufficiency of Gazprom investments; access to Transcaspian new investments; and transit conflicts in the countries between EU and Russia, esp. Ukraine.

In the natural gas market, Russia enjoys multiple roles as a producer, consumer, exporter as well as a transit state, moving across the continent huge volumes of gas every year. As outsiders (especially the US and EU) focused on this region, they usually had tried to separate oil and gas issues from the local economic and political life (including Russian), leading to a limited understanding of various actors' interests. This was the doubtful approach: gas and transit issues cannot alone satisfy Russia's or other players' interests. Several other issues are thus critical in the NIS, and are considered important by numerous governments, including in Russia, Central Asia, the Caucasus and Eastern Europe, for instance, migration, trade, anti-drug cooperation, power and water sectors etc. Natural gas

and transit issues are just one aspect of Russian policy, though evidently they are the most critical for Gazprom.

There is no obvious or explicitly stated strategy or policy on the part of either Russia or Gazprom toward the CAC specifically. One may nevertheless identify fairly recurrent attempts to attain certain objectives: Russian energy security (transit interests, flexibility of supplies) and Gazprom commercial interests (transit fees and flexibility of supplies). Russia's pipeline network, the Unified Gas Supply System (UGSS), is one of the few remaining infrastructure systems which still bind the post-Soviet space together. The Russian government is clearly keen on supporting some form of compatibility across the NIS economies and maintaining low transaction costs for business, trade and labor. Such a goal makes the CAC and the UGSS a valuable resource for all countries and companies involved in the NIS.

While oil and gas issues are central to the region's politics and economy, the countries' key interests remain as domestic political stability, economic development as well as reliable demand for oil and gas for the maximization of income. Some countries, such as Uzbekistan, Russia and Kazakhstan, play the dual role of producer and transitory. In this the interests of outside actors and local producers differ; this situation has only been made more complicated following the significant fluctuation of energy prices between 2007 and 2010. As a major supply route of gas from Central Asia to Ukraine onward, the CAC has become a critical factor in European energy security. As a result, upstream production of gas in Central Asia and the Caspian region (CACR) and the

pipelines linking them to Europe have become the focus of numerous serious studies.<sup>i</sup>

### The CAC: Soviet Legacy

The pipeline systems inherited from the Soviet Union came as a free gift to many newly independent countries. They came available for use for post-Soviet countries at zero investment cost, with no corporate debt but with ready engineering and human resources as well as the integration of exploration and development already made. It is hard to imagine such a vast pipeline network would be built after independence, with all the associated commercial and economic risk at a time of significant political and economic transitional crises in the Region.<sup>ii</sup> The CAC system survived the transitional crisis of 1990s largely due to Russian demand for over 17 years (but not at full capacity all the time). Russia has continued to build various extensions to its UGSS (Blue Stream, etc.), diversifying its capacity to deliver gas on a long-term basis for its EU consumers.

The FSU's pipeline network, as a legacy of the planned economy, is sometimes considered by Western observers as inconvenient – if not outright detrimental – to the interests of the oil and gas actors in the region recently (but somewhat less today). In all fairness, however, it should be considered as a historical achievement. In terms of scope and technology, the planned economy left the system bent on gathering gas from fields far dispersed to consumers across the Eurasian continent. It is a complex system which depends on the proper functioning of all parts for the whole. The planning system operated the system on

the basis of securing balanced demand and supply as well as their respective investments.

By 1990, the UGSS totaled 220,000 km of transit pipelines (as distinguished from distribution pipelines), linking together over 200 gas fields, 6 gas processing plants, 46 underground gas storages, 4400 switch stations, and thousands of compressor stations with an overall capacity of 50 million KVT. This required huge investments, made in the 1970s and 1980s. The system still moves over 700 billion cubic meters (bcm) every year. Gazprom has managed to avoid major decline in the UGSS's gas output within Russia in the 1990s while all other industries in Russia were severely hit (witness the 40% drop oil output, for example). Outside Russia, the UGSS became a free gift from the Soviet planners to a few neighbor countries of the post-Soviet space. While the network has been legally divided between countries, the UGSS's management requires the system's integrity. Until 2004, the most of NIS producers certainly could not finance the system's maintenance and repair, let alone its development, outside the most immediate needs.

Upon Soviet dissolution, the massive UGSS and all the assets were divided between newly created countries. In Tajikistan the ownership of pipelines was given to the state enterprise Tajikgas. In Kirgizstan Minpromenergo assigns ownership of the gas transportation system to government-owned Kyrgyzgaz<sup>iii</sup>. The Uzbek section also fell under control of a single corporation, Uztransgaz, part of the country's Uzbekneftegaz holding. State-owned Turkmengaz owns Turkmen's pipelines, which are managed by subsidiary Turkmentransgaz. Somewhat more complex is the Kazakh system: KazTransGas, which operates the

Kazakh section of the CAC, is wholly owned by KazMunaiGas; while it controls, either directly or indirectly (through "Intergas-Central Asia"), all transit pipelines (CAC and Bukhara – Ural). Despite this, the entire system linking the various national pipelines is a near-single entity, regulated by international contracts and agreements. This bond is especially strong between Kazakhstan and Russia due to their intertwining supply sources in border regions.

After nearly twenty years of separate existence, all actors in the gas world now seem to have a stake in the state and condition of the CAC pipelines. Yet the Ukrainian and CAC parts of the UGSS are estimated by industry specialists to have benefited the most from general repairs during these two decades. Though there is some reserves capacity in the system in the event of a disruption of supply, notably in the case of accidents, the system essentially works at full capacity. The CAC's economic benefits are divided between countries according to the geographic distribution of the main routes.

#### The Sources and Directions of Gas

At the beginning of the post-Soviet period, in 1991, the gas production from three countries, Kazakhstan, Turkmenistan and Azerbaijan, totaled 134 bcm. Export for these countries totaled 71 bcm, and declined to 10 bcm by 1998 (while output dropped to 76 bcm). Exports before the Global crisis of 2008 had been restored to 77 bcm (of which 6 bcm goes to Iran). Industry experts have long been skeptical about the working conditions of these old pipelines. Nevertheless, by the 2000s

the main pipelines' capacity had been restored, though it was admittedly not sufficient to handle all potential exports from the region.

Table 1. Capacity of Turkmenistan pipeline system, bcm

	Capacity, bcm	Length, thou km	Construction start date		
Bukhara-Ural	21	4.5	1963		
Central Asia – Center:	68-50	3.4	1968		
To China	40	7,0	2007		
To Iran	20-34,5	-	1997		

Source: RusEnergy, Gazprom

Since then, projections for future output of gas in the region have been widely debated. As usual, actual implementation of big infrastructure projects are delayed by years and decades. The more technical aspects of the CAC's conditions have been questioned for a long time: what has been the quality of maintenance and repair (some pipes may be affected by corrosion etc.), what more is needed, what may be losses of capacity. Some sources believe that the pipelines were worn out to the extent of 70-87%, but so far it could serve current contracts.

Most CAC pipelines are operational but at reduced levels from their original design capacity. Today, this means transit is roughly 50 bcm per year – down from the maximum of 70 bcm (Table 1) transit capacity to Europe. Experts also debate the result the 1990s crisis had on the system's technical capacity. As was stated by the head of Giprorechtrans, Vladimir Rudometkin, in 2008, "for years there was no full-fledged study of pipelines and their maintenance." Wear and tear on the CAC does indeed appear rather serious, due to the network's already long lifespan. This problem can not be solved, however, in one or two years, given the appropriate investment." This evaluation means that the CAC's present seems sustainable. Adding new pipelines, as it is projected, would give an

additional incentive for further maintenance and repair. CAC may be enlarged and must have a good maintenance, but it is fundamentally viable from engineering and economic points of view.

Gazprom was planning to buy 70-80 and possibly up to 90 bcm per year from the CACR via the CAC, securing these amounts through formal agreements. Russia's advantage, in this race, is that Russia's pipeline system can already deliver this Central Asian gas to Ukraine and onward. In 2009, the Russian network carried 35.7 bcm of CACR gas: 11.8 bcm from Turkmenistan (42.3 bcm in 2008), 13.1 bcm from Uzbekistan and 10.8 bcm from Kazakhstan (see tabl.2)<sup>vi</sup>.

Given "market prices," the best route for new transit capacity in the CACR is obviously through Russia along the old CAC. This includes the enlargement of PriCaspiy from 4 to 10 bcm and building another line with a total capacity up to 40 bcm. The idea of this project dates back to 2003. At that time it was a Ukrainian-Turkmenistan project to circumvent the Caspian Sea by the north (1745 km, 30 bcm and a 1 billion USD investment). KazMunaiGaz is also planning to enlarge the capacity of its CAC section, bringing it from 58 to 100 bcm. These additional routes – the PriCaspiy, in Russian – will be sufficient to absorb the immediate gas supply growth in both Turkmenistan and Kazakhstan. According to this plan, Gazprom should have enough gas for delivery to Ukraine and beyond.

Table 2. Export contracts of Turkmenistan and actual deliveries (bcm)

	Signed at	Annual volumes	Delivery 2007	Delivery 2008	Delivery 2009	Delivery 2010	Price in \$/th. m3 2009
Russia	2003	Up to 80	43	45	12	10	200
China	2006	30	-	-	-	4	195

Iran	1997	14	6,2	8	9	12	200
Total		124	49	53	21	26	

Source: "Investor Interest in the Caspian Region Continues Postcrisis" CERA Caspian Energy Watch December 2009, National Government

In the long run, however, the key issue will not be transit capacity but the CACR's actual supply into the system. Most experts for example still do not know precisely how much gas there is in Turkmenistan. Turkmenistan's gross gas output for 2007 is estimated to have been approximately 78 bcm, but is projected to reach 160 bcm in 2015 and 250 bcm in 2030. Domestic consumption will meanwhile also grow, from 18 bcm presently to 50 bcm, expanding export capacity from 58 presently to 125 bcm in 2015 and 200 bcm in 2030. Potential for such output was confirmed recently, some foreign investments are under way (for foreign companies service contracts on the ground and PSA for offshore fields). China will receive its long-term supplies by pipelines, beginning with 13 bcm delivery in 2009 via a new 7,000 km pipeline, but with future capacity up to  $30^{viii}$ .

So far all the projections stay within 80 bcm for export. In 2009 Turkmenistan exported much less its capacity due to the stoppage of delivery to Russia for nine months. The accident on the pipeline in April 2009 stopped delivery and cost the producer probably a billion dollars. It took a year for political repair of relations and reestablishing the new pattern of delivery to Russia – only 10 bcm for 2010 by a reasonable price.

In 2009-2010 the combination of export to Russia and Iran and China (table 2) was all together as low as a half of the level of 2007-2008 – rather low for the great expectations. In this situation the extension of pipelines was not urgent for

the producer. And it does not seem enough of "old gas" for prospective export to EU. Naturally, should these projections of output be valid, Turkmenistan pipeline system alone ought to be enlarged by more than 100 bcm a year at least with the full use of the CAC. TransCaspian projects (Nabukko for example) are limited by capacity within 30-40 bcm. Big Turkmenistanian and Kazakhstanian gas would need much more transit capacity +TAPI.

Plans for enlargement of CAC are supported by the price setting changes to the "market formula" for Uzbekistan and Turkmenistan gas – a mechanism essentially very close to the net-back approach. Such a radical change makes it much easier for gas producers to receive adequate export payments through any pipeline corridor. Differences between routes for producers now come down to direct costs differentials. Gas transit from countries in this region would come under the regulation of Energy Charter Treaty. Russia signed the Treaty in 1994, though it has not ratified it yet – like Norway, but in 2009 essentially canceled its participation and suggested to renegotiate the substance in some respects. Basically CAC as many other pipelines at pre-liberalised stage operates on two sides agreement, moving to net back step by step. Since the liberalized gas market does not exist in EU at current stage, one would wait till the liberalization would show its features and could be studied as full-fledged regime. Russia would not nowadays try to experiment new regimes without clear understanding of outcomes.

#### Actors and Interests

There is also more than one party interested in Caspian gas: China, Iran and the EU being prime examples. This author believes one can rank the political

feasibility of each project in a geographically clockwise order, starting from the North.

New Delhi is also looking for supplies via continental lines. The next increment will be for its neighbor, Iran. Subsequent increments will be the subject of competition between India and the EU. Meanwhile, from the legal point of view the division of the Caspian Sea is still pending, blocking the Transcaspian route (Iran still objects to any pipeline crossing the Sea). And the instability in Afghanistan makes a trans-Afghan pipeline a very difficult endeavor. In the long run, all the promised gas will be delivered, but the Transcaspian route to the SCP (South Caucasus Pipeline) may well be further delayed.

Two sets of competition are taking place for the CACR's hydrocarbon resources. The first concerns competition between actors for determining the final destination of the region's incremental growth via continent pipelines. This pits China, India and the EU against each other. Indeed, the region's new energy output helps support economic growth, but its final destination – delivered via pipelines – will be locked for years. Given geographical and political considerations, the markets for CACR are to a large extent inevitable – the issue concerns both the timing of the new pipelines and the volumes that will be locked up. The EU will therefore have probably to wait a little bit longer for additional supplies from the CACR. The EU's advantage was also the higher prices its market commands. CAC with new "market formula pricing" between Russia and local producers may bring the same prices as by any other route.

There is also a second competition revolving around *how* these new resources can be brought to market, especially in the case of bringing gas to Europe. Such a competition basically boils down to whether there will be Russian participation (and probably via Russian territory) or whether Russia should be avoided entirely. Particularly since the January 2006 Russian-Ukrainian gas conflict, most of the rhetoric in recent years has been devoted to bypassing Russia, this chiefly for political reasons. The Nabucco project (3,300 Km, 31 bcm capacity, from 4.6 to 8 billon Euros, projected early to open in 2012) has thus reemerged as a counterweight to Russia. This project nevertheless appears to be overtly political and devoid of real economic rationale. In other words, Nabucco's importance is exaggerated. There are rather alarming forecasts for the EU's growing gas supply gap, if any. Some gap in EU in the near future may not exceed, say, 100-200 bcm.Nabucco, with its 30 bcm potential capacity, could alone supply 15-30% of this gap – an important source, but not exactly a panacea. In order to fill any serious gap, the EU will have to cooperate with all suppliers.

There is a stamp of sociological (may be more, than strategic) importance on the EU's project. The project has actually given a special status and some financing. Outsiders were speaking of excluding Gazprom from participating in the project, this for strictly political reasons. Meanwhile, the most of Russian experts have always voiced their skepticism concerning this project. Normally, pipelines are built for a particular market and for a particular source of gas. As far as Nabucco is concerned, however, nothing is still clear: the market, the actual source of gas, the financing mechanisms and source. Perhaps realizing this, representatives of the Nabucco Gas Pipeline International company have in fact invited Gazprom

into the project. But that would "deprive" the project from its political meaning, since of Nabucco's 30 bcm capacity, 15 bcm would be reserved for companies participating in the construction, while the rest would remain available for auction.

Gazprom has responded to the Nabucco project by South Stream project, linking Russia to Burgas in Bulgaria via the Black Sea, and onward to Balkan and central European markets. South Stream, contrary to Nabucco, already has a partner (ENI) for the marketing, financing, technology (Blue Stream was built with Italian support) as well as throughput from Russian and Central Asian fields. The Nabucco-South Stream commercial competition includes important political implications as side effect however. Gazprom wishes to build pipes like South Stream (like Nord Stream) for the supply of the EU market, but has no interest in projects blatantly aimed at avoiding Russia.

Gazprom's head, Alexei Miller, has not completely eliminated the possibility of Gazprom taking part in Nabucco however. What is more, if Caspian states actually would have one day the additional gas supply in the range of 200 bcm at 2030, Nabucco would become commercially interesting for big companies. The crucial issue is timing – meanwhile Gazprom secures its position on transit routes and strengthens its own supply. At summer 2010 it's probably reasonable to expect that Gazprom will catch up with South Sream and that would be another delay in real need for Nabucco.

Future gas deliveries from the CACR are thus a geopolitical issue, and the secret to unlocking this lies in both local and global politics. Local producers of cause will need the stability of prices and access to receive the stable export proceeds for development (see tabl. 3).

Table 3.Net export of oil and gas (including oil products), bln USD, 1996-2010

	1996	2000	2005	2006	2007	2008	2009	2010e
Russia	36.6	51.0	147.9	188.2	214.0	303.3	187.8	259.2
Ukraine	-7.8	-5.2	-7.3	-10.2	-13.3	-18.7	-12.5	-16.2
Belarus	na	-1.1	0.0	0.2	-1.6	-1.6	-3.3	-4.9
Azerbaijan	0.4	1.4	5.0	10.3	18.9	28.1	19.3	26.5
Turkmenistan	na	2.0	na	na	na	na	na	na
Uzbekistan	na	na	0.5	0.6	1.6	2.4	3.7	na
Kazakhstan	1.1	4.0	17.5	23.2	27.9	43.5	27.2	38.5
Мето	·	·	·	·	·	·	·	
OPEC oil export	165.6	254.3	531.7	639.8	709.7	1 002.2	575.3	na

Source: Comtrade, OPEC, National Statistics Committees, estimates

Beyond being a critical component for gas deliveries as well as for supplying cash to producers, the CAC also constitutes an important link between different countries in the region. One cannot study international pipeline networks without taking into account the various interests of the countries involved: their economic development, the political stability of their elites, etc.

### The Legacy of Transition and Transition Crisis

The role of energy sector in Russia and countries of the region was widely discussed. We believe that some interests of companies, countries and government policies must play the important role – not just objective picture of economic development.

The post-Soviet space has only just emerged from the long and exhausting transitional crisis of the 1990s. Then, all countries went through serious industrial,

budgetary and unemployment crises. By overlooking Russia's ten-year crisis, during which its GDP declined by 43%, one may also overlook the economic and sociological reasons why Russia supports the few national companies that successfully survived this period and made money for the country. The post-Soviet space, in turn, had few transition models to follow and adapt to: some restructuring and focusing on services, some trying to save a semblance of industrial capacity, some dependent on remittances or transit fees, while others relied on their natural resources, mostly fuel, for their development. Naturally, Russia tried to save some of its manufacturing capacity, but succeeded in a few sectors, notably in mining and hydrocarbons, metals and chemicals, as well as a few natural recourses-based industries. There is no doubt that the hydrocarbon industry is favored in Russia and enjoys state support.

Table 4. GDP and oil and gas production, Ukraine and Central Asia, 2000-2010

		Kazakhstan		Turkmenistan		Ukraine		Uzbekistan	
	Unit	2000	2010	2000	2010	2000	2010	2000	2010
GDP	Bln. USD	18	130	5	20	31	137	14	38
GDP per capita	Thou. USD	1	8	1	4	1	3	1	1
Natural gas production	Bcm.	12	37	44	47	18	20	51	60
Natural gas export	Bcm.	5	13	33	26	3	0	6	14
Natural gas import	Bcm.	4	4	-	-	60	36	-	-
Oil production	Mln. ton	35	80	7	10	4	4	8	4
Oil import	Mln. ton	1	7	-	-	6	8	-	1
Oil export	Mln. ton	25	68	2	5	0	0	1	_

Source: IMF, BP, National Statistics Committees, estimates

In such an economic environment, the political elites of Central Asian countries and Ukraine/Belarus were genuinely concerned about their regime's stability, fearing social and economic problems during most of the transition period. Independence brought numerous social problems which required the active support a fragile equilibrium of political forces: GDP decreased by half,

encouraging the respective governments to focus on the stability of the export and transit incomes (see Graph 1).

12
10
8
6
7
Turkmenistan Kazakhstan Uzbekistan Ukraine Russia

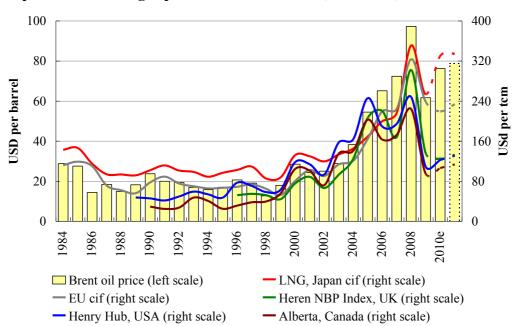
Graph 1. Russia and countries in the region, GDP per capita, th. USD, 1990-2010

Source: UNSD, IMF

In many cases, new projects in oil and gas upstream with foreign investments supplied these governments with jobs, investments, good PR and at least a limited flow of funds for the budget. In spite of low oil and gas prices during most of the transition period, countries with natural resources could at least generate export

incomes even while their industrial sectors remained in deep crisis. Oil&gas industries have been playing the cash-cow role for the governments and elites.

During the transition period, very little domestic financial resources were available for economic development or new infrastructure projects. Higher oil prices came rather late for containing the transition's economic and social crisis. Only recently have the region's budgets become mostly balanced and investment patterns changed. The Azeri and Kazakh examples are representative of a certain change in development goals in the past five years. Financing huge long-term investments in the gas industry as these two countries have done, however, is a complicated task, especially with price volatility. Prices, moreover, are bound to stay low during the period of recession, undermining such financing. It is worth noting, on a side note, that since 2004 liberalized markets (primarily Anglo-Saxon ones, i.e. the US and UK) have paid higher prices for gas than in continental Europe (see Graph 2).



Graph 2. Natural gas prices on main markets, USD/tcm, 1984-2011

Source: BP, IMF, estimates

### The CACR's Growing Importance

Russia and the CACR have recently become the focus of politicians and experts in global energy and politics alike. Tough negotiations on gas transit, and the repeated Russia-Ukraine gas conflicts in particular, suggest (quite correctly) the substantial political interests of all parties involved in the patterns of energy production and export routes. This became even more political in the fall of 2007 after the International Energy Agency (IEA) finally admitted the serious supply problems facing the EU in its flagship World Energy Outlook. Taking into account China and India's growing manufacturing might and the increased energy consumption and import from a new global middle class, supply problems could occur as early as 2015. These facts led the IEA to note that the "global energy system is on an *increasingly* unsustainable path." According to the IEA, the shortage could for example reach up to 12 million barrels a day (mbd) in the case of oil.

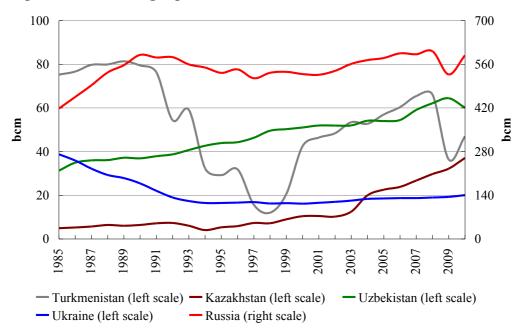
This essentially means that the IEA has changed from displaying a balanced picture of the future global energy market to an alarmist stance, mostly confirmed in 2009 in spite of the crisis energy demand reduction. This new recognition has elevated the political importance of Caspian supplies and has shortened the timeframe in which these play the critical role of balancing the global market in the future.

In such a context, the Caspian Sea region clearly appears as a convenient source of oil and gas supply in the coming decades, being partially able to fill the gap after Qatar wraps up its LNG projects, by 2010. Inevitably for the EU, other actors and interests are at play (China, India, the US...). Thus, CACR supplies as

well as upstream and transport energy projects have increasingly been the subject of more global geopolitical maneuvering. Realizing this, countries are less trusting in global market mechanisms for their hydrocarbon supply and are looking for some assurance of delivery through special relations the governments, companies' access to fields and assuring the transit ways to export markets. Groups of "interested consumers" from the US, China, India and EU are involved in bringing about their respective energy policy objectives into the region, and therefore in its politics. There is, by contrast, no such thing as a "simple and pure" Russian energy policy or Russian foreign policy vis-à-vis its regional neighbors that can be isolated from myriad other issues. Instead the country has a complex mix of conflicting objectives and policies, in which energy supplies may very well be sidestepped in order to reach other goals.

### From a Buyer's to a Seller's Market and Back Again

As mentioned above few time periods may be considered: before and after the oil price increase started (roughly around 2003-04), before and after the global crisis 2008-2010. These two early periods are fundamentally different in terms of the gas policies of all countries involved. It is important to remember that oil prices in the summer of 1998 dropped as low as \$8 a barrel and caused (among other factors) a financial crisis in Russia. Demand for Turkmen and Uzbek gas sank before the turning point of 2004. Today, in the face of a global recession, new changes are to be expected that are again unfavorable to producers.



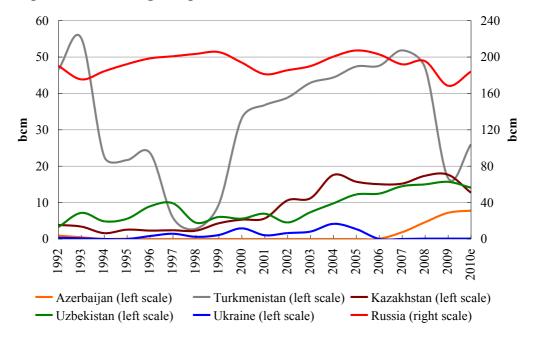
Graph 3. Natural gas production, bcm, 1985-2010

Source: National Statistics Committees, BP, estimates

Note: Excluding gas flared or recycled

Global economic growth generated high energy prices and changed the strategies of the region's actors, countries and companies alike. Who could imagine, only nine years ago, the kind of long-term planning Turkmenistan or Gazprom can presently afford in the region? Only ten years ago Ukraine was paying for Turkmenistan's gas through barter trade.

The combined effects of the economic upturn in developed markets (particularly in the EU and the US) and high energy prices fundamentally changed the situation in the CACR. Suddenly, the political elites in the hydrocarbon-rich countries discovered the virtues of new Production Sharing Agreements (PSA) and old Soviet-era projects, including transit projects. Seeking and retaining these transit opportunities has become a common trend in the region.



Graph 4. Natural gas export, bcm, 1992-2010

Source: National Statistics Committees, BP, IEA, estimates

Their previous cocktail of domestic problems began to dissipate by 2006-2008: no longer did exporters suffer budgetary crises, no longer were they ignored by world powers (and pressed on issues of democracy). Instead, CACR countries found new mechanisms for social engineering, new capacity for funding prestigious projects, development projects, or simply their military. At the same time, high energy prices generated increased disparity between exporters and importers of hydrocarbons. Human relations between NIS citizens and business relations in the region extending from Central Asia to the western borders of the FSU have nevertheless remained fairly "traditional." Given their overall signs of prosperity, conflicting issues were mostly set aside, seemingly resolved, which further helped to stabilize local regimes. Now, after the 2008 short crash in oil prices, this relatively short period of windfall energy income is over and more long term considerations are emerging.

#### Consumer Priorities

Regional energy projects in Eurasia have always been intertwined with international politics. Some outside players pursue complex political objectives that go far beyond the simple commerce of oil and gas. It is fairly easy to identify the priorities and interests of the region's major outside players (i.e., large consumers):

- 1. Increasing flows of oil and gas from the region to global markets;
- 2. Setting up legal grounds for investments by international oil companies;
- 3. Securing access to investment and transit routes so as to create competition between suppliers (and hence price reduction);
- 4. Creating additional transit routes to avoid Russian territory.

In this list, only the two first objectives can be defined as commercially driven, and can be considered typical of global energy markets – companies and governments trying to set up favorable conditions for investment and thus output. The third objective (if it really exists) is distinct from the previous two in one simple regard: such a goal goes against the interests of regional suppliers as a group. The creation of the Gas Exporting Countries Forum (GECF) is an example of this basic conflict between producers and consumers. "Blind" competition between producers, so dear to theories of perfect markets, now seems unlikely to occur even in gas markets. The last objective, though entirely unrelated to commercial concerns, nevertheless carries significant economic implications. From the Russian point of view, there is of course no reason to insist so heavily (especially in the media) on avoiding Russian transit. In Russia, therefore, such a

priority is seen as fatally flawed, and met with suspicion. The two Ukrainian gas conflicts may have worried European consumers, yet Gazprom has never intended to break its contractual obligations. On the contrary, Gazprom is keen to deliver a steady supply of gas, and thus continue to be regarded as a reliable supplier. These conflicts, however, may in fact make Moscow more intent on changing the pattern (diversifying) of its supply routes by injecting political considerations and non-commercial financing in future projects.

#### **Producer Priorities**

Countries with oil and gas resources and transit capacity have had a rather complicated set of objectives in recent years, as various combinations of resources leads to different combinations of practical objectives for local exporting countries:

- 1. Income for the budget, social and political stability;
- 2. Generating resources for inhancing economic development;
- 3. Better export choices for maximizing companies' proceeds through diverse and reliable access to infrastructure;
- 4. Diversifying export routes to maximize upstream production and counterbalance transit problems.

The first priority in the early part of the transition crisis for local governments was obviously to mitigate the pressing budgetary crisis. Oil and gas export and transit incomes were therefore used for immediate social and socio-economic needs. Only later the increased incomes from PSAs and other projects began to deliver the financial resources required for further development. In such an unstable

environment, however, oil and gas price fluctuations were particularly problematic, given that always-expensive price of transiting hydrocarbons to market. Such price fluctuations thus presented all exporting countries of the region with a challenge.

### Gazprom and Russian Priorities

It is vital to note that the interests of the Russian authorities and those of Gazprom are extremely complex and not necessarily the same in all points. For instance, Gazprom is primarily interested in:

- Producing enough gas for domestic obligations (decided by the government) and for foreign long-term contracts;
- Getting domestic prices, raised from \$50 currently to \$100 by
   2010 (two-thirds of Gazprom sales are domestic), but preferably to
   EU net-back levels, i.e. "market prices";
- Vertical and horizontal diversification within and outside Russia –
   in electricity generation, downstream and chemicals;
- Becoming (according to official objectives) the largest global energy company;
- o The predictability of export demand (for investment decisions);
- Stability of export prices;
- Achieving non-discriminatory regimes for access to foreign markets, particularly the EU;
- Particular securing access to more profitable segments of foreign gas markets (i.e., retail);<sup>xiv</sup>

- Transit incomes from the use of Russian territory and the creation of "mirror" routes;
- Securing commercial (i.e., non political) conditions for transiting its gas to markets, including the diversification of export channels (for example, LNG).

By contrast, the Russian government's economic interests in the gas segment of the economy are harder to describe in full. What is certain is that there is a natural difference between the interests of Gazprom on the one hand and those of gas consumers on the other: industries (metals, chemicals, fertilizers, etc.) as well as people (individual consumers, i.e., the broader population).

While the Russian government is allowing the rapid increase in domestic gas prices, up to 20-22% annually since 2004, Gazprom would clearly want the adjustment to be faster. Gazprom was the government's cash cow for a long time (especially under Prime Minister Victor Chernomyrdin); until the early 2000s the company therefore had limited capability to finance its activity before the recent energy price hike. Moreover, the present recession will probably result in domestic prices being increased somewhat more slowly than was originally designed.

Russia's 2003 "Energy Strategy to 2020" also clearly reflects the period of low prices and more prominent private oil and gas companies in Russia. At the time, the 2003 Strategy was in fact very concerned with securing markets for Russian exports and much less about securing sufficient output upstream to supply distant markets, as is the case today. Yet as energy prices climbed, Russia's energy

output increased (see Table 4). A new Energy Strategy has been developed by the end of 2008, and approved in 2009 (see Tabl.5). A global recession may well change its content once again.

Table 5. Russian Energy Strategy: actual data and optimistic scenario targets

	Actual data			_	Energy Strategy 2020 targets (2003) – optimistic scenario			Energy Strategy 2030 targets (2009) – optimistic scenario		
	2005	2008	2010	2005				2030		
Oil, mln t	470	488	505	445	490	520	525	535		
Gas, bcm	641	664	649	615	665	730	837	940		
Coal, mln t	298	326	317	280	330	430	410	470		
Electricity, TWh	952	1 037	1 037	935	1 070	1 365	1 555	2 210		

Source: Federal State Statistics Service, Ministry of Energy

During the transition period gas output in Turkmenistan for instance declined by a factor of six. In this context, the idea of developing new transport infrastructure for export (especially one avoiding Russian soil) was everything but logical; it was in reality entirely political. During this time, the Russian energy sector was not experiencing much pressure from domestic or global demand, nor could it count on high prices or government funds to support it in the long run. Gazprom also struggled to secure revenue, given the lack of both domestic and foreign income, but this was the work of the government: low gas prices in the FSU and especially the CIS (notably in Ukraine and Belarus) were essentially a government subsidy, and weighed heavily on the company. In other words, Gazprom long suffered a political burden.

Despite these differences, the interests of Gazprom and the Russian government have lately converged on a number of issues: higher domestic prices, securing transit etc. Russia's politicized approach to the gas industry largely mirrors Gazprom's own interests – foreign policy would require concessions from the giant company. There has been a well-documented contradiction between the various hikes in natural gas prices (in Ukraine and the Caucasus countries) and Russian political influence in those countries. One might better spin the argument on its head, and simply highlight the fact that, for a decade before these hikes, Russia received little in exchange for subsidizing these countries' gas consumption. It is not worth dwelling on this issue, especially since this stance has since changed. Today, Russia's state interests in the gas industry are at least clear and straight-forward:

- Allow Gazprom to rise domestic gas prices to \$100 for the sake of energy savings;
- Make sure Russian gas output is sufficient for both domestic needs and foreign contractual obligations;
- o Help to the companies to develop and become more diversified;
- Counterbalance systemic risks and help its companies access foreign markets or investment opportunities (typical support for national companies);
- To negotiate the non-discriminatory legal regime for Russian export and investments;
- To counterbalance the politically motivated "transition avoiding Russian territory" approach of some outside actors.

The situation was more difficult for countries with a role in transiting Russian oil and gas. For a long time this business was considered as a means of barter trade, a

way to secure side services and achieve political ends. The business of transiting resources has its specificities: it depends entirely on the throughput; transit fees are often considered as an income (instead of maintenance); it is regulated, at least partially, by international law. Some countries, such as Ukraine, Belarus and Georgia, have been seriously dependent on transit income for balancing their national budgets. Yet transit pipelines also require maintenance and repairs.

For the past few years, events in the CACR have seemed surprising to most outside observers. Yet gas agreements, price changes and new pipeline projects are coming to life with "regional ingenuity." The Ukrainian 2006 and 2009, and Belorussian 2007 price and transit crises were also resolved in a manner that was satisfactory for all countries directly involved.\* Despite this, outside observers have been left with a feeling of increased Russian control, be it statist or corporate. Russian policy is always under scrutiny for non-commercial objectives. Yet in reality, both Russian companies and political actors are trying to protect their respective interests. All parties were acting in very much the same way as most observers would do in the same situation, with the same set of assets, liabilities, obstacles, advantages and disadvantages.

## **Foreign Policy Is Business**

Diplomacy is required to secure the best possible terms for all parties: states, companies and citizens. Russia's approach to regional energy issues may be better understood if one takes seriously all the objectives of outside actors, particularly their attempts for a decade to return to a buyer's market and build transit routes bypassing Russia. On both sides the feeling of insecurity is persistent and even

strengthened by political events. It sometimes appears as though Russian decision-makers have perused Zbignev Brzezinski's "The Grand Chessboard" (1997): in this case they might have taken too seriously Brzezinski's prescriptions as a ready list of instructions for the foreign policy of respective countries. \*\*vi\* Such an approach on the part of Russia has the merit of being clear: let commercial competition go on, so long as critical threats are avoided. For Russia, two pitfalls to this policy loom on the horizon.

The first would be a third crash in oil prices, after those of 1986 and 1998. This means realizing that, behind the rhetoric of competition, one must beware of steps that are purposely taken on the part of consumers for returning to a buyer's market. The collapse of oil and gas prices in the second half of 2008 has given a strong incentive to secure transit incomes. Of course, gas exporters will probably never be pitted against each other in a blind competition for the sake of creating consumer's market. Long-term investment decisions in the oil and gas industry are determined by future price expectations and related costs (currently at \$60 minimum for "new oil")xvii. In certain cases government decisions play a strong guiding role - witness Qatar's decision to limit its LNG program by 2010. To some extent, better understanding of the gas market may be acquired via the GECF. Statements by participants of the December 2008 meeting in Moscow reflect the decision to coordinate activities in four specific areas: relations between countries and gas consumers; exchange of information on forecasts and investments between producers; introducing new technologies; cooperating in LNG production.

The second threat – responding to politically motivated Russian bypasses – is already amply covered in political circles, the media, and even expert opinions. From the Russian perspective, Gazprom ought to be considered as the most reliable supplier of natural gas for decades. Europe's own industry and business circles fundamentally trust Gazprom as a supplier. It is difficult to imagine Russia's diplomatic stance as ignoring this fact. Russian governmental control over the country's major pipeline system to the EU market should not be understood as a dependence on the Russian state, but as a broadly convenient way of delivering huge supplies of gas. Russia also exports a third of its coal production and two-thirds of its oil and refinery products. If one takes the entire picture in, it becomes clear that Russia is heavily dependent on physical demand and fluctuating prices for these exports (Russia produces about 10.3% of the world's primary energy). Conversely, the global economy largely depends on Russian energy supply. No amount of diplomacy can change this basic equation, though it may well change respective incomes.

### Getting Behind the Rhetoric

Consumers' objectives, such as avoiding Russian territory, came as early as the mid 1990s – long before Russia began its more assertive policy in the CACR. The Baku-Tbilisi-Ceyhan oil pipeline (BTC) was to a large extent a political objective; this pipeline was completed only recently (2006) – several years behind schedule. The same happened to the Baku-Tbilisi-Erzurum gas pipeline (South Caucasus Pipeline, or SCP). Both enjoyed huge political support and were portrayed by many politicians, journalists and experts as an "avoiding Russia" political brand. Not surprisingly, no Russian companies were involved in the construction or

supply of oil and gas via these bypasses: since the economic rationale of both projects depended on the region's future output, Russian companies instead focused on building export infrastructure for their own resources, while still trying to build reserve capacity for any forthcoming increase in oil and gas production from Kazakhstan or Turkmenistan. At the same moment, Russian companies were losing markets to other suppliers (though not to a large extent) and were trying to defend its own market access.

The era of low gas prices and increased competition for market access in the early 2000s has left some traces in present-day analyses of the gas industry. A typical comment looks like this: "Russia – in its turn – is interested to a great extent in securing of transport of energy recourses in the preferred direction. For Russia it has not only economic, but political meaning. Russian participation in gas transport may allow it to retain a certain control over local competitors in energy export." It is interesting to note that, in 2004, the authors of this note were clearly confusing the interests of Russia and those of Gazprom. Since then, a clearer difference and division of labor between the two actors has emerged: Gazprom busies itself with domestic projects while Russia focuses its foreign policy on protecting the national company's interests abroad (export volumes, legal regimes and investment conditions). This is very different from how other countries conduct their own foreign policies.

One may argue, that politics and economics have changed dramatically since 2007, when than the following statement was made. But we believe, that wheels of global demand, local politics and commercial interests will turn again and again in favor of the CAC modernization. "The 'PriCaspiy' corridor has a good

perspective," said Russian Foreign Minister Sergei Lavrov in an interview in 2007):

"It is well-known that many consumers of energy resources including, first and foremost, economically developed countries, would like to develop of multidimensional alternative routes for hydrocarbon supply to the importing countries. That is normal. It is not normal however when energy problems are politicized to the detriment of producer countries' interests, and even common sense. After all, hydrocarbons, like capital, flow in the direction where it is most profitable. If a purely economic problem (even if strategically significant) is politicized, there emerge attempts to consolidate the energy resources consumers on the basis of opposition to 'the Russian energy monopoly'. The energy supply corridor 'PriCaspiy' has great potential in connection with the agreement of Russian, Kazakhstan and Turkmenistan on the 'North-South' gas pipeline construction. The quadripartite activity (Kazakhstan, Russia, Turkmenistan and Uzbekistan) on reconstruction of the gas-transport system "The Central Asia-Center" is being conducted in the same key."

Key agreements for new energy corridors to Europe and the EU have been quick to emerge in the high energy prices context of 2007-2008. Some were signed in Ashgabat at the end of November 2007. The enlargement of CAC pipelines circumventing the Caspian Sea by the north has for now ended all hopes of a rival Transcaspian route. This does not however preclude the return of a Transcaspian scenario (with additional gas output), but only after additional lines are built toward Russia and then China. Starting agreements were signed in January of 2008 between Russia (and Gazprom), Serbia and Bulgaria for the South Stream project, and actually confirmed in 2010. This new corridor will serve as an outlet for CACR gas and a commercial viable route for gas to reach the most profitable market for the time being.

Recent deal has essentially priced Turkmen gas at close to net-back market prices. This in turn creates immediate pressure on the Ukrainian polity. It is also indicative of the trend facing the Caucasus and Black Sea regions. Normally, Gazprom would sell gas coming from the CAC by adding its own transit fee (\$30 in 2007). Should the Transcaspian pipeline option be materialized, the SCP could be easily filled and gas would be transported to the Balkans by Nabucco or another similar line. Yet in this case politics would not cease be a problem for setting volume and price to Ukraine. Political supporters of Transcaspian pipe overlook such a consequence of completing the SCP. Gas from the Caucasus has already gone up from \$100 to \$230 per th. m3 in 2007 for the simple reason that Azeri gas moved westbound to Europe. The same awaits Ukraine if Nabucco is to be completed. Both the Transcaspian pipeline and Nabucco may still come to pass, but these remain distant options.

### **Conclusion**

As we know it's impossible:to have one's cake and eat it too. That wisdom should be a guiding line for EU-Russian energy cooperation. Sometimes for Muscovites it is hard to understand the EU's logic: how can the EU hope to encourage Russian companies to cooperate in supplying its growing gas needs while simultaneously limiting Russian companies' range of action within the EU? The EU's transit policy, which includes creating alternatives to Russia by avoiding Russian territory, is a particular case in point. New economic environment in the global economy after the crisis, growing climate considerations, difficulties of modernization will require for all regional producers

a deep understanding of new trends, incorporating them into national strategies, but still securing the sources of export income<sup>xx</sup>.

The EU is a global energy consumer and Russia a global energy supplier: the only solution lies in the interdependence in the next decades. The policy of building diversification pipelines that avoid Russia on principle is not one that is based on the reality of resource-distribution. It would be foolish to assume that Russia and Gazprom would simply discard the country's natural advantages: gas resources and the convenience its territory, the old stock of working pipelines for transiting gas from the CACR to Europe. This is in fact the foundation of Russian and Gazprom foreign energy policy: reliable supplier for consumers, transparent rules of cooperation for companies, export incomes for domestic development.

Russian foreign energy policy is in fact quite straight-forward: retaining both access to the EU market *and* transit incomes from Central Asia. It is only natural that Russia would defend its economic interests in the corridor between the Caspian Sea and Central Europe.. There are a number of political interests in the region, yet basic economics is sufficient to explain Russia's approach to foreign policy.

The EU's "20-20-20" energy strategy, as unveiled in the Commission's 2008 Energy Package (approved on10.11. 2010), may well change the scope and structure of the EU's future energy demand – and therefore its imports. The program could however be delayed, for technological reasons or as a consequence of the global recession of 2008-2010. There are limits for reducing energy consumption in EU in one decade: for coal there is no yet commercial CCS technology; nuclear renaissance is never assured and always slow; potential for

renewable on the short horizon is often exaggerated. Meanwhile, the EU's gas output is still declining, and energy prices have gone back to acceptable levels after having crashed from their July 2008 heights. One should not be mistaken by taking import situation during the deepest economic recession since Great Depression for normal future trend. Market conditions in 2008-2010 are not New Normal – it's temporal. As a result, we may be at a turning point in terms of import patterns, whether or not the Energy Package is implemented. The EU's energy policy is, after all, a very complicated affair. One thing seems certain, however: so long as the EU may need supplies from Russia in the long run "independence" from Russia is limited and better treated as interdependence. One may see some signs of "natural gas revival" in EU in coming years regardless of the shale gas and other new events in the world of energy.

As far as the CAC is concerned, its future will depend more on the relative speed of upstream output growth in the CACR and on EU demand. Existing network's capacity may be enlarged rather fast but will be pending on configuration of all projects. The upgrading of the entire CAC network and its dependencies has been prevented by the crisis – but it was planned for the first time since the USSR collapsed. The new export capacity development may still be influenced by the political interests of outside actors (non-regional powers). But commercial logic still stands for the efficient use of the existing system, especially when taking into account the factor of time, experience and staff. In the long run domestic policies will define the outcome for output, local consumptions and export from Caspian region<sup>xxi</sup>. Our important point the analyst must go deep into institutional settings

in the countries of the region, interest of actors in the field, from Governments to Companies and Elites.

Clearly, some countries' foreign energy policies favor pipeline projects that were based not on commercial logic but on certain geopolitical considerations. Russia's foreign energy policy, on the other hand, seeks to secure the country's long-term commercial and corporate interests while and at the same time maintaining stable relations with regional producers and transit countries. Attempts to ignore Russia's long-term energy interests in the region have been and will continue to be met with a reaction based on the country's history of good multifaceted relations with the regional producers and countries of transit. Such a history also comes with deep understanding of the local interests and the motives behind the region's governments and elites. Obvious political "relaxation" of 2010 came to a great extent from political changes in Kiev in 2010, approval of Nord Stream by Swedish and Finnish Governments – hopefully that may signal about the end of the pipeline conflicts. \*xxii\*

Oil and gas flows from the CACR will reach world markets one way or the other, adding to the physical balance and stability of world supply. At the same time, the reality of geography and the present configuration of the pipeline networks favor Gazprom in retaining its position as a major supplier. What is more, the various interests of the region's elites, who seek their own long-term political stability, further help Russian foreign policy objectives, long-term stability and taking into consideration of Russian economic interests. The web of conflicting interests in Eurasia (especially with outsiders) was affected by the two Ukrainian gas

conflicts of 2006 and 2009 as well as by the conflict between Russia and Georgia in August 2008.

The global recession of 2008-2010 had a very significant impact on the transit system linking the CACR with the EU market<sup>xxiii</sup>. The EU's energy saving programs (especially the "20-20-20") may reduce long-term demand for gas; a drop in demand will give more time for diversifying this transit system for both – consumers and producers. Strategic importance of CAC has been varying across the period reflecting essentially the demand in the EU and global markets. In the immediate aftermath of the major global economic crisis 2008-2010 the role of the CAC and its possible enlargement are somewhat muted. But the economic recovery and the return of gas demand growth in EU may bring the keen interest to it quite quickly. By 2020 the net gas import demand in EU may require the use of CAC, especially in the case of delay of other Asia-EU pipeline projects. A recession and relatively low prices has already reduced (roughly by 25% in 2009) global investments in oil&gas: upstream projects and transportation networks both. The CAC system will likely remain the backbone for transiting Central Asian gas to Ukraine, Turkey and the EU for years to come.

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<sup>&</sup>lt;sup>i</sup> Russian and CIS gas markets and their impact on Europe. Ed. by E. Pirani, Oxford University Press, 2009.

ii More time is passing after the dissolution of the USSR, the less clear for outsiders the original design of the pipeline system, its convenience and capability to ensure delivery on contracts.

- deda9c1107b2&docsid=1363965
  ix See ARTICLE 7 TRANSIT (Final Act of the European Energy Charter Conference, Declarations, n. 3. with respect to Article 7, p. 31.):
- (1) Each Contracting Party shall take the necessary measures to facilitate the Transit of Energy Materials and Products consistent with the principle of freedom of transit and without distinction as to the origin, destination or ownership of such Energy Materials and Products or discrimination as to pricing on the basis of such distinctions, and without imposing any unreasonable delays, restrictions or charges.
- x High level meeting on Nabucco in Budapest on January 27, 2009 was devoted to seeking solutions for the pipeline. Political support for Nabucco was very strong, but financing \$8 billion for the project were not identified. http://www.regnum.ru/news/1117000.html at 28.01.2009.

<sup>&</sup>lt;sup>iii</sup> There was a talk of the privatization 75% shares Kyrgyzyztan by Gazprom by 2009 Γ. -

http://www.centrasia.ru/newsA.php?st=1245364260. But due to price differences the process was not concluded at the beginning of domestic unrest in 2010.

http://www.rambler.ru/news/economy/10344/12617370.html, 22.04.2008

<sup>&</sup>lt;sup>v</sup> http://kazpravda.kz/c/1132004718/2005-11-15, November 2005

vi See also: http://gazprom.ru/production/central-asia/;

vii See "Oil and gas of Turkmenistan" November, 2007, p.9.

viii http://kommersant.ru/doc.aspx?fromsearch=d505893d-0d4b-4751\_ac05-

xi L.Grigoriev and M.Salikhov "GUAM 15 years later", Moscow, Regnum, 2007.

xii Presentation of Didier Houssin (IEA) "The Challenges of the Changing International Energy Markets", 8 November 2007, Vienna.

xiii GECF is more alike to IEA than OPEC.

xiv This set of Gazprom's objectives is the author's responsibility, but we would argue that it covers the most of actual events and decisions with and of Gazprom.

xv Political instability in Ukraine is obvious and for Russian gas interests there is no simple way to avoid conflicts.

xvi President Vladimir Putin according to newspaper "Kommersant" (29.11 2007) at the Kremlin reception for the Diplomatic corpus mentioned: "... for us the CIS space – not the chessboard for geopolitical games".

xvii See Leonid Grigoriev Global Recession and Energy Markets. In "World Economic Crisis and Global Perspectives of Energy Markets", IMEMO, RAN, M., 2009, p.39-56.

х<sup>уііі</sup> Глаголев А. И. *(ООО «ИРЦ Газпром»)* Орлов Ю.Н. *(ИПМ им. М. В. Келдыша РАН)* «Газотранспортные проекты ОАО «Газпром» в Средней Азии», стр.40, Москва, 2004.

xix Kazpravda 29.10.2007

xx See for debates: Leonid Grigoriev and Valeriy Kryukov "Global energy sector at the crossroad: what road is to take for Russia?" in "Voprosy ekonomiki" №12, 2009

xxi See "Outlook for Caspian Energy" – part D in "World Energy Outlook 2010", OECD/IEA, Paris 2010

xxii Leonid Grigoriev «Happy end of pipeline conflicts?" in BRE, Baltic Rim Economies, #1, 19 February 2010, p.13.

xxiii Leonid Grigoriev "The global recession and energy markets". In CASE Network E-briefs, January 2010.