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The Contest for Gas Resources and Markets in Post-Soviet Space: Dependence and Diversification[2; 3]

1. Introduction

Multiple gas dependencies have evolved in terms of imports (sources), exports (markets) and transit of gas, both among the post-Soviet countries as well as between the post-Soviet countries and countries outside the post-Soviet space.[4] To a significant extent, these dependencies are based on the infrastructure legacy left behind by the Soviet Union.

This paper deals with source and market dependencies and identifies which diversification options have been considered and realised both recently and within the past five to six years, i.e. under the new global gas market conditions.

Among the post-Soviet states, Belarus, Ukraine, Moldova, Georgia, Armenia and Kyrgyzstan (and Tajikistan, see more below) are net gas importers, while net gas exporters include Russia, Turkmenistan, Uzbekistan, Kazakhstan and Azerbaijan. Azerbaijan has only been a net gas exporter since 2007.

2. Post-Soviet net gas importers: import dependence and diversification

Post-Soviet net gas importers fall into three distinct groups in terms of dependence on the main gas import source countries:

1) Belarus, Ukraine, Moldova and Armenia are dependent on Russian gas supplies.
2) Georgia depends on Azeri gas.
3) For Kyrgyzstan, Uzbekistan is presumably the main country of origin for imported gas supplies. However, Kyrgyzstan is currently only buying gas via a contract with Kazakhstan's KazTransGaz that due to expire at the end of the second quarter of 2014.[5] Gas

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[4] The three Baltic States are not considered here.

[5] This gas was said in September 2011 to be of Uzbek origin [Baktybaev, 2011]. However, the Bozoi–Shymkent section of the planned Beineu–Bozoi–Shymkent pipeline opened the opportunity to send gas to Kazakhstan's southern regions from the Aktobe (Aktyubinsk) fields (in addition to the Amangeldy field; Zhambyl Oblast, southern Kazakhstan). With the completion of the Beineu–Bozoi section, Kashagan gas could also be delivered (see Section 3.2.3). Turkmen gas is also present on the Kazakh gas market (see Section 3.1).

supplies from Uzbekistan, purchased on contract with Uzbekistan's Uztransgaz, stopped flowing in mid-April 2014 and are awaiting renewal. Uzbekistan's Uztransgaz has not exported gas to Tajikistan since the end of 2012, thus leaving the energy-poor country without piped gas imports.

Since 2007, significant changes have taken place in the import gas prices of the post-Soviet net gas importers, including both gas price formulation and levels. In 2007, gas prices began rising drastically.

2.1. Ukraine

Right now, Ukraine is importing gas from Russia and – by using physical reverse flow potential – from Europe in small quantities. Putting an end to the January 2009 gas dispute and valid until 2019, Ukraine signed very unfavourable long-term supply and transit contracts with Russia.

Since 2009, a formula has been applied linked to oil product prices with a very high base price. In 2009, discounted prices were still available. But since 2010, Ukraine has been facing dramatically high gas prices. Thus it was not difficult for Gazprom to offer discounts to the naval base for cheaper gas in April 2010 ("Kharkiv Pact"). At the end of 2013, in exchange for Ukraine's rejection of the EU agreement, Russia offered a loan and cheap gas. In the end, this very reasonable discount was only available for the first quarter of 2014. Moreover, Russia unilaterally annulled the discount included in the April 2010 Kharkiv Pact on 2 April 2014.

Between 2012 and 2013, Ukraine was only importing a limited amount of reverse flow gas from Europe. Due to the Russian discount in the first quarter of 2014, these flows were stopped at the end of 2013. But the new price conditions required a restarting of these flows in the second quarter of 2014.

Several options have been considered to reduce Ukraine's dependence on Russian gas, including (1) reverse flow gas supplies from Europe; (2) diversifying to coal; (3) enhancing energy efficiency; (4) a reconsideration of direct gas supplies from Central Asia; (5) LNG imports; and (6) increasing domestic gas production. While the first three factors have played a role in decreasing Russian imports, the collapsing Ukrainian economy has also resulted in declining gas consumption [Champion, 2013]. In contrast, without free transit through Russia, no direct access is provided to Central Asian gas. There are multiple reasons (including costs, the regulatory environment) for believing an LNG project or a trans-Black Sea gas pipeline project to Ukraine is unlikely. And increasing domestic gas production is only possible in the long-term.

2.2. Belarus

Belarus is entirely dependent on Russian gas supplies, but is also paying the lowest price. Russia decided to allow for a transition period for gas prices to gradually achieve equal profitability of European and non-Baltic post-Soviet sales by 2011 (i.e. to reach European netback prices). As part of this strategy, in 2008, Belarus and Moldova started to pay quarterly updated gas prices according to a formula linking gas prices to oil product prices. For each year between 2008 and 2010, a coefficient was set. In Moldova, these decreasing coefficients were applied throughout the period, but were not used in 2009 in Belarus. But due to Belarus' decisions to join the Russian-led Customs Union and to sell its remaining half in Beltransgaz – the Belarusian gas transporter – to Gazprom, 2012 witnessed a drastic change in pricing, with a low fixed price in 2012 and quarterly determined prices for 2013 and 2014 linked to Russia's domestic gas prices. Gas prices of equal profitability should have been applied in the Single Economic Space of Russia, Belarus and Kazakhstan from January 2015. But with the extension of the deadline to 2017, Belarus will continue to enjoy the current formula. Meanwhile, Belarus' gas supply and transit contracts expire in 2014.

Belarus has done very little to reduce dependence on Russian gas supplies. Approved in August 2010, Belarus' energy potential development strategy through 2020 anticipated that Belarus would take part in gas exploration and production abroad, and would import LNG from terminals in Lithuania (under construction), Poland (under construction) and Ukraine (proposed) [BelTA, 2010]. While it is highly unlikely that any gas will be delivered from these LNG terminals, the future nuclear power plant has relevance to Belarus as sectoral diversification.

2.3. Moldova

Being exclusively dependent on Gazprom, Moldova pays high prices for Russian gas, despite Gazprom's ownership in Moldovagaz, a vertically integrated company that also owns the transmission pipelines. Since 2011, Moldova has failed to conclude new supply and transit contracts with Gazprom. They have only been regularly extended (most recently until 2014).

The only diversification result is a gas interconnector being built between Romania and Moldova. The diversification strategy also includes the growing role of renewables [Pirani, 2011, p. 20].

2.4. Armenia

Except for a barter deal with Iran, Armenia imports all of its gas from Russia, with a supply contract from 2014 to 2018. In return for cheaper gas, Gazprom has gradually become the owner of Armenia's gas company, ArmRosgazprom, and, in 2013, Armenia decided to join the Customs Union as well.

Via a gas-for-electricity scheme, Armenia has been receiving gas from Iran since 2009. The increase in Iranian gas imports is again part of the discussions, though in 2013, Armenia claimed that the high price prevented it from importing more gas from Iran. On top of this, in May 2013, contradictory information was presented in the media regarding the available pipeline capacity [Hovhannisyan, 2013; ARKA, 2013]. Though Azerbaijan's SOCAR stated in 2013 that if Armenia changed its stance towards Nagorno-Karabakh, then gas supplies from Azerbaijan to Armenia might be considered [Trend, 2013], Azerbaijan is not part of Armenia's diversification policy.

2.5. Georgia

Georgia only buys gas from Azerbaijan and at favourable prices. For 2007, Georgia and Azerbaijan were faced with dramatic price increases in Gazprom's gas. Not only did Azerbaijan stop being a Gazprom buyer, it also helped Georgia in a time of need. In 2007, Georgia started to receive gas from Azerbaijan, which eventually became the sole supplier. In 2008, Georgia ceased purchasing gas from Gazprom and only applies a gas-for-transit scheme as a transit country for Russian gas to Armenia. Buying gas again from Russia is not among the options, and because of the US position, Iranian supplies are also not wanted. In 2013, then President Mikheil Saakashvili thought Georgia needed to seek diversification through negotiations with Kazakhstan and Turkmenistan [AzerNews, 2013]. But, among other things, infrastructure problems prevent Georgia from importing gas from the other side of the Caspian.

Unlike Georgia, South Ossetia is a direct Gazprom customer. A direct pipeline between Russia and South Ossetia was launched in 2009.

2.6. Kyrgyzstan

Kyrgyzstan is now buying gas only through its Kazakh contract. A new Uzbek gas supply contract is reportedly supposed to be signed with a Gazprom-owned Kyrgyz gas company.

In 2007, Uzbekistan started to drastically raise export gas prices to both Tajikistan and Kyrgyzstan. In 2010, the two buyers began to pay gas prices set quarterly based on a

formula linked to "European prices". But the price formulation was apparently changed in 2012. Accordingly, Kyrgyzstan used to pay the same price from the beginning of 2012 to mid-April 2014 and Tajikistan was reportedly charged an unchanged price throughout all quarters of 2012. Also, with its Kazakh contract, Kyrgyzstan has been buying gas at a fixed price, and much more cheaply than was provided by the Uzbek gas contract.[6]

In both Kyrgyzstan and Tajikistan, there is potential to further increase the role of hydropower.

2.7. Tajikistan

Before gas supplies were stopped at the end of 2012, Tajikistan was entirely reliant on gas from Uzbekistan. But the combination of prepayments and drastically rising gas prices resulted in dramatically declining gas imports.

Tajikistan expressed its willingness to import gas from Iran,[7] Turkmenistan and Afghanistan. But, among other things, the necessary pipeline infrastructure does not yet exist. Tajikistan is unable to import Turkmen gas via Uzbekistan (though swap is always an option). And the possibility of sourcing gas from Turkmenistan through the planned fourth line of the Central Asia–China gas pipeline, avoiding Kazakhstan via Tajikistan and Kyrgyzstan, is not on the agenda either [Ergasheva, 2014]. Domestic gas production is a further hope in Tajikistan. In 2013, China's CNPC and France's Total joined a project in Tajikistan.

3. Net exporting post-Soviet states

Post-Soviet net gas exporters can be divided into four main markets. Russia mostly depends on Europe; Uzbekistan and Kazakhstan on Russia; Turkmenistan on China; and Azerbaijan on Turkey.

3.1. Net exporters and import dependence

The high complexity of gas dependencies is shown by the fact that on the supply side, gas balances of almost all post-Soviet net gas exporters are to some degree dependent on other countries as well.

While Azerbaijan's landlocked exclave, the Nakhchivan Autonomous Republic, receives gas swapped with Iran, Russia's exclave Kaliningrad Oblast imports Russian gas transited via Belarus and Lithuania.

Due to infrastructural heritage, Kazakhstan relies on gas imports as well. By using swap schemes with Gazprom Group, Kazakhstan's northern and southern regions are supplied by gas from Russia, Uzbekistan and Turkmenistan.[8]

Before the economic crisis, Gazprom agreed to increase Central Asian gas prices, and envisaged increasing pipeline capacities running to Russia. But with the arrival of oversupply, Gazprom is no longer in need of huge amounts of high-priced gas from Central Asia. Turkmen gas deliveries dramatically fell and the project of increasing pipeline capacities to Russia was frozen as well. Although Gazprom's need for Central Asian gas is limited, Gazprom expanded its portfolio with gas from Azerbaijan.[9]

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[6] Kyrgyzstan has again been buying gas from Kazakhstan since October 2011.

[7] Iranians also mentioned Kyrgyzstan among the potential markets.

[8] The Kazakh–Russian KazRosGaz also sends gas – bought from Kazakhstan's Karachaganak field to be processed at Gazprom's Orenburg gas-processing plant in Russia – to Kazakhstan's West Kazakhstan Oblast and Aktobe (Aktyubinsk) Oblast.

[9] In January 2014, Azerbaijan cut off gas supplies to Russia for technical reasons.

3.2. Export diversification success

3.2.1. Turkmenistan

Turkmenistan has successfully diversified away from the Russian market to China. Turkmenistan started its diversification with building pipelines to Iran. So far, three different gas pipelines have been completed between the two countries.

Initiated at the end of 2009, gas exports to China, with whom Turkmenistan contracted to supply 65 billion cubic metres per annum (bcma), act as a real game-changer. Giving some hope for the Trans-Caspian gas pipeline project and thus European gas customers, in 2010 Turkmenistan began to build the East–West gas pipeline intended to connect Turkmenistan's largest gas fields in the south-eastern part of the country with the east shore of the Caspian Sea (the starting point of both the Caspian coastal pipeline and the first Turkmenistan–Iran gas pipeline). Finally building the Trans-Afghan gas pipeline to India represents another potential diversification option.

3.2.2. Uzbekistan

The bulk of Uzbek gas destined for export is still purchased by the Gazprom Group. With a 10 bcma long-term gas supply contract, Uzbekistan initiated gas supplies to China in 2012, which could become Uzbekistan's main gas market.

3.2.3. Kazakhstan

Most Kazakh gas exports go to the Gazprom Group. Small amounts are directed to Kyrgyzstan and Chinese statistics show that minor gas volumes are also flowing to China [Shek, 2014]. Kazakhstan's major fields are poorly located to supply both Kazakhstan's southern regions and China [Stern, Bradshaw, 2008, p. 261]. To address these problems, i.e. to link the western and southern parts of the country, the Beineu–Bozoi–Shymkent gas pipeline is being built. The Bozoi–Shymkent section was already commissioned in 2013. However, domestic consumption has priority.

3.2.4. Azerbaijan

Azerbaijan's main market is Turkey, but also exports gas to Georgia and Russia. Azeri gas has only reached Greece in Europe. Turkey re-exports a minor amount of gas imported from Azerbaijan in the first stage of production of gas from the Shah Deniz field, to Greece. By the end of the decade, gas from the second stage of the Shah Deniz field development could reach Europe directly.

3.2.5. Russia

Russia is locked into the European and CIS markets. The only source of market diversification is LNG exports from the Sakhalin-2 project in Sakhalin Island.

Russian piped gas export plans

China. Due to the unresolved issues of gas prices and a loan-for-gas deal, Gazprom still does not have a contract to supply China with piped gas via an eastern route.[10] The western route, preferred by Russia, has been removed from the agenda. Despite having adopted the final investment decision for the construction of the Yakutia–Khabarovsk–Vladivostok gas pipeline, without a long-term gas supply contract with China, it will not be built.

South Korea. A pessimistic perspective is given to the planned gas pipeline from Russia to South Korea, either through North Korea (political risks) or under the sea (technical challenges). In the summer and autumn of 2011, some progress presumably occurred. But,

[10] This paper was completed before the 21 May 2014 deal.

shortly after that, the North Korean leadership changed. In autumn 2013, discussions reportedly were again revived. It remains to be seen whether the 2014 write-off of most of North Korea's Soviet-era debt will help move the Trans-Korean pipeline project forward.

Japan. Despite certain plans, pipeline exports from Sakhalin to Japan are not on the agenda.

Russia's LNG projects

Among Russia's LNG plans, there are only two projects with final investment decisions, including Gazprom's Vladivostok LNG and the Novatek-led Yamal LNG.[11] A third plan worth mentioning is a joint initiative of Rosneft and ExxonMobil in Russia's Far East. Having partially revoked Gazprom's almost exclusive export rights, these non-Gazprom LNG exports could become available.

Though basically all three LNG projects could serve Asian markets, the intention is to sell part of the Yamal LNG in Europe. Volumes from the first of the three trains of Yamal LNG have already been covered by a long-term contract and an outline agreement. The involvement of one of the future customers, CNPC, as an owner also gives credibility to the project. While Rosneft has also already signed so-called "Heads of Agreement" documents for the long-term sale and purchase of the entire production of its planned first train, no similar preliminary agreements have been signed for Vladivostok LNG. Nonetheless, the entire Sakhalin–Khabarovsk–Vladivostok gas pipeline has been completed, though with limited capacity.

4. Conclusion

Different import source and market diversification results have been achieved by post-Soviet net gas importers and exporters.

Among the seven net gas importers, Georgia diversified its gas imports by moving from being dependent on Russian gas to becoming an Azerbaijan-dependent importer. Kyrgyzstan partly diversified away from Uzbekistan by having a supply contract with Kazakhstan. To Armenia, Iran adds some diversification. Ukraine is again using reverse flow deliveries, with an aim to significantly expand them.[12] While Moldova will soon have the possibility to receive gas from non-Russian suppliers, Belarus remains exclusively reliant on (the still very cheap) Gazprom gas. Among the net gas importers, Tajikistan is the obvious loser, left without piped gas imports. Package deals are a great benefit to gas prices, including; ownership in pipelines, joining the Russian-led Customs Union, or, as was the case with Ukraine, a naval base deal, or the rejection of an EU agreement. A good political relationship in itself is worth nothing.

Among the five net gas exporters, Turkmenistan successfully switched away from Russia by exporting most of its gas to China. Turkmenistan's path is followed by Uzbekistan, but without as spectacular an outcome. Kazakhstan still can show small diversification results, but domestic pipeline construction brings new perspectives. Azerbaijan aims to reach European markets and has taken important steps in this direction. Stalled with eastern piped gas plans, the priority was given to LNG in Russian market diversification, also giving a chance to non-Gazprom participants to go ahead.

[11] The Sakhalin-2 expansion is not considered here.

[12] At the time of writing, in May 2014, due to its gas debt, Ukraine is facing a threat of a gas cut-off by Russia.

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