

Europe-Russia in the gas market. What kind of partnership does the future hold?

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Background

The oil embargo in 1973 brought the energy policy on the agenda in The European Union for the first time. In 1974 it was agreed to diversify the energy sources and the supply to improve the security of supply. New attempts to create a common energy policy were made in 1995 and again in 2001. In 2003 the focus was a framework to open up the energy markets to more competition and transparency. The efforts had little success with member countries. The reason for this was the diversified energy production and resources in the member states in addition to national focus on control over energy resources.

A new attempt to establish a common energy policy was made in 2006 when security of supply and need for more coordinated actions between member states was brought high on the agenda due to Russia's argument over gas prices with Ukraine in 2006 and Belarus in 2007. Both countries are transit countries for the gas pipelines from Russia to Europe. Russia shut down the gas flow to Ukraine in 2006 and later to Belarus in 2007. This created energy shortage in many European countries.

In 2007 it was agreed to establish a Common Energy Policy for Europe. A new energy plan was launched in 2007 and the Lisbon Treaty (2007) underlines the "solidarity principle" in energy policy matters. Russia again stopped the flow of gas to the Ukraine in 2009 and to Belarus in 2010. Also this time the supply to 18 EU states was reduced significantly but they had received a warning in advance from Gazprom and had been able to stock gas and/or increase imports from other suppliers to avoid serious shortage of gas.

World gas markets

The pressure on global energy resources is intense. The International Energy Agency (IEA) estimates (IEO2010 reference case) that the natural gas consumption in non-OECD countries will increase 3 times faster than in the OECD countries. IEA expects global demand for gas to grow by 44% by 2030. India and China have the highest growth in gas demand. Today gas is a minor part of the energy mix, 7 and 3% respectively. IEA estimates that the demand will be doubled in 2035.

The gas demand slowed down in 2008 as a result of the economic recession. In 2009 the consumption of natural gas decreased by 1,1%. However as the world economy begins to recover the demand for gas has picked up. A cold winter in 2010 and 2011 has led to increased gas import and increasing prices in the European market.

The non-OECD production is estimated to account for 89% of the growth in the world production from 2007 to 2035, with the largest increase coming from the Middle East area. Iran and Qatar is expected to have the highest increase in gas production.

Compared to oil gas is a commodity which is more complicated both to store and transport. The process to convert the gas to Liquefied Natural Gas (LNG) to make it more transportable over larger geographic areas is still very costly, hence transport by pipeline is so far the most economic transport. Consequently gas markets are more segmented than oil markets.

Construction of new pipeline requires larger contracted volumes of gas on long term contract to make the investment possible.

IEA states that natural gas supplies from a variety of sources help to keep the markets well supplied and prices relatively low. One of the reasons for this improved supply situation is shale gas, which has been characterized as a “game changer” in the gas industry.

Shale gas is trapped in sedimentary rocks and has been uneconomical to tap up to recently. Lower production costs and long-distance horizontal drilling, combined with hydraulic fracturing has made these gas reservoirs economically to explore. Other sources that are expected to increase the resource base are tight gas and coalbed methane gas. The potential have not yet been fully assessed, but the largest supplies are expected to be found in the USA, Canada and China.

In the Annual Energy Outlook for 2011, the US Energy Information Administration (EIA) more than doubled the estimate of the technically recoverable reserves of shale gas in the US, from 353,000bn cubic feet to 827,000bn cubic feet. It also informed that higher production can be sustained at lower prices than expected just a year ago. The reserves are estimated to cover the entire gas consumption of the US market for 36 years. EIA stipulate the average price of gas at the wellhead will remain below \$5 per thousand cubic feet until 2022. The shale gas has transformed the American energy market and sent prices spiraling downward.

The rapid development of shale gas has led to decreasing gas prices and fundamental changes in the way gas is traded in the market. Some of Gazprom's customers have gone into take-or-pay obligations, preferring alternative supplies in a soft market and willing to make cash payments for gas not taken. Large gas buyers in Europe, with contract prices linked to the oil price, have asked for negotiation of the contract due to the large difference in price for gas in the spot market and the contracted price, when the oil is approaching \$100 per barrel.

In an announcement to the market 18 of January 2011 Questerre, one of the companies exploring shale gas in Quebec Canada, said that they would postpone their projects due to a local environmental study and low gas prices in the American market. The project requires prices of \$ 5,86 per mmscf. The reference price for gas at Henry Hub was under \$ 4,50 the day the announcement was made.

LNG accounts for a growing share of the world market. Investors are looking at investments in LNG plants in the American market to supply Europe and Asia as the prices for gas is higher in these markets than in the US. LNG intended for the American market are now redirected to other markets and are adding to the surplus in the market. This has led to an emerging spot price for LNG cargoes.

Most of the increase in LNG capacity is expected to come in the Middle East and Australia. Qatar is the world's largest LNG exporter. Six mega sized liquefaction trains are planned online from 2007 to 2015. Even though there is an increase in LNG supplies it is not expected to take a large share of the gas market due to high investment costs. In the Middle East many of the gas producing nations experience that the supply-demand equation for gas is getting tighter. Increased electricity demand due to a growing population and investments in energy intensive industries, require that more of the gas is allocated domestically. Enhanced recovery also requires injection of gas to keep up the oil production. For instance almost half of Abu Dhabi's (the major producer in the UAE) daily gas output is re-injected. Abu Dhabi has not succeeded in getting increased supplies from Qatar or Iran. Qatar has placed a moratorium on

more exploitation of its gas reserves and prefers to sell to global market prices to pay the heavy investment in its international liquefied natural gas supply chain. Iran, another important gas producer, is hard pressed to supply its domestic market with subsidized gas. Iran is also the largest user in the Middle East of injecting gas for enhanced oil recovery.

In a meeting in April 2007 major gas exporting countries decided to set up an expert group to examine gas prices. This was later followed up by a meeting in Iran where Iran, Russia and Qatar met, the major gas producers holding approximately 60% of the world's reserves of gas. In December 2008 ministers from the twelve leading gas exporter nations met in Moscow. Prime Minister Putin who chaired the meeting announced that the era of cheap gas was coming to an end and that the exporters would work together to make the gas markets more predictable. There is doubt that the group will be able to work like an OPEC for gas due to the structure of the gas markets.

Cheap gas prices might undermine investments worldwide in nuclear and renewables as gas-fired power generation become more competitive. As gas are more environmental friendly with respect to emissions, it is expected that governmental policies will encourage gas over oil and coal for industrial use and electricity generation.

Energy supply and demand in the European Union

The European energy market is the world's largest regional market with 500 million consumers. According to IEA, EU imports 50% of its energy consumption. IEA estimates that the gas imports will increase to 84% by 2030 while oil will increase to 93%.

EU produces only a quarter of its gas consumption. About 44% of all imported gas comes from Russia, 16% from Norway and 15% from Algeria; the rest comes from Central Asia, Libya and Nigeria. 80% of the gas volumes imported from Russian to Europe pass through Ukraine.

EU is becoming increasingly exposed to the effects of price volatility and price rises on international energy markets and the consequences of the progressive concentration of hydrocarbons reserves in few hands.

From the perspective of the dependence of EU on Russian gas imports, the distribution of volumes and the number of suppliers indicates a "balanced" position. However, looking at the figures for gas supply to the different member countries tells a bit different story. Spain does not import any Russian gas while Poland, Estonia, Lithuania, Latvia and Finland import 100% of their gas needs from Russia.

The imported oil is mainly used in the transportation sector while the gas is a key energy source for the industrial sector, electricity production and by end users for heating and cooking. Coal is used in electricity production and in the industry sector.

The fact that gas is more efficient and produces less than half the amount of CO₂ compared to coal and oil makes it a more environmental friendly source for energy. Many coal fired stations in Europe will be shut down by 2015 due to an EU directive and nuclear plants will be phased out, gas generation plants are the most likely replacement. As more unregulated renewables energy (wind, solar etc.) is connected up to the grid around the world the need for balance and peak power capacity will increase. Gas has the flexibility and the scale to generate back up quickly.

EU electricity demand is, on a business as usual scenario, rising by 1.5% per year. Even with an effective energy efficiency policy, investment in generation alone over the next 25 years will be necessary in the order of EUR 900 billion. Predictability and effective internal gas and electricity markets are essential to encourage necessary long term investments to take place. As the framework for investments in renewables and new nuclear capacity is under debate in many member countries, the sector is in a standstill position. This indicates that Europe's reliance on gas will continue to grow over the next decade.

Shale gas has not so far been seen as a game changer in Europe. The countries with presumed shale gas reservoirs are Germany, Poland, Sweden, France, Austria, Hungary and the UK. Between 2007 and 2010, Poland granted 58 concessions for shale gas development to Exxon Mobil and ConocoPhillips. The area where shale gas is expected to be found is stretching from the Polish Baltic Sea in a wide diagonal across the country to its south-east. According to estimates, Poland's shale gas reserves are estimated to be 1.4 to three trillion cubic meters, enough to satisfy the country's needs for the next 100-200 years. At present shale gas fields have not been documented in Poland.

UK's Department of Energy has initiated drilling for shale gas outside Blackpool in Lancashire. This has launched a debate on environmental issues and the threat gas might be to investments in renewables. Marlene Holzner, spokesperson for EU Energy Commissioner Günther Oettinger, told EurActiv in 2010 "We believe that shale gas is an opportunity. We need gas and gas demand will increase over the years so if we're able to extract this gas, it will help us to rely less on imports." EU has launched a legal study to clarify if the environmental legislation fully covers the drilling for shale gas.

Shell has expressed skepticism to commercially successful unconventional gas reserves in Europe. Another argument against is the dense population in Europe and the focus on environment. On the other hand Europe has more infrastructure than the United States which would mean easier market access if gas is proven economical to explore.

Energy supply and demand in Russia

Russia is an oil and gas giant. The country has gigantic coal reserves, second only to the USA. Russia is also the world's second largest consumer of gas after the USA. The domestic market represent more than 50 % of the total production. In 2009 Russia's export to Europe were down by 24,5 %. The total gas export decreased nearly 9%. LNG export to Asia from Sakhalin II offset some of the decrease to Europe. The recovery of the European economies and especially an extreme cold winter period in 2010 expected to continue in 2011, have increased both prices and volumes to Europe.

Gazprom is the biggest Russian gas company and the biggest gas producer in the world. The company was formed in 1989, replacing the Soviet Ministry of Gas Industry. The company is an open joint stock company with the Russian state as a 50% and one share owner. Gazprom is closely tied to the Russian government. Current Russian President Dmitry Medvedev is a former Gazprom chairman.

Gazprom has subsidiaries in almost all sales-destination countries, which strengthens the capability to access markets. The company has created enterprises specialized in building pipelines in Europe. In Russia Gazprom has monopoly on gas, market access and pipelines.

Russia transports gas to Europe through twelve pipelines: three pipelines are going directly to Finland, Estonia and Latvia, four pipelines are going through Belarus and five pipelines are going through Ukraine.

Russian Prime Minister Vladimir Putin has stated (EurActiv 2010) that Russia must turn to other fuels such as coal or nuclear energy to be able to satisfy growing domestic demand for energy and at the same time keep up the gas export. Consequently, a new Russian energy strategy foresees coal consumption rising from 130 million tons per year now to 300 million in 2020. The Russian government has also taken initiative to reduce subsidies for natural gas in the domestic market to improve the competitiveness of coal. The increased CO₂ emissions from increased use of coal do not seem to bother the Russian government. The CO₂ emissions in Russia have fallen dramatically as a result of the collapse of much of the heavy industry in the 1990s. In 2007, emissions were 34% below the 1990 level. Russia could in principle increase its CO₂ emissions by 9% between now and 2020 and still meet the set target.

Due to the large resources of coal, experts are of the opinion that shale gas can be produced from coal basins which are abundant in Russia. So far Russia does not seem to have strategy to explore and extract shale gas.

In a World Bank (2008) report on energy efficiency in Russia the country is advised to concentrate more on energy efficiency. The report shows that there is a third way for Russia to maintain its strength as an energy giant by smarter and more efficient energy use, especially in power-generating sector and the end consumer markets.

To strengthen the gas export situation the Russian government issued regulations to reduce gas flaring in 2009. Russia has also secured resources for export by entering into contract with its neighboring gas producing countries. With little other options for transport of the gas from these countries, they have few options but to sell to Gazprom.

Russia has large new gas fields under planning. The supply and demand balance in the world market and the low prices experienced at the moment, in addition to the future perspective for long term gas contracts, are affecting the investments plans.

In May 2008 a Russian law does not allow foreign companies or investors to have a major ownership in "strategic assets" in Russia. Under the new law, foreign investors must report to a government agency every time they acquire a five percent or greater interest in Russian strategic companies. This has led to uncertainty and postponement of foreign investments also in the energy sector.

To be able to establish Russia as a major supplier to the Asia markets, and at the same time keep the position in the European market, investments in new fields and export infrastructure are needed as the major gas producing fields are in decline and the new gas fields are located in more remote areas. Russia is in need of both competence and investments from foreign energy companies to improve recovery of existing fields and to develop new resources in harsher climates. Lately the government has opened up for foreign investments again.

Gazprom and its partners in the Arctic Shtokman field, a very capital intensive project, announced that they wanted to postpone the project and that a planned LNG plant could be put on hold. The partners, which include Statoil and Total, had planned to supply as much as 90 % of Shtokman LNG to North America.

Gazprom has announced plans to move ahead with another Arctic gas development, the Yamal Peninsula, with reserve estimates more than four times larger than Shtokman's. The company is in the process to decide on foreign partners to help develop the resources. Several independent oil companies are taking part in the negotiations for a partnership in the project.

In January 2011 BP announced that the company is entering into a deal with Rosneft, the state owned company that has acquired assets in Yukos, the expropriated oil company whose chairman, Mikhail Khodorkovsky, has just been sentenced to jail for a second time. BP is taking a big stake in what is the successor to Yukos and Rosneft is becoming a shareholder in BP.

This has resulted in a court case where BP's partners in TKN- BP. TNK-BP is a joint venture between BP (50%) and the Russian investor group Alfa, Access Industries/Renova (AAR) (50%). The company is Russia's largest private company and among the world's ten biggest independent producers of oil. BP's partners claim that the shareholder agreement states that TNK-BP as the "prime vehicle" of BP's operations in Russia and Ukraine. BP has said it believes its deal with Rosneft does not violate its shareholder agreement with TNK-BP. The court in London will hear the parties in February.

The European Energy Policy

Against strong objections from large national power producers in Europe, EU started a process to open up the European energy markets to increased competition ten years ago. An open market and increased efficiency in energy flow between the member states are seen as the best insurance against high energy prices and security of supply.

The EU's priorities are:

- a common energy foreign policy
- creating an internal market for energy
- guaranteeing security of supply
- promoting the use of renewable energy
- promoting research into energy technology

The strategy was to negotiate energy more effectively as a united bloc and at the same time coordinate actions to diversifying supply and promote competition. The main challenge to achieve this is that each member country has different energy priorities. One example of this is the disagreements on the construction of pipelines to supply gas to Europe. Some EU states (including Bulgaria, Romania, Hungary and Austria) support the Nabucco pipeline which is planned to supply gas from Turkey to Austria from 2014.

EU has negotiated a pipeline to carry gas from Turkmenistan, which is currently a major gas supplier to Russia. The deal implies that EU will contribute with EUR 2.0 billion of the total estimated cost of EUR 7.9 billion investment. Germany, France and Italy, the major gas buyers in Europe, have questioned the use of EU funding to the Turkmenistan project as they consider that the Nord and South stream gas pipeline project as an alternatives for secure supply to Europe. The Nord stream pipeline, currently under construction, is backed by Germany but opposed by Poland and the Baltic States due to the fact that it by-passes the Eastern European members of EU. The South stream project from Turkey to Hungary is backed by France, Hungary and other Eastern European members of the Union. This pipeline is also the preferred alternative by Gazprom. The pipeline is estimated to be in operation in 2015. To date sovereign and economic interests of the individual European members appear to prevail over a united European security position. However EU announced in November

2010 that a revised energy strategy for 2020 will be presented in 2011 and this issue will then be back on the agenda.

Another priority is to create an internal market for energy. To achieve this EU has prioritized to improve the infrastructure required to transport energy as efficiently as possible to where it is needed and make the market accessible for all suppliers in addition to eliminating barriers to cross-border trade. Europe's energy system is poorly-linked national markets that cannot cope when things go wrong. The fragmentation of the grid systems and the lack of a cushion against unpredicted events like surges in demand (peak loads) or downtime of sources of supply or infrastructure links, are major challenges to ensure safe and continuous power supply. Shortages in one country often cannot be made up from another member country. The natural gas grids are even more limited and less connected. The lack of connectivity is most apparent between former Eastern Europe countries and Western Europe.

There is also a need to develop a new form of resilience, to withstand shocks and allow the market to operate when things go wrong. Improved interconnectivity of electricity and gas supply systems across Europe would help. However there is a need to diversify sources of supply and invest in more stocks to cover shortfalls. Infrastructure links, and avoiding complete dependence on single supply lines and facilities, can reduce terrorist threats too.

At a summit in March 2007, the European Council agreed to a binding 20% target for the use of renewable energy by 2020. Each member state was given a binding target for new renewable energies to be in place by 2020 and a plan on how to achieve this was prepared by each member state summer 2010. After the difficulties many member states experience after the economic recession there is doubt whether the 20% new renewable energy in 2020 is realistic. The Commission has estimated that achieving a 20% share for renewables will cost about EUR 8 billion per year if the cost of oil is \$48 a barrel in 2020. The framework for investing in renewables is under debate in many member countries and investors are sitting on the fence awaiting a stable and predictable framework for investments.

The way forward for the European-Russian partnership

The increasing dependency on import of energy carries political and economic risks for EU. The problem that Europe faces at the moment is that there are very few alternatives to Russian gas. Russia has been a reliable supplier of energy for many years except for the period where Russia and Ukrainian and later Belarus had disputes over gas prices.

There are two ways to explain the Russia's behaviour in Ukraine. The first is the "commercial" argument. The gas contracts with the former Soviet republics and the former Eastern European satellites were priced well below market prices. As Gazprom gradually increased its business with companies in deregulated markets, the company started to generate increasing income from exports. Many of the former "political" costumers had now also become members of the European Union. Gazprom consequently wanted to increase prices on these contracts to market levels.

The second explanation is the "strategic" argument arguing that the Russian behaviour in Ukraine as politically motivated and a result of the Ukraine's interest in NATO membership.

Russia is EU's 3rd biggest world trade partner after the US and China. Energy represents 65% of total EU imports from Russia. Russia is the biggest oil, gas, uranium and coal supplier to the EU and the third biggest electricity supplier.

EU is by far the largest trade partner for Russia accounting for 45% of all imports while the export from Russia to EU accounts for 55% of its exports including 88% of Russia's total oil exports, 70% of its gas exports and 50% of its coal exports. The export of raw materials to EU represents approximately 40% of the Russian budget, and EU represents 75% of Russia's cumulative foreign investments in Russia. In terms of infrastructure, Europe is the natural destination for Russian energy exports.

As a big producer Russia are very concerned by security of demand and depend on the income to pay dividend needed by the owner, the Russian government, in addition to be able to finance the investments in production facilities and infrastructure.

This interdependence should call for an open constructive dialogue between two trade partner in order to improve and secure the supply of gas to Europe as well as Russia's needs for stable and predictable income from gas and oil exports to develop and maintain its position in the oil and gas markets.

An EU-Russia Partnership and Cooperation Agreement (PCA) was signed in June 1994 and entered into force in December 1997. The agreement laid out the areas of cooperation and the framework for developing relations between the EU and the Russia. It includes 11 Titles, ranging from political dialogue, trade and economic cooperation, to democracy, human rights promotion and culture. In June 2010 EU and Russia launched a new partnership model with the intention to deepen the cooperation in several fields, including the energy security and supply.

Russian Prime Minister Vladimir Putin warned EU in November last year that European legislation aimed at liberalising energy markets and give third party access to the gas pipelines could hinder investment and undermine future cooperation with the European Union. The EU members also have agreed on a so-called "Gazprom Clause" designed to prevent companies from outside the EU-27 from buying up strategic distribution infrastructure. EU needs investments in new infrastructure to be able to fulfill the opening of the markets and increased security of supply. Third party access to infrastructure could be a major challenge on the way forward in the EU-Russia dialogue.

The competition rules for gas pipelines are one of the subjects EU has announced will be a part of the revised strategy plan for 2020. The European Union has stepped up its efforts to diversify both energy production and supply both to and within the union, in addition to focusing on strengthen the grid to ensure better flow of energy between member states. In a communication from the Commission in December 2010 both gas and nuclear were part of an announced revised energy strategy plan EU will publish in 2011.

Russia has more recently started to diversify its customers. Russia has targeted the American markets and wants to become a 10% supplier of natural gas. Gasprom has also positioned the company to be a major supplier to China and the Far East. As a large producer of gas this seems to be a sound strategy for Russia.

The climate between the two trade partners seems to have softened lately, maybe as a consequence of a more profound common understanding that they are dependent on each other. EU needs the gas volumes and the infrastructure Russia provides and has few

alternatives to covers the energy needs of the member states. Russia needs the income and has few other options for its large quantities of gas for the time being.

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Attachment 1

Short discussion on the alternative gas projects under discussion to increase capacity of gas to Europe.

South Stream

This project was launched in 2007 by Italian company ENI and Gazprom. It will connect Russia to Italy. Turkey and Russia signed an agreement in 2009 allowing the pipeline to go through the Turkish waters of the Black Sea.

It is a very expensive project and requires long term contracts to be able to finance the pipeline with an estimated cost of EUR 15 billion (2010). The project could give transport to

gas fields in the Caspian Sea and Kazakhstan. In 2008 Gazprom gave Turkmenistan and Kazakhstan European market prices for the gas to reduce their incentive to find an alternative to the Russian pipelines for export. This is seen as an option if the United States and EU expand the alternative pipeline Nabucco where Gazprom is not a participant.

Nabucco

The pipeline is planned to transport gas from the Caspian region to Austria, across the Turkish-Georgian and the Turkish-Iranian borders. The gas would be transported via Turkey, Bulgaria, Romania and Hungary. The cost is estimated to EUR 7.9 billion.

Private investors have so far been reluctant to finance the project as there is not enough gas supply in place to keep the pipeline filled and economical to operate. There is an alternative pipeline called Nabucco Light. This project plans to use the existing South Caucasus Pipeline (SCP) and the Turkish pipeline systems to deliver Central Asian gas to EU. By extending the Turkish-Greek Interconnector to Italy and improving the transit capacity of the pipelines, it is expected that more Central Asian gas could be carried to Europe. At present the project is still in the planning phase. The costs of transit through Turkey and Greece, along with corresponding contractual guarantees, would need to be negotiated first.

EU seems to have two options, namely the choice between South Stream, which could provide mainly Russian gas in sufficient quantities or Nabucco, alternatively Nabucco Light, with a lower capacity transporting gas from Central Asia.

It is also likely to assume that both Nabucco and Nabucco Light are jokers EU uses in order to have enough bargaining power in energy negotiations with Russia.

Nord Stream

This gas pipeline is under construction and will run through Russian and Finnish, Swedish, Danish and German waters. Nord Stream will transport up to 55 billion cubic meters of gas each year. Its cost is approximately EUR 8.5 billion.

Nord Stream brings Russian natural gas across the Baltic Sea directly to Germany. Germany was a strong defender of this pipeline and Chancellor Angela Merkel stated in a letter to the president of the European Commission: "The Nord and the South Stream are necessary to satisfy Europe's demand for gas. It is essential that the projects are supported by all the EU countries". The Baltic States, Finland, Sweden and Denmark were skeptical about the pipeline but they finally signed off on the project in 2009.

LNG

Regarding the LNG option, this consists of the delivery of gas in liquid form, via ship, to LNG re-gasification facilities in Europe mainly from a LNG liquefaction plant in Turkey.

Increased use of LNG will require the extension of the South Caucasus pipeline (SCP) to the port of Ceyhan on the Turkish coast. This solution would probably be costlier for Europe than the Nabucco pipeline or the South Stream. This is due to the high fixed costs for transport by a large number of gas carriers and the development of the landing terminals.