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The *ENERPO Journal* was established in 2013 and is published by the Energy Politics in Eurasia (ENERPO) program at European University at St. Petersburg. The goal of *ENERPO Journal* is to bring exposure to the ENERPO program and to shed light on the latest developments in the oil, gas, and renewables industries in a way befitting both expert and casual readership. Contributing authors are primarily students and faculty with the occasional outside expert writer.

*Workshop Series* is a program hosted by European University in which leading energy professionals are invited to present on a specific aspect of their work. These professionals include energy think-tank experts, policy makers, representatives from major energy companies, and ranking members of international organizations. *Workshop Review* is a subsection of *ENERPO Journal* where students relay the content of these presentations and provide commentary.

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**Workshop Review**

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# Gazprom Should Invest in Western European Power Plants

*—Bram Onck*

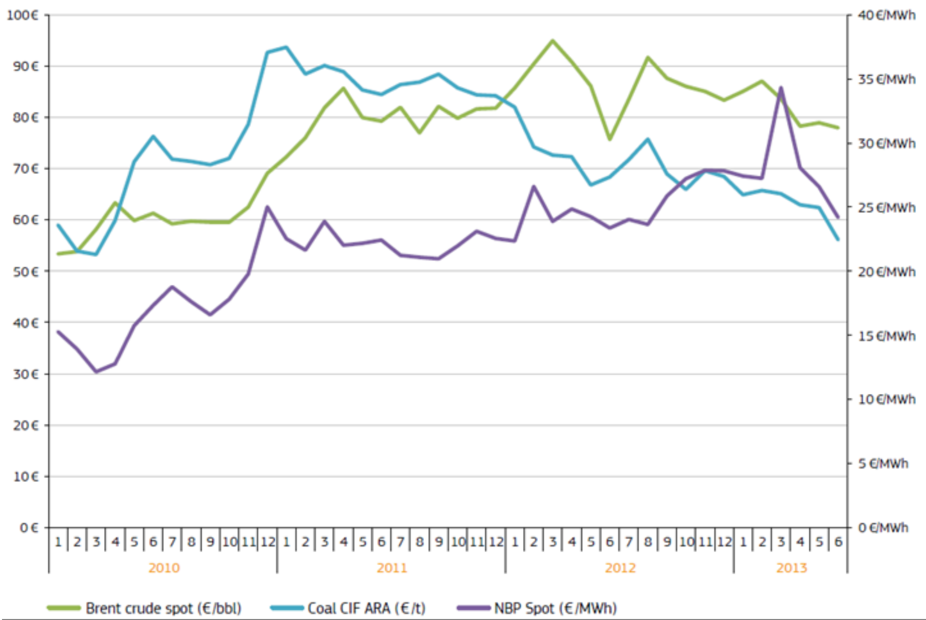
On the 28th of January this year, German energy giant RWE announced an impairment – a devaluation of a company asset – of USD 4.5 billion as a result of losses incurred in its power generation activities. This announcement is part of a series of setbacks for European utility companies that are suffering from significant changes in commodity prices and an overall economic slowdown on the continent. While these European companies are taking their losses, great opportunities for Gazprom arise to expand its market share in the Western European power generation industry. This article explores how Gazprom could help itself – as well as European citizens – on the basis of current market conditions.

## Recent Developments in Coal and Gas Prices

Gas prices on European spot markets have been rising during the last couple of years due to numerous factors. Firstly, Europe faces competition in the Liquefied Natural Gas [LNG] market from Japan and South Korea, where prices have been around 35 and 50 percent higher, respectively. The consequent preference for LNG exporters to direct their shipments to these Asian high profit markets has put pressure on European supply levels with price increases as a result. Secondly, general economic growth in non-OECD countries has boosted demand levels and tightened the LNG market. This market tightening is expected to last for another couple of years and has already come as a welcome surprise for Gazprom, which has seen its European export levels rise by 50 percent between June 2013 and the previous year.

***While these European companies are taking their losses, great opportunities for Gazprom arise to expand its market share in the Western European power generation industry.***

At the same time, coal prices have been decreasing since 2011 against the background of relatively stable demand levels. Indeed, the price fall can be attributed to its ongoing abundance in the market and to rising United States' exports. This is due to the fact that the shale gas 'revolution' in the US has made gas a more competitive commodity compared to coal, which consequently led to an increase of US coal exports to European markets. In addition, prices of the EU's *Emission Trading Scheme* [ETS] have been low, making coal-fired power generation a more attractive option. It is estimated by the International Energy Agency

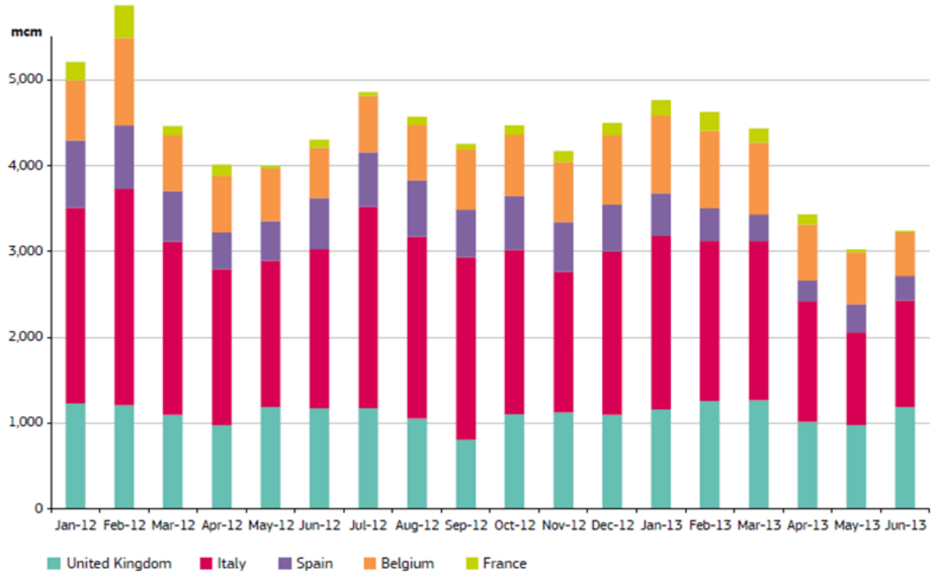



EU spot prices of oil, coal, and gas. *European Commission DG Energy, Quarterly Report 2013:2*

[IEA] that under current market conditions, ETS prices would have to increase eleven-fold for gas to become more competitive in power generation.

**Consequences for Power Generation**

The abovementioned developments seem to have been poorly anticipated by European utility companies. Gas-fired power generation had increased almost four-fold between 1990 and 2010, and was supported by ongoing investments in these power plants. The temporary drop in European gas prices that resulted from the US shale gas production has enhanced investments in gas-fired power plants. Now, a couple of years later, stagnant electricity demand and relatively high gas prices have turned the tables for European utility companies, which are now trying to dispose of their assets.




Gas consumption for power generation. *European Commission DG Energy, Quarterly Report 2013:2*

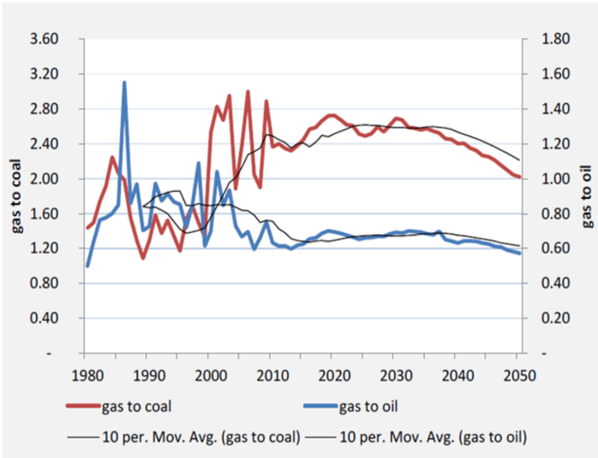
***A staggering equivalent of 60 percent of the EU's power production by natural gas is at risk of closure in 2016.***

The graph above shows that gas-fired power generation has significantly dropped on short notice, ranging from around 5 percent in the United Kingdom and Belgium, to levels over 30 percent in France, Italy, and Spain. According to Capgemini's *15th European Energy Markets Observatory,* a staggering equivalent of 60 percent of the EU's power production by natural gas is at risk of closure in 2016. Apart from being unable to recover their fixed costs, major producers like RWE, E.ON, Vattenfall, and GDF Suez have faced billions of euros of impairments during the last couple of years. Already, many plants have been mothballed and companies are thus continuously losing money on their investment.

**Future of Coal and Gas Prices**

While the European Commission has recently forecasted in its *Trends to 2050* outlook that the role of gas in power generation will continuously decrease until the end of the decade, it is expected to gain importance again before pre-crisis levels are restored in 2050. This outlook is in line with the IEA's prediction that gas will restore its competitive position in the second half of this decade already, after which the share of gas-fired power production will rise again. Thus, it is expected that the current disparity between coal and gas prices is temporary and will eventually change again for the better of natural gas producers. Moreover, while electricity demand is relatively low at the moment as a consequence of the economic crisis, it is forecasted to hastily recover at the end of the decade.

The graph on the next page demonstrates that the market is currently on a plateau of an unfavorable gas to coal price ratio that will not sustain after 2020. This changing ratio can first of all be attributed to the fact that ETS emission rights will become much more expensive, making it relatively attractive for producers to switch to cleaner resources such as renewable energy sources and natural gas. Moreover, Australia is in the middle of investing tens of billions of dollars in additional LNG production destined for Asian markets, which will bring both Asian and




Ratio of gas to coal price development. *European Commission, Trends to 2050.*

European gas prices down. Furthermore, potential US gas exports will put extra downward pressure on European prices. Altogether, the favorably changing gas to coal ratio is yet another reason for investors to keep a close eye on gas-fired power production.

**Market Opportunities and Threats for Gazprom Group**

Gazprom's strategy to expand in Western European downstream markets has been taking shape during the last couple of years. Through its subsidiaries *Gazprom Germania* and *Gazprom Marketing & Trading*, as well as through several joint ventures, the Russian gas giant is gradually gaining importance in downstream markets with high profit margins. While Gazprom's presence in Western Europe is predominantly focused on industrial retail, trading, and storage, it has only marginally included power generation assets in its portfolio. The abovementioned developments might just open a great window of opportunity for Gazprom to expand in the European power generation market.

***A Gazprom subsidiary would be among the few that could make these power plants profitable again through cheap gas deliveries by the parent company.***

The current failure of Western European utility companies to profitably run their gas-fired power plants have made them mothball these plants or even look for potential buyers. In its capacity as a gas producer and its *de facto* vertically integrated structure in the European market, a Gazprom subsidiary would be among the few that could make these power plants profitable again through cheap gas deliveries by the parent company. Moreover, it can be expected that the current and forecasted market situation will further give an incentive to European utility companies to sell their assets with some discount, as they will continue to lose money on a yearly basis for as long as they own it.

Even when electricity demand and prices indeed remain low for the next couple of years, owners of gas-fired power plants have a bright future ahead due to relatively decreasing gas prices and restored electricity demand at the end of the decade. Although distribution will remain the most profitable market segment, it would not be bad for Gazprom to invest in European power generation with a presumably consistent rising cash flow pattern and short payback periods. This might be of particular relevance to its ambition to remain a dominant market player in Europe, especially after recent economically irrational investment decisions – such as South Stream – have threatened this objective.

Even though there exist interesting investment opportunities for Gazprom, there seem to be two major threats to this story. Firstly, the US Energy Information Administration expects the United States to become a net gas exporter by 2016. As we have seen in the past, even the potential of US exports can already significantly affect European gas prices. If Gazprom waits too long with acquisitions in the power generation industry, it might just miss the perfect opportunity to take over unprofitable power plants. Hence, it seems that timing will be a crucial factor in this potential success story.

*If Gazprom waits too long with acquisitions in the power generation industry, it might just miss the perfect opportunity to take over unprofitable power plants.*

This timing factor is also relevant to a second complication, namely that it is doubtful whether Gazprom currently has the financial means to acquire new assets. On top of expensive investments in Nord Stream and South Stream, the company will have to reserve large amounts of money to replace current production. Add to this the projected costs to diversify their supplies to Asia, and it should become clear that Gazprom has many investment opportunities, but little money. Lucky enough, though, the Russian government's requirement for Gazprom to cut costs by ten percent annually does not directly apply to investments in new assets, even though consequent operating expenses will further worsen their expense level.

**Conclusion**

Recent developments in coal and gas prices have threatened the profitability of gas-fired power plants. As a result, these plants are either mothballed or will be closed within a couple of years. Gazprom's unique position in the European gas market allows the company to be among the few that could potentially make these power plants profitable again on short notice. Hence, even though the power generation market might not be the most profitable segment in the gas industry – especially not until the end of this decade – there does exist a great window of opportunity for Gazprom to take over unprofitable Western European gas-fired power plants that will be of use for Gazprom in its endeavor to retain its position in European markets. Nevertheless, it should keep a close eye on developments in the United States and it should critically assess whether it can afford to allocate capital to purchase European assets in the first place.◆

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# Privatization PEMEX and What's Actually Changing in Mexico's Oil Industry

*—Stephanie Bryant*

In December 2013, the Mexican government ratified amendments to its constitution that will liberalize the energy sector. Political momentum to liberalize the oil and gas sector has been building since former President Felipe Calderón's 2008 legislative attempts to introduce private investment. Although these reforms were ultimately unsuccessful, they focused political attention on the impending crisis of steep oil production decline and increasing oil imports. Mexico remains one of the world's largest oil producers and is the third largest foreign source of oil for the United States, but a failure to invest in exploration and production and an overwhelming tax burden has caused Petróleos Mexicanos (PEMEX) to evolve from a national champion into a flailing corporation. The reforms proposed by the Institutional Revolutionary Party (PRI) of President Enrique Peña Nieto would maintain exclusive state ownership of the subsoil's resources while introducing private investment directly into downstream activities and through joint ventures in upstream activities. PEMEX will still remain the preferred national champion, but will no longer hold an exclusive monopoly on the vertical production chain. Although the PRI still has to ratify secondary legislation and hurdle a national referendum called by the opposing political party, for private companies, these obstacles pale in comparison to the prize: access to 10.07 billion boe (barrels of oil equivalent) in the largest unexplored reserves outside of the Arctic Circle.

**"The petroleum is ours."**

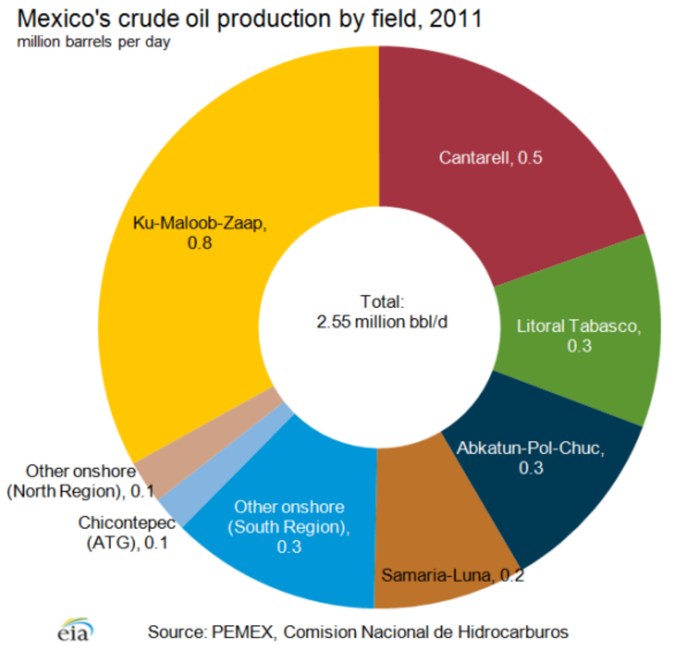
On March 18, 1938, Lázaro Cárdenas nationalized the oil and gas sector of Mexico with overwhelming public support following a long struggle between Mexican labor unions and foreign oil companies. Citing Amendment 27 of the 1917 Constitution, which declared hydrocarbons to be the exclusive property of the state, Cárdenas confiscated assets from the companies now known as Exxon and Chevron and reasserted the state monopoly through the creation of PEMEX. To this day, March 18 remains a national holiday and it was during this time that the phrase, "El petróleo es nuestro (The petroleum is ours)," became a popular chant. However, Cárdenas did not believe that full control over the vertical chain of production would be profitable and tried to integrate private companies in ways that would not affect state ownership of resources.

***A failure to invest in exploration and production and an overwhelming tax burden has caused Petróleos Mexicanos (PEMEX) to evolve from a national champion into a flailing corporation.***

The 1958 Petroleum Law was the legal mechanism used to create a vertical supply chain monopoly. By requiring that service contracts be paid in cash, the legislation also effectively shut out private investment in the sector. This law fenced PEMEX into one of the strictest oil and gas legal frameworks in the world. Effectively prohibited from forming "horizontal partnerships" with private companies, it could not safely take on high-risk, high-cost, or high-tech projects.

**From Cantarell to Calderón**

The giant oil field, Cantarell, was discovered in 1976 and production began in 1978. This field was so massive that during its peak production years of the early 2000s, its output - 2.1 million barrels per day - was second only to the Ghawar field of Saudi Arabia. Although PEMEX did use enhanced oil recovery methods on the field in the late '90s, production decline was rapid: in 2004, 63% of Mexico's production came from Cantarell but in 2010, that rate had fallen to less than 10%. Over the course of its lifetime, Cantarell has earned $500 billion for the country. Production from the adjacent Ku-Maloob-Zaap




Mexico's crude oil production by field, 2011. *Energy Information Administration.*

(KMZ) field has somewhat offset the decline of Cantarell, but peak production at the KMZ field has been approximately 810,000 barrels per day.

Many within the Mexican energy industry believe that KMZ has peaked, and Cantarell has been steadily declining for the past twelve years. The stagnation and decline, respectively, of these two fields has naturally produced a correlating decline in total production. Furthermore, approximately 80% of all oil fields in Mexico are in a state of decline. In 2004, production peaked around 3.5 million barrels per day. Last year, production was just over 2.5 million barrels per day. Aggravating this swift decline is PEMEX's failure to invest enough capital into exploration. Facing declining giant fields and only smaller replacement fields, Mexico is confronted by the very real possibility of becoming a net oil importer, according to a study by Houston-based Rice University. The greatest potential for increased production lies in deepwater reserves and the portion of Eagle Ford shale that extends into northern Mexico but both of these options require significant investment, which places these reserves squarely out of Pemex' reach.

In 2008, the administration of former president Felipe Calderón tried to stem the production decline by introducing a set of reforms. Unfortunately, their utility was invalidated by the fierce resource nationalism of the Mexican public. They were reduced to a set of regulatory reforms and eventually ruled as unconstitutional by the Supreme Court. PEMEX tried to use a different type of contract (PEP, or Pemex Exploration and Production, Model Contracts) to skirt this regulation, but the investment climate had already been affected and these contracts were not lucrative enough to attract, or maintain, the kind of investment Mexico needed. Ultimately, Calderón's reforms were unsuccessful in liberalizing the oil and gas sector, but they framed the political agenda for the 2012 presidential campaign, which would utilize energy reform as a centerpiece for candidates' campaigns.

***The revenues that the government receives from PEMEX account for over one half of PEMEX's earnings and comprised 34% of the government's revenue and 16% of its export earnings in 2011.***

**Energy Reform: Largest Economic Reform since NAFTA**

By the time of the 2012 presidential campaign, Mexico was importing 49% of its gasoline, a third of its diesel, a third of its oil, and nearly a third of its natural gas (a trend aggravated by low natural gas prices in the United States). Furthermore, the 2013 budget for consumer subsidies for oil, natural gas, and electricity was set at $3.76 billion for the entire year. Subsidies for the third quarter alone were $6.46 billion. The revenues that the government receives from PEMEX account for over one half of PEMEX's earnings and comprised 34% of the government's revenue and 16% of its export earnings in 2011. The financial stability of PEMEX is thus closely linked to the budgetary stability of the government.

***Enrique Nieto's administration aimed to actually amend Amendments 27, 28, and 29 of the 1917 Mexican constitution and create twenty one pieces of supporting, or secondary, legislation that would clarify these liberalization procedures.***

With the election of Enrique Peña Nieto, the PRI won the presidential seat and the supermajority of governorships, but only a plurality of Congressional seats. With the support of a supermajority PAN-PRI coalition, Peña Nieto began to institute fiscal, telecommunications, and educational reforms. However, none of these were as bold as his plans for the energy sector. The administration aimed to actually amend Amendments 27, 28, and 29 of the 1917 Mexican constitution and create twenty one pieces of supporting, or secondary, legislation that would clarify these liberalization procedures, e.g. the bidding process, the appraisal process of the reserves, the types of contracts that will be available. The secondary legislation should be approved by the end of April. The administration estimates that the GDP will increase by 2% and 2.5 million jobs will be added by 2025 as a direct result of these reforms.

**What's Actually Changing**

According to these reforms, the Secretary of Energy (SENER) will be given the power to grant licenses to private companies for all downstream activities, although licenses and production sharing contracts may not be granted for upstream activities. Exploration and production partnerships may only occur on a "contract for profit" basis, and Mexico will still retain full ownership of the subsoil and the hydrocarbon resources. SENER will manage the national reserves and identify areas for E&P, although this valuation process has still not been outlined. Then, the National Hydrocarbon Commission (CNH) will award contracts through "allocated entitlements." During "round zero" of the contract distribution, which will theoretically take place by the end of September, PEMEX is allowed first choice of any available reserves provided it can develop and operate them commercially within 3-5 years. PEMEX may either then initiate development by itself or create a joint venture with a private company. It also retains the right to begin development by itself and transfer the "allocated entitlement" to a private company in a contract at a later date.

***Exploration and production partnerships may only occur on a "contract for profit" basis, and Mexico will still retain full ownership of the subsoil and the hydrocarbon resources.***

PEMEX may also bid on downstream projects, but those bidding rounds will be decided according to whichever company will be able to produce the most revenue, and therefore the most royalties for the state. Although previously enjoying only minimal regulation, PEMEX will now be subjected to the oversight of the CHN, the new Energy Regulatory Commission (CRE), as well as new environmental and safety regulatory bodies, according to its new statutes as an independent national oil company. Furthermore, PEMEX is required to become profitable from its own revenue by 2015. A stabilization and development fund, modeled after Norway's *Oljefondet,* will be established in the Mexican Central Bank to hold revenue from the oil and gas sector. This is to ensure long-term development both of the sector and to provide social services that rely on oil revenue, such as education and pension funds.

***"The weight of PEMEX's problems may be proving heavier than the nationalist sentiment against any privatization."***

**Threat of a National Referendum**

Although the energy reform passed successfully through both houses of Congress and a majority of the states, the political party opposed to reform, the PRD, remains sufficiently opposed to the legislative changes to have gained enough voter signatures to call a *consulta nacional,* or referendum, at the midterm elections in 2015. The PRD holds less than 20% of the seats in both houses of Congress and only 5 governorships. According to expert Negroponte, Peña Nieto will need to begin a public education campaign in order to counter the vestiges of fierce resource nationalism, but unless the political coalition drastically changes within the next year, analysts do not predict that it will have any negative consequences on the progress of the reform. Jorge Chabat, a professor at the Center for Economic Research and Teaching in Mexico City, says that the "weight of PEMEX's problems may be proving heavier than the nationalist sentiment against any privatization."

**Will PEMEX Become the New PETROBRAS?**

In 2011, former Brazilian President, Lula da Silva, expressed a wish to create a partnership between Petrobras and Pemex. This sentiment echoed through Peña Nieto's presidential campaign, when he said he wished to emulate Petrobras' example of gradual liberalization. Following the example of Petrobras is a goal throughout the administration: Energy Minister Jordy Herrera has also openly expressed a desire to simulate Petrobras' liberalization, and to reform Pemex to the point that it can become financially self-sufficient.

***The energy reforms are gradual, but they have already attracted the attention of Exxon, Chevron, and Lukoil.***

The energy reforms are gradual, but they have already attracted the attention of Exxon, Chevron, and Lukoil. Liberalization will not stop Pemex's decline overnight, and if they are indeed following the lead of Petrobras, it could be up to a decade before they see significant improvement in production and export potential. The former director general of PEMEX, Adrán Lajous, echoed this time estimate, saying that the company will probably not see the benefits of the sector's reform for at least ten years because it must shoulder the full costs of production and learn to operate within an open, competitive international oil and gas market.◆

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# Natural Gas Pricing Strategies for Europe's Two Biggest Suppliers—Gazprom and Statoil

*—Max Hoyt*

The gas market of the European Union is in a transitional phase. Centerpiece to the changes is the 2011 Third Energy Package and its goal of creating a single natural gas market. Natural gas, however, is a huge stumbling block for EU energy liberalization due to the EU's 65% dependence on foreign imports to meet its demand. Two state-owned companies, Gazprom (51%) and Statoil (67%), are the leading actors in the European Union's gas market in terms of volumes exported. Both companies have anticipated the market change but have reacted with different strategies. Gazprom has chosen to stick with its predominately oil-indexed pricing while Statoil is making the transition to spot-market pricing. This article outlines the basics for both pricing strategies and provides a rationale for each. It then identifies the two competing strategies of Gazprom and Statoil and comes to short-to-mid-term conclusions.

***The Dutch [indexed] gas to competing fuel sources while allowing for a marginal price differential which was just enough to incentivize a switch from the substitute fuel to natural gas.***

**Brief introduction to Long-Term Contracts, Oil-Indexation, and Spot-Market Pricing**

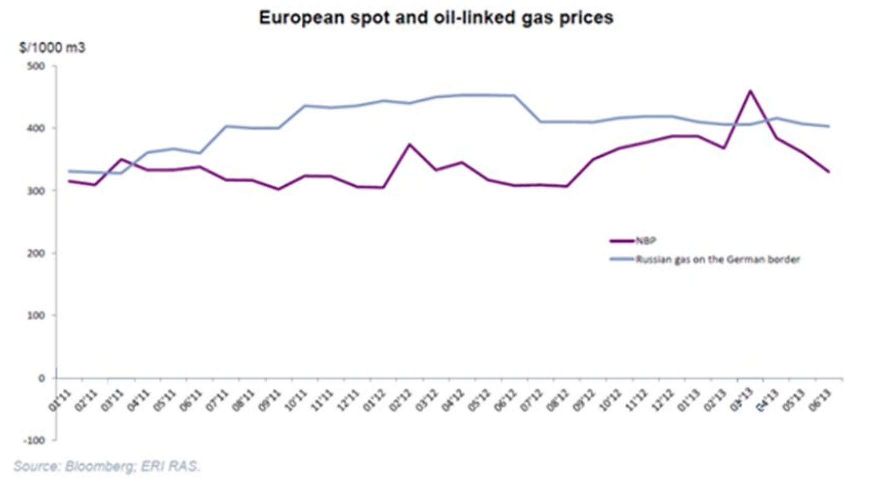
Long-term natural gas exports contracts (LTNGEC) are the bread and butter instrument for Europe-destined international gas trade**.** *LTNGEC* were first established in 1962 to facilitate sales from the Netherland's flagship gas field, Groningen. The goal was to maximize profits for the gas exporter while maintaining a marketable price. The Dutch achieved this by indexing gas to competing fuel sources while allowing for a marginal price differential which was just enough to incentivize a switch from the substitute fuel to natural gas.

In addition to this pricing formula, exporters in the Netherlands devised several other ingenious clauses for their European gas contracts, keeping mind both the security of demand and security of supply as well as the immense cost of gas transportation facilities. The chief mechanisms of the contracts are as follows:

- **Long-term:** to allow for investors to recoup their financing of both the transport facilities and the development of the gas field.
- **Take-or-pay obligation**: sellers provide a definite volume for purchase and buyers commit to at least a minimum volume.
- **Oil-indexation**: explained above, though the price normally has a built in 'lag' of six to nine months from its indexed fuels.
- **Net-back pricing**: export prices are based on the destination's market value of the gas minus the cost of transporting the gas from seller to customer.
- **Destination clauses**: gas could only be sold on its intended market to minimize price undercutting and arbitrage.
- **Price review clause** both parties could review the pricing formula to reflect technological changes and the linkage to the substitution fuels.

In summary, each target market was linked to its supplier until interested parties could recoup their investments, received predetermined volumes, and had a destination-specific price without the possibility of arbitraging on a neighboring market. These kinds of contracts proved to be so successful that they were adopted by both Russia and Norway.

Although developed half a century ago, much of the structure of the Groningen-type contract remains as the European standard (this includes many LNG contracts). The destination clause, however, was deemed to be anti-competitive within the EU and in violation of the 1958 Treaty of Rome, which provides for the free movement of goods. The clause has since been stripped from European-based contracts.




Differential between European spot and oil-linked gas prices. *Graph courtesy of Tatiana Mitrova*

***Although developed half a century ago, much of the structure of the Groningen-type contract remains as the European standard (this includes many LNG contracts).***

**Oil-Indexation and Spot-Market Pricing**

In the debate between oil-indexation and spot-market pricing there are two leading benchmarks in Europe. The first is the GBP (German Border Price) and the second is the NBP (National Balancing Point) in the UK.

*GBP* corresponds to an average of all oil-index gas contracts and the spot priced gas contracts that are supplied to Germany. Given that the vast majority of gas supplied to Germany is indexed to oil - some 90% in 2008, though this volume has since changed - and Germany's position as the largest continental gas market, the GBP is the price reference point for oil-indexed gas supplies to Europe. *NBP* is a much newer creation and is the spot-market price reference for more than 90% of UK's natural gas supplies. The NBP gained its current notoriety in 1994 after the UK adopted the single hub concept. The single hub concept dictates that all gas within the UK's transmission system is considered equal, regardless of distances or sources, once its entry fee has been paid.

***There are three predominant market conditions based on supply-side factors which affect the consumer's choice to favor either oil-indexed or spot-market gas.***

As is illustrated in the above graph, prices for GBP and NBP are seldom the same with the prevailing trend from this time-series showing that GPB runs at a premium to NBP.  As such, the two pricing strategies compete for market shares. According to the Carnegie Endowment for International Peace's study "Natural Gas Pricing and its Future" by Anthony J. Melling, there are three predominant market conditions based on supply-side factors which affect the consumer's choice to favor either oil-indexed or spot -market gas. The three market conditions are supply scarcity, supply-demand balance, and oversupply.

- **Supply scarcity**: spot pricing is higher than long-term contracts because supply does not meet market demand. The added competition drives up the gas-gas pricing.

- **Supply-demand balance**: gas is purchased mostly based on the oil-indexed price. However, consumers maximize their contract's flexibility by purchasing as much of the long-term sold gas at the spot-market as possible (assuming oil-indexed gas price is running a premium to the spot-market price.)
- **Oversupply**: spot market prices bottom out. The price plummets because demand does not meet supply and actors on the spot-market are forces to dump their reserves at any price necessary to make a sale. In this final situation, oil-indexation is uncompetitive because oil is rarely used as a substitute fuel for natural gas in today's world. Thus, oil prices are less affected by the oversupply of natural gas meaning oil-indexed natural gas stays at an above-market-value price.

Of these three scenarios, natural gas *oversupply* holds the biggest implications for company pricing strategies. An increased supply on the spot-market causes a short-term 'gas-glut' which drives down prices and widens the price differential between spot and oil-indexed gas. A wide price differential in turn allows companies to activate the *price review clause* and renegotiate their long-term contracts' price formulae. If successful, consumers purchasing oil-indexed gas can lock in lower gas prices for the short to mid-term. Companies are therefore theoretically incentivized to limit the amount they sell on the spot-market as to protect short-to-mid-term sales prices.

### OAO Gazprom VS Statoil ASA

The Russian Federation's flagship company; Gazprom's name is inextricably linked to the Russian Federation itself and the activities of both reflect on each other. The company holds a legal export monopoly on pipeline sold natural gas from Russia and is the largest supplier of natural gas to the European Union (31% of the EU's total imports). Gazprom is the owner of the world's largest gas transmission system and reaches its customer-base directly through long-distance pipelines stretching all the way from Siberia. The primary European customers are Germany, Italy, Poland, the UK and France, though Gazprom supplies some 20 countries in Europe. In 2012, Gazprom Export, the 100% Gazprom-owned subsidiary, sold 110 bcm of its 138.8 bcm of its Europe-destined gas to members of the EU. Total volumes were down 12.2 bcm from 2011 corresponding to a 16 bcm decline in overall European gas imports in 2012. These figures, however, have bounced back in 2013 to 161.5 bcm, purportedly thanks to a change in price formulae in some of Gazprom's contracts.

***Gazprom asserts that the [gas pricing] formulae are adjustable given extenuating circumstances in gas market fundamentals, but that oil-indexation is an essential means of long-term business planning.***

Long-term contracts are the primary method of sales for Gazprom's gas in the EU. Contracts last up to 25 years and contain pricing formulae indexed to petroleum product, i.e. oil-indexation. Gazprom asserts that the formulae are adjustable given extenuating circumstances in gas market fundamentals, but that oil-indexation is an essential means of long-term business planning.

According to Dr. Mitrova of the Energy Research Institute of the Russian Academy of Sciences, Gazprom is mostly likely following a price maximization strategy. Gazprom is doing this by selling the majority of its gas through long-term, take-or-pay, oil-indexed contracts. However, there are two caveats.

First, they have decreased their take-or-pay amounts to 60% of the available volumes from the original 85%. Second, they have increased the amount of gas sold according to spot market prices by 15%, or more in some cases. Notably, Gazprom also sells its gas to a wide range of European customers. The gas markets of these customers vary from the highly liberalized market in the UK to the monopsonist controlled market of Bulgaria. The only country that Gazprom completely accepts spot-market pricing is in the UK where it traded 8bcm in 2012.

***[Statoil's] pricing for gas contracts is undergoing a "gradual transition from oil indexation towards gas hub-related pricing, as well as a reduction in some volume commitments and of the buyers' daily and annual flexibility."***

Statoil ASA is the Norwegian national oil company, and the largest producer of natural gas on the Norwegian Continental Shelf. Statoil exports some 40 bcma of its own production and is in command of the marketing and sales of another 40 bcma on the behalf of the Norwegian State. The combined total of over 80 bcm in 2012 makes Statoil the second largest supplier on the European Union's gas market, accounting for 14% of the market. Statoil sells its gas to Europe via pipelines to six terminals in France, Germany, Belgium, and the UK and via LNG (~4.2 bcm 2011). Most of Statoil's gas is sold under long-term contracts lasting either 10 or 20 years, though some is sold with short-term contracts (5 or less years) or is traded directly on Europe's gas hubs. According to Statoil's official website, pricing for gas contracts is undergoing a "gradual transition from oil indexation towards gas hub-related pricing, as well as a reduction in some volume commitments and of the buyers' daily and annual flexibility." In the beginning of 2013, Reuters reported that "Statoil currently sells around 45 percent of its gas via oil-linked contracts and expects this to fall below 25 percent by 2015." Norway's biggest buyers are Germany, the UK, France, the Netherlands and Belgium; these are all highly developed Western European Member States which are geographically close to Europe's main gas trading hubs.

Statoil has a notably smaller customer base than Gazprom. Their biggest customers are countries like the UK and Germany with highly developed and competitive gas markets. Given Statoil's success in 2012 to maintain its European market shares vis-à-vis Gazprom when total European imports sank to 16 bcm, Statoil's strategy is mostly likely to stabilize their market position by acquiescing to EU energy market imperatives i.e. the creation of a single energy market, a decrease in demand and an increase in competition. Statoil is doing this by continuing to sell most of its gas on long-term contracts while increasing the percentage of spot market pricing to their sales contracts. According to an interview by Bloomberg with Statoil's executive vice president of marketing, processing and renewable energy, Eldar Saetre, Statoil expects that 75% of their natural gas sales contracts to be based on spot prices by 2015.

**Why is There a Difference in Pricing Strategies?**

As explained at the end of the section *Oil-Indexation and Spot-Market Pricing,* companies should be incentivized by market fundamentals to protect oil-indexed prices. Despite that, Statoil is gradually shifting its strategy in favor of complete spot-market pricing. There are three factors which, when aggregated, contribute to Statoil's decision to shift to spot-market pricing and work against Gazprom's desire to revolve away from oil-indexation.

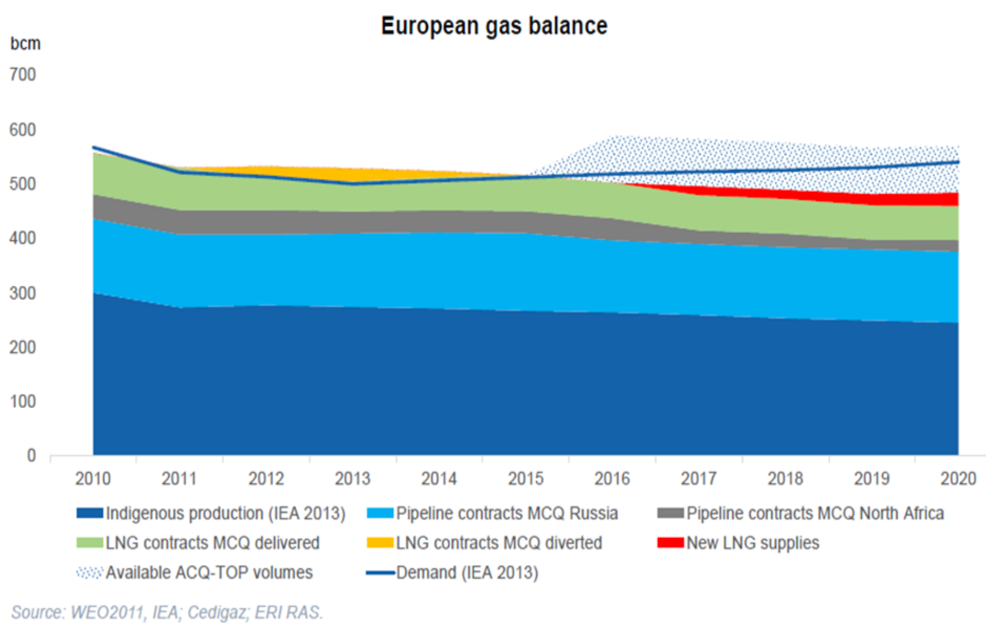
**1. Geography—The Location of Their Customers in Relation to Spot-market Hubs**

Statoil's biggest customers are western European countries - Germany and the UK followed by the France, the Netherlands and Belgium - which have domestic natural gas hubs. Gazprom's customer bases, however, stretches all the way from Western Europe to Eastern Europe, far from functioning gas trading hubs. Yes, Gazprom's biggest customers, Germany, Italy and the UK, are all countries with access to gas hubs, but a full half of Gazprom's customers are in countries far from such European gas hubs. Albeit Italy and Austria do have gas hubs, PSV and Baumgarten, but they are the much less developed than the other continental hubs in Belgium, Netherlands, and Germany. Thus, if Gazprom wished to index more gas to spot-pricing in, say, Eastern Europe, it would be indexing the price to a hub quite removed both geographically and in terms of market fundamentals. Such a decision would obfuscate the future recalibration of pricing and affect the profitability of Gazprom's sales. Statoil does not encounter this geographical issue when altering its pricing strategy simply by virtue of the geographical location of its markets.

*If Gazprom wished to index more gas to spot-pricing in, say, Eastern Europe, it would be indexing the price to a hub quite removed both geographically and in terms of market fundamentals. Such a decision would obfuscate the future recalibration of pricing and affect the profitability of Gazprom's sales.*

**2. Energy Liberalization—EU's Gas Target Model and the Creation of Connected Wholesale Market Hubs**

Each of these hubs is to be created with the capacity of at least 20 bcma. It is assumed that since only six EU countries have a demand of 20 bcma or higher, smaller regional gas markets will be created through the homogenization of national gas markets. This process will not greatly affect Statoil's sales because their customers are predominantly those countries whose current gas demand meets the 20 bcma hub limit. On the other hand, Gazprom's smaller Central and Eastern European customers might be homogenized into regional hubs in the near future. When the change occurs, Gazprom will likely be forced to adjust its sales strategy in these regions regardless of Gazprom's need for a stable investment cli-




European gas balance in 2013. *Graph Courtesy of Tatiana Mitrova.*

mate to ensure the further development of its Siberian and Arctic gas fields. Thus mid-term unpredictability necessitates Gazprom's adoption of a short-term price maximizing strategy while Statoil can pursue whichever pricing strategy it desires because it can predict market conditions into the mid-term.

**3. Market Fundamentals—the European Gas Market's Short to Mid-term Forecast**

As can be seen from the graph on the previous page, the European gas market is going to continue to be both tight and under lighter demand in the short-term. European demand shrank in 2012 and its economic recovery was slow in 2013. LNG suppliers from the global south have thus diverted their supplies to Asia where demand is still growing. The diversion of LNG to Asia coupled with declining domestic natural gas production rates in the EU mean that any new supplies demanded by the European market in the short-term will have to come from Russia, the only global supplier with capacity that cannot divert to Asia.

Therefore, Gazprom is in a good position to profit-maximize in the short-term by selling its gas at a high, oil-indexed price when there is little competition. Statoil, which does not have Gazprom's export capacity, needs to retain market shares by selling at a more competitive price, i.e. sales linked to spot-market prices. However, in the mid to long-term more players will enter the European gas market creating a more liquid market. A more liquid gas market will affect prices and alter Gazprom and Statoil's current market positions.

**Conclusions**

Gazprom has chosen to stick with LTNGEC favoring oil-indexation, but has made concessions on the take-or-pay volumes and spot-market percentages due to high price differentials between GBP and NBP. The company hopes that it can use its current strategy of price maximizing to exploit its market positions before more forces come into play.

However, in choosing this strategy of price maximization, Gazprom has found itself entangled in arbitration with European utility companies including E.ON, OMV, RWE over dubious pricing methods; the mere existence of such cases represent yet another soft-power loss for Gazprom when the company should be rebuilding its image as a reliable supplier after the reputation damaging 2009 Gazprom – Naftogaz gas war.

***Norway's national champion has also fallen into step behind Europe's liberalization scheme hoping to reap a collaborator's benefits—tenable market positions, steady relationships with wholesalers, and the image of a reliable supplier—when new entrants arrive on the market.***

Statoil has shown itself to be flexible and has capitalized on Gazprom's resolve by switching to the Anglo-Saxon gas-to-gas pricing model. Their flexibility has granted them quick gains against Gazprom and popularity with Germany and UK gas wholesalers. Norway's national champion has also fallen into step behind Europe's liberalization scheme hoping to reap a collaborator's benefits – tenable market positions, steady relationships with wholesalers, and the image of a reliable supplier - when new entrants arrive on the market.

The author predicts that both companies will maintain the status quo for the short-term. However, depending on the evolution of European regional gas hubs, Gazprom will be forced to renegotiate its pricing formulae with Europe to include more spot-market pricing before the end of the decade. Unfortunately, a change to spot-market prices which, coincidentally, might occur simultaneously with the arrival of new suppliers in the European gas market will be trouble for Gazprom. The resulting gas-glut, if even only marginal and short-term, will drive down European natural gas prices and the profitability of the gas market. The author agrees with the analysis of Dr. Konoplyanik, the former Russian deputy secretary general of the Energy Charter Secretariat in Brussels, Belgium, that LTNGEC are investment vehicles which ensure the development of expensive gas fields. However, it is doubtful that the initial steps will be taken to develop such fields if their profitability cannot be proven to investors in the near-term. These fields are necessary to meet the projected gas demand of the European Union up until 2030 and the perquisite conditions – possibility for returns on investment – for their development should be taken into consideration by their future consumer-base.◆

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**Notes for the Reader and References:**

- The industry term for oil-indexation is *replacement value pricing mechanism*. However, since much of the literature refers to this as 'oil-indexation,' because in reality gas is index to petroleum products more than to coal, the author choose to use the term *oil-indexation*.
- It is important for the reader to note that NBP is a traded commodity and is traded using a number of financial instruments including those associated with paper commodity trade. GBP, conversely, is only a physical commodity.
- In 2013 the rare case did occur when NBP was lower than GBP. In this situation, producers sold oil-indexed natural gas to the limit of their contractual commitments. This accounts for Gazprom's miraculous return to 161.5 bcm that year.
- Data was sourced from Gazprom.com, Statoil.com, gazpromexport.ru, U.S. Energy Information Administration. The two graphs were borrowed from Tatiana Mitrova's "Russian Gas Export Strategy" Lecture given on December 9th, 2013, at European University at Saint Petersburg

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# Workshop Review: Tatiana Mitrova—Russian Gas Export Strategy

*—Nicholas Watt and Maurizio Recordati*

On December 9, 2013, the ENERPO program welcomed Russian energy specialist Dr. Tatiana Mitrova to European University at St. Petersburg. Her nearly four hour presentation in our university's Golden Hall consisted of two parts - Russia's gas export strategy and the future of world energy markets.

With a professional background that includes work with Russian majors like Gazprom and Rosneft, an advisory role in Deputy Prime Minister Arkady Dvorkovich's "Government Commission on the Fuel and Energy Complex", and head of Global Energy Department at Skolkovo's Energy Center, Dr. Mitrova is one of the foremost experts on Russian energy issues. Her diverse experience and depth of knowledge - with 7 books and over 110 publications to her name - has made her one of the most frequently quoted Russian energy experts in the media. As the current head of the Oil and Gas department, a title held since 2011, at the Energy Research Institute of the Russian Academy of Sciences (ERI RAS), Dr. Mitrova continues to build upon her 16 years of experience in Russia's hydrocarbon industry. Previously, starting in 2006, she was the head of the Center of International Energy Markets Studies, also at the ERI RAS.

Dr. Mitrova studied economics at Lomonosov Moscow State University, where she received her bachelor's degree in 1995. In 2004, she got her PhD from the Gubkin Oil and Gas University, where she is now also an assistant professor.

Additionally, Dr. Mitrova is a member of the Valdai Discussion Club, which holds annual meetings attended by the foremost experts on Russia and has been attended by Russian President Vladimir Putin and Prime Minister Dmitri Medvedev.

This report on her presentation will first provide a condensed version of her analysis of Russia's gas export strategy and second, an edited transcription of the subsequent question and answer session with the ENERPO students and faculty.

***With a professional background that includes work with Russian majors like Gazprom and Rosneft, an advisory role in Deputy Prime Minister Arkady Dvorkovich's "Government Commission on the Fuel and Energy Complex", and head of Global Energy Department at Skolkovo's Energy Center, Dr. Mitrova is one of the foremost experts on Russian energy issues.***

**Why Gas Export is So Important to the Russian State**

Energy - natural gas, crude oil, and oil products - comprises nearly 70% of all Russian exports. 45% of all incomes of the state budget come from oil and gas, with the bulk of these coming from oil, and only 8-10% coming from gas. But it has not always been this way. If you look back at the early 2000s, oil and gas provided less than 10% of budget incomes. It is only recently, as oil prices started to rise and gas prices were obviously following this trajectory, that the Russian government began to rely so heavily on these.

This means that the Russian government's military expenditure, social programs, or any ambitious plan will come from this money. The problem is that any additional taxation of oil production will lead to declining oil output. It is heavily overtaxed: out of $100 per barrel, the government takes about $75. For those producing in Western Siberia with operating costs of $8 to $10 per barrel, it is still profitable. However, any new enhancement or greenfield project is far from lucrative, especially in the promising Eastern Siberian and Arctic regions. Enhanced oil recovery costs approximately $50 to $60 per barrel; in the Arctic this figure jumps to $110 to $130 per barrel; and for the Bazhenov it is approaching $200 per barrel. Under current taxation regime, the math simply doesn't add up – that is why the government introduced tax breaks for Arctic and Bazhenov. For Russia to sustain current production levels of approximately 10 million barrels per day, it is critical not to increase oil taxes any more. The government is left with only one more source of income…gas. Only gas taxes can provide some substantial, additional revenues. This is important because later in this presentation we will see the government has a particular strategy with gas exports. But in trying to understand this strategy, we should understand the dependence on gas revenues for the state budget.

**Naturally Maturing European Gas Markets**

Russian gas exports started in the late 1960s. Throughout the Cold War, it was quite successful and without conflict. There was the famous Gas-for-Pipes deal when Germany, Italy, and France provided pipelines for compressor stations, and the Soviet Union in turn provided quite cheap gas. Both sides were satisfied: European countries found a huge market for their steel production and got cheap energy resources, while the Soviet Union received much needed hard currency and with a new, extensive pipeline system, was able to gasify the European part of Russia.

European gas market was constantly growing, but recently this growth has since leveled off. These mature markets are introducing energy efficiency measures and have either steady or declining population. Their industrial production is moving primarily to non-OECD countries so they don't need much additional gas. All the growth is concentrated in non-OECD countries like China and other developing countries. These markets stopped growing a few years before the crisis, but nobody mentioned it. All the experts thought it was just a seasonal problem, but if you look back at the statistics the markets stopping growing somewhere between 2006 and 2007.

*For Russia to sustain current production levels of approximately 10 million barrels per day, it is critical not to increase oil taxes any more. The government is left with only one more source of income…gas.*

On the supply side, additional gas supplies will be mainly covered by new conventional fields all over the world. We'll see that this club of gas-producing countries, which was limited, is now expanding with the entrance of a number of new players to the market.

**The Closed North American Gas Market**

In 2004, there were special road shows organized by the US Department of Energy, which traveled to all of the gas producing countries and those with LNG, with tales of a looming US gas crisis: "Prices have jumped from $2 per BTU up to $8 -10 per BTU and there is a gas deficit. We will be importing 120 -180 bcma of LNG by 2020." Qatar and Nigeria, for example, were targeting their LNG projects on the US market. The Shtokman project was also initially targeting this market, but then in 2007-2009, it started to become more and more obvious that the shale gas revolution was not an accident, but a real game-changer. Shale gas production in the US reached 260 bcma in 2012. North America will probably be net gas exporters by 2020, possibly even earlier. The first LNG export terminal projects have gotten permission to start exporting by 2016. By 2016 – 2018, there will be US LNG reaching European and Asian markets. This market is now full; and Russia - which was very seriously considering this market for its gas – had to postpone Shtokman and Baltika (which was being planned in cooperation with Petro-Canada).

**Stagnant Demand on the European Gas Market**

We are observing now increasing competition together with very slowly growing, possibly even declining demand. Of course, however, European domestic gas production is falling. Every year, the Northern Sea – main source of gas for Europe – is losing 20-25 bcm. Though there will be an increasing need for import, a number of different players are targeting this attractive market, with its high prices and large demand. Gas - either LNG or piped - will be coming from Africa, the Middle East, South/Central America, and North America. Piped gas, coming from Russia and the CIS, is probably the most expensive on the market. The market niche for newcomers is not increasing significantly. While this market is not declining, it is at the same time not growing as it was supposed to according to Russian strategic documents. If you look back at the Energy Strategy of the Russian Federation in 2009, you'll see that Russia was planning to supply 220 bcma of gas to Europe by 2020. Currently, we are supplying 140 bcma. All the expectations - in the domestic gas sector and in budget revenue estimations - were made on the basis of this 220 bcma. It is not a catastrophe because Russia did not lose the market. We are supplying the same volumes as we did before the crisis, but they are not growing, which is already a problem for the budget.

A few more words about the European gas market, if someone ten years ago would have tried to develop the most catastrophic scenario for gas exports to Europe, I think he wouldn't have imagined such an unpleasant and unfavorable coincidence of different factors. First, we have weak demand. The demand is lower than contracted volumes, so Europe is over-contracted. IEA analysts predict that European gas demand will recover by 2020 at the earliest. The situation with the euro zone is really bad: no growth in industry, no growth in electricity or in the residential sector. There are currently no drivers for demand.

***When oil prices rise, people do not stop fueling their cars, because there is no substitute. With gas it's different; gas is always facing a tough inter-fuel competition. When gas prices become unfavorable, it is replaced in the fuel mix.***

**More Coal, Less Gas in the European Power Sector**

90% of the power plants in the previous two decades were built for gas powered electricity generation, but now gas is facing stronger inter-fuel competition. The first competitor is renewables. Without counting hydropower, they used to account for 9% in 2000 and are now approaching 16%. They have feed-in tariffs, subsidies, and, once completed, low marginal costs. The second is coal; and gas is losing this competition. If you compare operational efficiency between coal generated power and gas generated power, they used to be quite comparable. Over the last four years, gas has become more expensive and coal has become cheaper as a result of oversupply and the weak economic situation globally. Lots of coal came from the US because the shale gas revolution dropped gas prices in the US and started to squeeze coal out. Nobody there wants to close coal mines. They are currently working with zero margin, and have doubled their exports to Europe. This additional supply of North American coal has led to much lower coal prices. Oil demand is inelastic. When oil prices rise, people do not stop fueling their cars, because there is no substitute. With gas it's different; gas is always facing a tough inter-fuel competition. When gas prices become unfavorable, it is replaced in the fuel mix. This is increasingly the case as gas has been replaced by renewables and coal. Many of the recently built gas fueled plants have closed, and old, dirty coal plants are being used. This phenomenon has nothing to do with EU's plans for emissions cuts. Since the crisis, people have been driven more by pragmatic considerations. The power generators are doing this to avoid going bankrupt. They don't have much choice as electricity prices are really quite low. Additionally, industrial output has dropped. The price for CO2 allowances has dropped as well. The prices, which used to be 30 euro per ton before the crisis, are now just 5 euro per ton. This tool, that was meant to make gas more attractive than coal, is not working anymore. The IEA has said the price per ton has to be increased to 80 euro to make gas competitive with coal. No country is willing to increase the price this much. Gas has to become 40% cheaper or it'll continue to lose its market. Additionally, strict regulation on coal fired plants is lacking. However, there are some countries, like the UK that are introducing measures that effectively kill coal plants that were built before 1973. These measures come into force sometime this year. It remains to be seen what else will be done administratively to help gas's competitiveness.

*Many of the recently built gas fueled plants have closed, and old, dirty coal plants are being used. This phenomenon has nothing to do with EU's plans for emissions cuts. Since the crisis, people have been driven more by pragmatic considerations.*

It would seem the silver lining for Russia is that its coal could be sent to Europe, but it actually is not competitive there. Coal is primarily produced in Russia's East and railroad tariffs are too high. Additionally, despite a market opening up in Germany following its policy of closing nuclear reactors, the country has chosen renewables instead of gas to replace this capacity.

At the moment, the markets do not favor gas. It does not have many stakeholders lobbying for it. There are no more gas companies in Europe. Energy companies are generating electricity and are more concerned about optimizing their portfolio, which is their priority. For the European Commission, more gas means more dependence on Russia. All official documents of the European Commission state that there should be more diversification. With the exception EuroGas, nobody is trying to promote gas as a fuel of choice in the Europe, as it was 10 to 15 years ago. Now, it is a fuel of conflict and high prices.

**Unfavorable and Uncertain European Gas Regulation is Not Helping Russia**

For Russia's gas export prospects, the demand story is not even as bad as the regulation story. First of all, we have the third energy package (TEP) and unbundling. Starting from 2002 when Miller and his team came to Gazprom, they were immediately instructed by the president to cut out the intermediaries by building a vertically integrated chain, and thus become more profitable. Once Gazprom built everything, bought the companies, invested in the pipelines and underground storage, they found out that they cannot use it as a vertically integrated chain.

***The majority of EU stakeholders have decided they want spot indexation. It is not necessarily a rational choice. If you look back, there were periods when oil linked prices were lower than the spot price.***

This is not the whole story. There is question of whether Gazprom would have an exemption from the TEP. These pipelines are enormous. Just imagine building Nord Stream – costing about 15 billion euros – and then not being able to use it at full capacity, only half capacity. 7.5 billion euros just gone to waste. Similar threats are facing South Stream as there is a very complicated legal dispute, which I think has only just started. The Russian Ministry of Energy pretends that these intergovernmental agreements for the onshore part of South Stream were signed before the TEP came into force. That is why according to the Vienna convention it has priority over this regulation. I think it'll take a lot of time and effort from different lawyers to settle this dispute. Meanwhile, there is this legal grey zone and nobody knows how it will function, so the risk is very high. This risk in financial terms is billions of euros. On top of this, you have the Gas Target Model, which is the next step in the implementation of the TEP, and which, though still under development, describes how the gas market will work in the future. The main idea is to move deliveries from the national borders to the virtual hubs. The question revolves around the future of Russia's long-term contracts which are all made at the national borders. In addition to these regulatory risks, there is the EU Commission's investigation against Gazprom, claiming that Gazprom abuses its market power. You can see that the situation is extremely unfavorable. The uncertainty is huge – as the regulatory measures are changing every few years – and even with the Gas Target Model, which has to come into force in 2014. We still don't know what is inside.

The next problematic area is pricing. Spot lobbies are increasing very quickly. Before 2009, the share of spot indexed gas did not exceed 20%, which was almost all in the UK. Over the last four years, the share of spot indexed prices has raised to about 50%. The other 50% are still supplied under the "Groningen formula", tied to oil prices. This is unsustainable: you have two different prices for the same market and the same good. The majority of EU stakeholders have decided they want spot indexation. It is not necessarily a rational choice. If you look back, there were periods when oil linked prices were lower than the spot price. It's a question of preferences. EU companies and working consumers prefer spot-based. They believe it to be more fair. The EU Commission, importantly, also thinks it is more fair even though the name of this long term oil indexation kind of pricing – Groningen – comes from the Netherlands, which was developed for the Groningen field back in the 1950s.

***Before 2017, there will be no more LNG available on the market.***

**EU Gas Supply: Tight Now, Glut Later**

You cannot say that supply is expanding, but that it is expected to expand. New energy producers are coming to the market and there will be a diversification of pipeline sources like the Southern Corridor and maybe some from North Africa or Middle

East. It is important to separate gas market conditions for the next three, four, five years from the longer term. It is not widely discussed, but the market is tight: there was a 25% drop of EU LNG imports in 2012, all of this was redirected to Asia. According to LNG contracts, companies can redirect them if it is more profitable. Before 2017, there will be no more LNG available on the market. North American LNG will come on stream in 2017, and Australian in 2017. There are no new projects currently available. I would expect that until the end of this decade, Europe will remain a deficit market.

***It is true that after 2020 there will be other options, but now the only option is to increase Russian gas supplies. This is the reason for Gazprom's price behavior.***

Norway, for example, cannot supply any more. Last year, they had more exports than Gazprom, but it was not without consequence. Sustaining such a high production volume is a problem, as these are also depleting fields. It is true that Norway has made some new discoveries located between its own territory and that of Russia, but it will take some time before production can begin on these fields. Norway is expected to maintain current volumes, but no more than that.

Algeria can hardly fulfill its export obligations. Egypt's growing domestic market does not allow them to export. If you look at all the suppliers that Europe can rely on, you'll see that there is little available other than Russian gas. It is true that after 2020 there will be other options, but now the only option is to increase Russian gas supplies. This is the reason for Gazprom's price behavior.

**Gazprom Has Chosen Higher Prices over More Sales**

Gazprom will hold on to high oil-indexed prices because when there is no competition, your customer has no choice but to buy your product. Given this situation, Gazprom understandably prefers higher prices. When the goal is revenue maximization, you should understand this strategy as not only Gazprom's, but that of the Russian state. The state cannot afford to give discounts, though Gazprom has given some. The differential between contractual prices and spot prices is decreasing. This is because Gazprom is very slowly and painfully providing some price discounts for individual customers. They have gone through about 4 or 5 rounds of these price renegotiations over the last four years. Sometimes these price discounts, like 15-20%, are organized as a retroactive payment; sometimes it is changing the coefficient in the formulas. There are different mechanisms, but the main message is that although Gazprom will provide discounts, it will continue the oil-linked pricing mechanisms in the contracts. Once the economy recovers, Gazprom will still have oil-linked prices. This is a principal position of the Russian government.

**Demand for Russian Gas in Asia**

Asian gas demand, especially in China, is growing. Gazprom would like to sell gas there but there are some obstacles. If you look at the Chinese market, it is already over contracted. Until 2020, China has contracted more than they need. Only by 2025, will there be some market niche. It could be one pipeline from Russia; it could be around five gas terminals, as China is building regasification terminals very quickly. China will have a choice between taking pipeline or LNG gas from Russia. China is, however, trying to exploit its own shale gas reserves, an endeavor, which so far has not been very inspiring. There have been problems with geological formations and with available water for hydro fracturing. But it is still the early days. China is not in a hurry to get Russian gas. Central Asian gas is crossing near to Afghanistan's borders - not a very secure region. LNG could be controlled by US fleets. Russian pipeline gas without transit countries seems perfect from this point of view - but at the same time, not at any price. Only a cheap proposal from Russia is acceptable to China, which from Russia's point of view is impossible. Unlike the Western Siberian fields, the eastern fields - Chayanda and Kovykta - and even Sakhalin gas are quite expensive. Also, these fields have a high quantity of helium, which despite being very difficult to store, must be stored according to Russian law. This means that before this eastern gas is put into pipelines, gas processing plants that would extract these liquids and helium must be built, requiring significant investment in the upstream and midstream. Russia has not built any gas processing plants in over two decades and their cost is similar to that of oil refineries. Once the gas has been processed, you'd have to transport it via pipeline. The average cost of pipeline construction in Europe is 3 million dollars per kilometer – Gazprom is showing 7 million. If you put all this together - expensive upstream and midstream, and expensive pipeline - the price that Gazprom would deliver at the Chinese border is high. China does not need expensive gas from Russia and this is why these negotiations have been going on for 10 years. China wants equity in the upstream, but Gazprom is against this. The situation is not desperate from the Russian side, but they would like to complete a deal as soon as possible.

***American suppliers have already signed contracts of up to 60 million tons, whereas Russia has managed to contract only 7 million tons of new LNG.***

Another market that seems to be very attractive is OECD Asia – Japan and South Korea - where the highest prices are, and currently stand at around $16 – 18 per BTU. Demand is slightly rising, with the nuclear phase-out of Japan, and supply is declining, as Malaysia and Indonesia are now becoming net importers. The problem is they are already contracting their LNG. American LNG is very attractive for Japan and Korea. Buying from the US is good for Japan, because it would also mean increased protection. Russia, on the other hand, still does not even have a peace agreement. American suppliers have already signed contracts of up to 60 million tons, whereas Russia has managed to contract only 7 million tons of new LNG. Cheniere, which has tied its prices to the Henry Hub market, was the first in America.

***Currently, [Gazprom's] market positioning is swing producer with price maximization, though it is not articulated clearly.***

**Gazprom's Pricing Policy and Market Positioning**

Gazprom's rationale for getting as much revenue as possible now is that later on it will be much more difficult and the competition more hefty. There is a lot of gas around the world that could be produced economically, but this is long-term. The prices in Europe will drop by 2020 because of the coming oversupply. There is not a lot of hope for increasing revenue from gas for the Russian budget. A lot will depend on the Chinese, who could theoretically buy 40 bcma. When Alexei Miller came in 2002, Gazprom switched from price dampening, which allowed them to increase market share, to price maximization strategy. It was quite successful because of the growing prices and markets at the time. It was like an endless show, but the show has stopped. The strategy has been adjusted to allow for some small price discounts.

Russia is like the Saudi Arabia of gas. The difference is that Saudi Arabia has very low costs of production, while Russia has entered into expensive projects like South Stream, Nord Stream, and Bovanenkovo. I'm not sure for how long this strategy can be sustained without creating problems for the balance sheet. Currently, our market positioning is swing producer with price maximization, though it is not articulated clearly. Just as an illustration to the thesis I have already promoted - Europe has no options for gas supply alternatives available for the next three or four years - nothing can be delivered in such a short time frame. There are high expectations in Europe concerning North American LNG, but the Americans are unsure about supplying gas to Europe; for them, the Asian market is much more attractive. The situation is similar for East African LNG.

*The problem is if you have this price-oriented strategy instead of a volume-oriented strategy, then the question arises: why would you build so much transportation capacity?*

Gazprom's contract portfolio is a factor that should not be neglected. Europe has been offtaking about 75% of the contractual supplies, the very minimal amount without breaking the take or pay clause. They will offtake gas they don't use and sell it on the spot market, ironically pushing prices there down. If you look at all of Gazprom's current contracts, they are guaranteed to sell at least 120 bcma to Europe until 2020, about what they sell currently. Also, Gazprom sells about 20 bcma on the spot market – in Belgium and in the UK. Plus, if we assume there will be some deficit on the market, it means that Gazprom will be in a position to increase supplies. Gazprom's preliminary results estimate that 160 bcm was sold in 2013. In the third and fourth quarters, sales increased a lot.

There are arguments for Gazprom in favor of both oil indexation pricing and spot pricing. Plus, it is hard to say what is fair pricing. To a large extent, it's a question of your faith. For Gazprom, oil-indexation will be much more attractive than spot indexation for the next several years. This does not mean Gazprom will always refuse spot indexation. Probably by 2020, Gazprom will have to adjust, but not now. It's a good strategy actually, the problem is if you have this price-oriented strategy instead of a volume-oriented strategy, then the question arises: why would you build so much transportation capacity? The capacities of Nord Stream and South Stream will exceed annual contraction quantities by two times. With minimal contractual quantities, it'll be even less. There is a major inconsistency – profit maximization makes sense and is a reasonable strategy, but don't invest in large pipeline projects. There is a single explanation for these investments: to bypass Ukraine. I think the current situation will be used as proof that it's necessary to bypass Ukraine. But still, it seems there could be other solutions to this transit issue.

Summing up, Gazprom is protecting its oil-indexation policy in Europe. In Asia, Russia is in negotiations with the Chinese for a gas deal that is critical for the government. The pipeline to China would run from Chayanda and Kovykta with one leg branching off to Vladivostok to the liquefaction plant. This leg would make it so Russia is not so dependent on the gas to China.

**Changes Moving Forward in the Russian Gas Industry**

The recent LNG liberalization law was quite a historic event for the Russian gas industry. For the first time, non-Gazprom producers will be able to export gas outside of Russia. The government realizes that Gazprom, which is dealing with pipelines, Bovanenkovo, and the domestic market, is overburdened by carrying out so many projects simultaneously. This is partially why Novatek and Rosneft got this exemption for their projects in Yamal and Sakhalin. I have to stress this is not a complete export liberalization. It's not that easy to get an export license, but at least it's not *just* Gazprom now. There are at the same time at least two LNG projects by Gazprom: Baltic LNG, and Vladivostok LNG, and probably a Sakhalin 2 expansion, which would probably be the fastest and most reasonable but since it's not 100% Russia, it is not very welcome. Despite harsh conditions, these Russian LNG projects are more or less competitive, at least at first glance. If they manage to control costs properly, then these projects are more or less economically viable - at least not more expensive than US or Australian LNG, though not as cheap as LNG from Qatar.

***The three pillars of the Russian gas strategy: price reviews with minimal adjustments of oil-indexation framework, Eastern Development including a gas deal with China, and LNG development with non-Gazprom players' projects.***

Summing up, here are the three pillars of the Russian gas strategy: price reviews with minimal adjustments of oil-indexation framework, Eastern Development including a gas deal with China, and LNG development with non-Gazprom players' projects. It seems that for Russian gas, there are still many opportunities on the market, but realizing these opportunities is accompanied by huge challenges, which have already started to change the institutional structure of the industry and will likely bring more changes both domestically and in the export strategy.

**Question and Answer Section**

*Question: This year Statoil is planning to switch all of its contracts to spot market pricing. My question is what effect do you think this will have on the European spot market, and what will it do to Gazprom's export strategy?*

I think Statoil made this decision at the right time. If they'd done it two years ago they would have lost a lot of money, but now if you look at the spot prices, they are going up. From market fundamentals, if you have a tight market without many supply options available even with a stagnant demand, prices will go up. In winter, prices for gas will be at least in the range of oil indexed prices. So, Statoil is not losing anything by switching but is acquiring an image of a flexible market oriented player that takes into account the needs of the customer, something Gazprom is lacking. It is a good way for Statoil to enhance its own positioning on the market. I don't think it will affect Gazprom's strategy, as this strategy, as I have tried to explain, has a very serious basis behind it. It's not Gazprom being so nasty and/or reluctant to any changes; they just see what would be more profitable for them now.

*Question: In your presentation you mentioned many potential export markets for Gazprom. My question is what are Gazprom's prospects on Russia's domestic market?*

For a period of time it was popular [for Gazprom] to say, if the foreign customers don't like us, we will switch to the domestic market. After the crisis, however, the domestic market stopped growing. It has been stagnant since 2009. You know what has happened with Russia's economic performance? In 2013, we will be happy to have 1.4% GDP growth with nearly zero industrial output growth. There is no gas demand with the economy in stagnation; it's

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similar to the EU situation.

***[Russia's] domestic gas suppliers are supposed to be like normal competitors but it's more like an oligopoly, where they are dividing their markets.***

Additionally, there is increasing competition on the domestic market. We used to have just Gazprom and a little bit of Novatek. Now, we have an ambitious Novatek, aiming to bump its production to 100 bcma, and an equally ambitious Rosneft with the same production target. With Novatek, this growth is coming from the natural development of new fields. With Rosneft, it is to a large extent the result of mergers and acquisitions. We see Gazprom losing its market share. In the good old days, they had 85%, now it's less than 74%. This figure will further decline because these new market players are very influential, active, and aggressive, providing gas discounts. In the last couple of years, Novatek and Rosneft have been cherry picking the best of Gazprom's domestic customers - large industrial customers that pay the highest prices. Novatek and Rosneft agreed to sell their gas at a discount: the regulated price minus 5 - 10%. The domestic gas suppliers are supposed to be like normal competitors but it's more like an oligopoly, where they are dividing their markets. The problem for the producers is that on the stagnant market it is very difficult to justify a price increase. Actually, domestic Russian prices have already reached the level of the USA. In the 1990s and early 2000s, there were cheap prices but that is no longer the case. Currently, they pay around $130 or $140 per 1000 cubic meters, with industry screaming that any further price increase would lead to negative industrial output growth. The government has decided to freeze gas prices for 2014. Most likely, we will see a period of much lower annual gas price increases, probably following the rate of inflation. Historically, it was 25% increases starting from 2007 to 2011, which later dropped to 15% per annual growth. Now, it will be about 5% per annum.

*Question: What is Gazprom doing to market its brand? What is it doing in terms of PR and lobbying in different countries?*

Gazprom has several contracts with major PR companies. They are financing football clubs, what else? [laughs] They are putting forth a lot of expensive effort to promote themselves, but I am afraid that the negative image, which is to a large extent a result of people regarding them not as a commercial company, but as a political tool, is very hard to overcome. It's difficult to explain their side of the Ukrainian gas crisis of 2009, namely, that if you were supplying gas to somebody that does not want to pay, the logical decision would be to switch them off. But the other side would disagree, saying it was Russia applying pressure to Ukraine. I would not say that it's a problem with Gazprom but a problem with the image of the Russian Federation.

*Question: You have spoken a lot about Russia's relationship with the EU. I was wondering if you could spare some words on a different gas customer: Turkey. How does the Blue Stream pipeline fit in to Russia's relationship with Turkey?*

Blue Stream was a fantastic story. I believe they started construction in 2002. The first problem Gazprom faced was that demand in Turkey was overestimated, just as in Europe nowadays. The price formula was wrong and there was then a long dispute trying to settle prices. As a result, Gazprom had to give a good discount. But then this pipeline had remained underutilized until very recently. It was utilized roughly at 8 bcma whereas its capacity is 16 bcma. From time to time, when Iran was failing to supply contracted volumes to Turkey, Gazprom was asked to compensate for that and the utilization was increasing. These were quite short periods of time though. I wouldn't say Blue Stream is an example of the most efficient project I've ever seen. There were many corruption scandals that erupted both in Russia and in Turkey. Until recently and for the last decade, Turkey's gas consumption has been rising fast, providing for the highest growth rates of gas consumption in Europe. Turkey, however, in its own energy strategy, wants diversify both its energy mix and suppliers portfolio, in which it refers to this mysterious dominant single supplier.

***I think both sides will go to courts and in a couple of years the problem will be settled, and meanwhile Gazprom will just build South Stream.***

There have been some very painful price disputes: in 2011, Turkey stopped two contracts and refused to re-sign them because Russia did not concede price discounts. These contracts were terminated for half a year. The following contracts involved not Turkish state company BOTAS, but other companies, as Turkey was undergoing market liberalization and there were new entrants into the market. What makes it harder for Gazprom is Turkey is keen on diversifying its options. It's not only gas from Azerbaijan, but also potential suppliers from Iran, Iraq, and those using the Arabian pipeline are possibilities. Turkey is trying to position itself as a South European gas hub. More important, Turkey was trying to become an intermediary, buying gas on its border and selling it to the EU - something Gazprom just hates. It has not been an easy relationship, but Gazprom was very happy when Turkey gave permission for the construction of the South Stream on its territorial waters, and Gazprom was very interested in the construction of gas storages and gas fired power plants in Turkey. There are problems with a nuclear power plant construction, an element which is also affecting Russo-Turkish energy relations and gas deals as well. Finally, not everything is rosy with many different complex factors, but they are and will be working together because it's in both parties' interest.

*Question: Last week the EU Commission announced that Russia's bilateral agreements with EU Member states regarding South Stream were illegal and had to be reformulated. How do you see this progressing? What is Gazprom's next move? And the European Commission's?*

I think the Russian Ministry of Energy stated the Russian Government will appeal to the European Court and the European Commission will do something similar, so it will move this legal issue to the priority of different agreements -- what is more important: an intergovernmental agreement between Russia and every single country or European legislation, supernational regulation. There is no straightforward answer, it has to be worked out in courts. I think both sides will go to courts and in a couple of years the problem will be settled, and meanwhile Gazprom will just build South Stream.

***In the worst case scenario, there could be just two lines of South Stream ending in the Balkans, not stretching further. Hence, some TPA wouldn't mean any significant losses for Gazprom in this case.***

*Question: What do you think will happen with the EU Commission's case against Gazprom, will it be settled at courts?*

Maybe it will sound cynical [smiles], but when you're facing winter time and you do not have any supplier capable of delivering gas, you will be quite cautious to fine Gazprom with 10% of its turnover. I think it will be settled. There will be some evidence showing that Gazprom has applied different prices to different consumers, but then it will just be forced to correct its contracts. At least at the current stage that's how I think it will develop.

*Question: If South Stream fails to get an exemption from the 3rd energy package, which seems likely, then other suppliers, such as the Shah Deniz Consortium could, through the third party access clause, use Gazprom's pipeline. How is Gazprom dealing with this possible scenario?*

Gazprom is still working on its South Stream strategy, because they still do not know for sure how far the European Commission will go and what the courts' decisions will be on this issue. In the worst case scenario, there could be just two lines of South Stream ending in the Balkans, not stretching further. Hence, some TPA wouldn't mean any significant losses for Gazprom in this case. I think they will simply adjust to the situation.

***It's becoming more and more obvious that Novatek and Rosneft are interested in the Ukrainian market. This could be a solution to these dead-end negotiations. For Rosneft and Novatek, $170 per 1000 cubic meters is a good price, and $220 is just perfect.***

*Question: As a follow-up question, do you think fear of projecting weakness is one of the reasons Gazprom is refusing to allow TPA?*

It could be. You know, when it comes to these exchanges of statements there is so much of policy inside and just a little bit of economics [smiles], so it's difficult for me to comment on that. Of course there is a part of political, just political, pressure on the other side. On the other hand, some TPA could be theoretically acceptable - very unpleasant, but acceptable. Gazprom will resist, of course, for as long as possible.

*Question: One part of Gazprom's strategy, as you have mentioned earlier, is to develop Russia's Far East. Can you speak to the effectiveness of this strategy? What is the state of its development?*

One of the rationales behind the Eastern Gas Strategy is that it's not just providing gas for exports but also developing gas for local industrial production, providing employment for locals and the gasification of the region as well as for gas fired power plants. The problem is that it's expensive gas and so far we have an example of gas supplied to this region through the Sakhalin-Khabarovsk-Vladivostok pipeline. Consumers have been quite skeptical about this gas and only after the federal government has provided special and significant subsidies it had started to work. In the local inter-fuel competition, local coal is much more competitive than Sakhalin gas. The government can apply these subsidies, if they think they are justified, but I'm not sure that it's the best way to develop energy supplies from remote and locked regions. I think that to a certain extent it is exaggerated, this impact, this multiplication effect of gas supplies in the region. With the industrial consumers, the Eastern Strategy was developed in 2006 when there were high GDP growth rates and Russia was a little bit different a country than it is now. There were a number of industrial projects in the Far East which could have used this gas, but they are now postponed and there is no such gas demand.

*Question: Russian Ukrainian gas relations are poor at the moment, yet Ukraine is still reliant on Russian gas. How* *do you see gas negotiations between the two countries going forward?*

It will depend partially on the market players that supply gas to Ukraine. It's becoming more and more obvious that Novatek and Rosneft are interested in the Ukrainian market. This could be a solution to these dead-end negotiations. For Rosneft and Novatek, $170 per 1000 cubic meters is a good price, and $220 is just perfect. For instance, now Rosneft, not Gazprom, is negotiating some Russian exports to Belarus.◆

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You can find the video of Dr. Mitrova's presentation on ENERPO's YouTube page, listed on the last page.

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