BLUE FUEL

Gazprom Export Global Newsletter

2018/ Issue 46

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To Our Readers

Winter and spring 2018 – what has the past heating season brought new for the European gas market? The overall tone of the industry is cheerful. On the back of economic renaissance, gas demand in Europe is growing. In the 1st quarter 2018 natural gas consumption in Europe reached 5 year maximums.

Following the market growth, Gazprom supplies to Europe are going up as well. From January to April 2018, Gazprom increased gas exports to Far Abroad countries to 70.3 bcm, or by 6.3% compared to the same period of 2017. In particular, exports to Germany increased by 12.4%, to Austria by 76.4%, to the Netherlands by 98.8%, to France by 8.2%. This buoyant start of the year inspires optimism that new export records for Gazprom are ahead. More and more industry analysts speak about Gazprom's export levels of no less than 195 bcm per year as of new reality. Gazprom is increasing its share on the growing and evolving market.

Over the last couple of years, the European gas market has undergone a number of structural changes. Last year, for the first time in the history, the Netherlands became a net gas importer and are expected to preserve this status given the government policy towards the end of production on Groningen gas field. The UK is consuming more domestically produced gas in the home market, reducing its export flows to continental Europe. The trend of declining indigenous production in Europe persists, and LNG is still being diverted to more attractive markets. The growing niche is being filled with gas from the nearest resource base – from Russia. Even if LNG turns back to North-Western Europe, such a situation will be good for the market as a whole. Pipeline gas and LNG doesn't exclude each other, and the recovery of trade shows that the market is in good shape.

So, why Gazprom's gas remains a desired commodity in Europe? The answer is simple – this is what the market wants. We serve the interests of European businesses and customers. Gazprom intends neither to put Europe in a position of dependence nor to build a trap. The new European energy system is developing itself, and natural gas suppliers are there to help it and provide resources, in order to make this system reliable, stable and commercially-effective. If the market prefers natural gas resources from Russia, this shows that such choice is beneficial for both sides.

The market is changing, so does Gazprom. We have added more market-based instruments to our core portfolio of long-term contracts, offering our clients more flexible pricing and delivery conditions. At Gazprom Export, we are also actively developing trading business.

To maintain strong export flows in the future, Gazprom carries out large infrastructural projects that don't cost European taxpayers a cent, and that will be able to significantly reduce gas import bill of the EU in the future. In late April, 2018, Gazprom has completed the deep-water pipelay for Line 1 of the TurkStream offshore gas pipeline. The Nord Stream 2 pipeline project is being carried out in full accordance with the schedule. These projects will contribute to a stronger, economically prosperous and energy-wealthy Europe. After all, despite all political headwinds the energy link between Russia and Europe exists for decades providing numerous tangible benefits for both sides.

Future of Natural Gas on the European Markets: The View from Gazprom", – Alexander I. Medvedev Speech at European Gas Conference

Alexander I. Medvedev speech at European Gas Conference Vienna, 30 January 2018

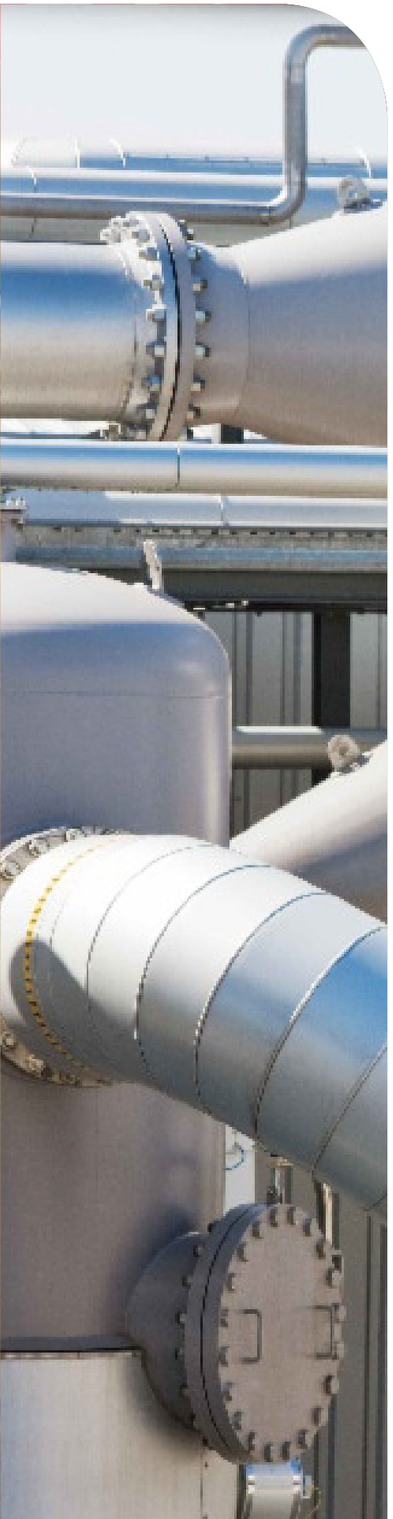


It is a special pleasure for me to speak in Vienna, the elegant capital of Austria, the country which is one of our oldest and trustworthy partners in natural gas trade. It is remarkable that this year we will celebrate 50 years of gas supplies to Austria from Russia.

But now I would like to speak not about long and glorious history of our partnership, but about the future development of the European gas market, opportunities and challenges ahead.

Last year has brought good news for European gas industry. Natural gas consumption in Europe grew by 3.5% reaching 560.5 bcm which is close to historical maximums. The total demand growth in the last 3 years amounted to 75 bcm. This is almost the total gas consumption of Germany! Step by step, natural gas is gaining a greater share in power generation. Last year, the growth amounted to 6.2%, well above the market average. Relatively low prices allowed gas to win over coal in interfuel competition. Still, Europe has a long way ahead to phase out coal completely. What keeps spirits high is that natural gas is more and more perceived as a reliable and flexible back-up for renewables. When last winter cold snaps arrived to Europe and renewables were not able to meet dramatically surged demand is was natural gas that helped a number of countries to go through such a difficult situation. When last hot summer several countries of Southern Europe faced problems with hydropower, it was natural gas again that helped to substitute lost generation capacity. Whatever politicians may say, market realities show that natural gas is a vital component of a sustainable energy system. Take it out of the energy balance, and you will get a system that is unstable and vulnerable to external shocks. In our globalized world of today, where competition stiffens, no one can afford such risks.

Instead, we see how big players like the USA or China bet on natural gas. Analytics forecast that in the next couple of years, gas consumption in the USA will hit record levels. Last year China became the second largest LNG importer in the world, providing for 41% of the total global LNG demand growth. Natural gas drives industrial competitiveness and creates economic growth. International Gas Union has estimated that oil and gas activities in the USA may create more than half a trillion of US dollars for the American economy by 2025.



To stay successful in the global economic race, Europe should also maximize the benefits it can get from the development of the energy system based on natural gas. Sustainable and competitive energy is the fundament for competitive industry.

I think that most of the conference's participants are optimistic about the long-term future of natural gas in Europe. Sustainable economic development of Europe with an eye to ambitious emission reduction targets is impossible without "blue fuel". Moreover, natural gas continuously finds new spheres of application. For example, LNG is already the most popular choice for new-build ships. With great interest we are also looking at the development of inland LNG shipping, for example, on Danube River. The use of gas in other sectors, such as road transportation, as well as in combined heat and power generation, is also very promising. Each of these sectors is expected to increase gas demand by tens of billions of cubic meters. According to our estimates based on forecasts of leading analytical agencies, Europe will need additional 50 bcm of gas imports by 2025 and 75 bcm by 2035. I think that these figures are attractive enough for all gas industry stakeholders and investors.

Now I'd like to turn to supply-demand situation on the European market. The continent's domestic output continues to fall, as in previous years. Europe's growing demand for natural gas was met by imported gas. Contrary to what some might have expected, by no means LNG was the sole source of these volumes. In 2017 Norway increased its supplies to European markets by 6%. Gazprom's gas exports grew even faster. Last year, Gazprom supplied 194.4 bcm of natural gas to European partners. This is 8.4% more than in 2016. At the same time European re-gasification terminals stayed substantially underutilized. I have mentioned this fact last year here, at the same conference – and the situation has not substantially changed since. Last year our supplies to our longstanding partner Austria reached a historical maximum of 9.1 bcm, 50% more than in 2016. Germany, the third largest gas importer in the world, last year increased offtake of Russian gas by 7.2%, having bought 53.4 bcm of gas from Gazprom. France increased imports of Russian gas by 7%, and Czech Republic by impressive 28%.

However, there are still certain challenges the European gas industry is facing. We often hear that, in order to achieve

climate targets, Europe needs to abandon all fossil fuels, no matter if it is coal, oil or natural gas. Too often such ideas have no reasonable rationale, and turn out to be emotionally driven.

Let me recall an example from the nuclear energy industry. After Fukushima, many politicians in Western Europe promptly declared that it was no longer possible to rely on nuclear power. Germany decided to shut down its last nuclear power plant by 2022, some other European states cancelled construction of new plants. At the same time real advantages of modern nuclear plants were simply forgotten. In many advanced European countries this energy source which allows to lower greenhouse gas emissions is not welcome anymore, largely due to emotional response to the accident in Japan. This is just an example of how a quick decision can deteriorate investment attractiveness of the whole industry.

What did it mean for the European energy industry, in the end? It means that achievement of climate goals will be even more difficult than before. To preserve its industrial potential, Europe needs to compensate nuclear power capacity with clean, stable, reliable, flexible and affordable sources of energy. Do renewables suit for this role? In some cases, they can – if we are talking about hydropower, a flexible source of electricity. For instance, here in Austria hydropower serves as a reliable base for local industry and households providing for more than 60% of domestic electricity. But obviously, not every country of the EU has such resources. Other countries can boast extensive offshore wind farms that can produce affordable energy, but nobody yet can make the wind blow right when the energy is needed.

Renewables can and should substantially contribute to the energy mix of Europe, but they need to be backed by stable sources. Unstable power supply is not what European industry really needs. While eco-damaging coal is considered as energy source of the past, and nuclear power share is expected to decrease in coming decades, there are not many options left. Natural gas, as a substantial part of energy mix, can provide a solution for reliable and eco-friendly energy system at an affordable cost. And no other fuel can do that. I disagree with energy experts who say that Europe needs natural gas only as a bridge fuel in transition to 100%-renewable world. Renewables should not displace gas when common sense pushes them to work in pair. We all should realize that putting into life the "Energiewende" policy with the use of renewables will only result in enormous spendings. The International Energy Agency has found that 200 million people in OECD countries or 15% of population of those countries spend more than 10% of their income paying the energy bills. In Germany, 30% of population pays more than 10% of their income for energy. International Energy Agency describes such a situation as 'energy poverty'. At the same time, Germany spends for subsidizing renewables some 25 billion euro every year.

The "Energiewende" cannot be made just overnight. It should instead follow a pragmatic and flexible approach. Natural gas gives a great chance for "Energiewende" to become a reality but without any supply disruptions and higher energy bills. Natural gas doesn't need subsidies, it needs only a level playing field. In order to enhance security of supply, to develop new gas fields, to build new pipelines and improve interconnections, gas industry needs clear



long-term investment predictability. You all know that in our industry investment cycles last for decades. However, what is now happening on the European energy landscape seems to be surprising and discouraging. Unfortunately natural gas is still in very different position compared to renewables and – even more – is being discriminated and labelled as a fuel of the past. And we cannot turn a blind eye on how such attitude will impact investments.

Sometimes we witness how decision-making in Brussels leads to such results. For instance, the initiative of the European Commission to apply Third energy package to existing and planned gas pipelines outside the EU. Probably, this is somehow Brussels just tries to block the Nord Stream 2 construction for political reasons. But groundless changing of the rules in the EU will harm not just Russian gas or Gazprom. It can ruin the investment climate of the entire European gas industry, and consequently reduce the competitiveness of the European economy. This is why we are pushing for honest decision-making with consideration of commercial and ecological aspects – for the benefit of European citizens. Political slogans based on anti-Russian attitude can hardly help lower energy bills and enhance the security of supply. Apart from what politicians may say, European business chooses natural gas and cooperation with Russia in this field.

We have seen more than once how natural gas had rescued European energy supply during dark and windless winter days, or in other unexpected occasions when renewable sourced had failed. And – as distinct from coal – increased use of gas didn't result in a jump of emissions. Blue fuel is proved to be safe and eco-friendly source of electricity and heat for millions of people.

Commitments on the future energy system in Europe require action. And this action should be smart, rational and balanced. Renewables have bright future indeed, but going all-in with them would be too dangerous for the security of supply. The best possible option to achieve the sustainable development of European energy sector is to combine renewable sources with natural gas. And for that, it is extremely important to preserve investment predictability in the gas industry. Let's not allow political ambitions spoil the strong business case.

15th Anniversary of "Blue Stream" Gas Pipeline

This year marks the 15th anniversary of the Russian pipeline gas supply to Turkey via the "Blue Stream" pipeline – the joint project of Gazprom and ENI. The first deliveries of natural gas via "Blue Stream" started on 20th February, 2003. This project has become a milestone in the energy cooperation between the two countries and proved all the advantages of direct sea route of supplies to Gazprom's partners in the Far Abroad. The "Blue Stream" has significantly enhanced the reliability of gas deliveries and contributed to gas market and infrastructure development in Turkey.



Construction works on the "Blue Stream" pipeline

Our readers are undoubtedly well aware of what "Blue Stream" is – a gas pipeline from Russia to Turkey of 16 bcm annual capacity. What is the idea of "Blue Stream"? How has this pipeline influenced energy cooperation between Russia and Turkey? How has its success contributed into the new Gazprom's project of natural gas deliveries to Turkey, the "TurkStream"?

The cooperation in the gas sector between Russia and Turkey started in 1984 when the governments of the Republic of Turkey and the USSR signed the Agreement on Natural Gas Supply to Turkey. The exports of Russian gas to the Turkish market was carried out since 1986 when the deliveries via the western transportation corridor amounting to about 6 bcm per year commenced. Through 1990s, the deliveries were being increased in accordance with the growing demand of the Turkish consumers.

On December 15, 1997 Russia and Turkey signed an intergovernmental agreement providing 365 bcm gas supply to Turkey within 25 years. In February, 1999, Gazprom and Italian company ENI signed a Memorandum of Understanding to jointly implement the Blue Stream project – a new direct subsea pipeline reaching the Turkish land in the central part of its northern Black sea coast – in the vicinity of Samsun city. On November 16, 1999 a special Russian-Italian joint venture, Blue Stream Pipeline Company B.V., was set up in the Netherlands by Gazprom and ENI on a par. Presently, the joint venture owns the offshore gas pipeline section including the Beregovaya compressor station at Russia's Black sea coast.

Specific engineering solutions were applied during the pipeline construction in order to



enhance its reliability as the Russian mountainous section is over 60 kilometers long and the offshore section runs at depths of up to 2,150 meters in an aggressive hydrogen sulfide environment. In particular, high-grade corrosion-resistant steel pipes with internal and external polymer coatings, pipeline stress testing, intellectual cut-ins at the mountainous and offshore sections were among these solutions.



"Blue Stream" project's team

In fact, "Blue Stream" has become Gazprom's pilot project of international gas transportation system laid on a sea bottom and aimed at bypassing third countries. Created as an alternative to the transit route of the Russian natural gas supply which has been delivering "blue fuel" to Turkey since 1986, "Blue Stream" provides the deliveries to the second large importer of the Russian gas via the shortest and the most advantageous sub-sea route.

As for today, more than 50% of Gazprom's exports to this country is provided by "Blue Stream". Would be not an exaggeration to say that "Blue Stream's" success is fundamental for several later Gazprom's projects like "Nord Stream", "Nord Stream 2" as well as for the "TurkStream" gas pipeline which is now under construction.



Durusu gas compressor station aerial view

"Blue Stream" has significantly enhanced the reliability of gas supply and contributed to gas market and infrastructure development in Turkey. Prior to its launch, no more than 10 provinces in Turkey were connected to the national gas network system. At present, the number of gasified provinces has increased to 77 of 81. This is how the "Blue Stream" has become a powerful accelerator for the Turkish natural gas market as well as for the development of Turkish national gas grid. The commissioning of the pipeline, in fact, marked the beginning of a new large scale stage in the process of the gasification of the country.

Unlike the "western route" of Russian gas supply to Turkey which bypasses Ukraine, Moldova, Romania and Bulgaria, "Blue Stream" has allowed to supply significant volumes of gas directly through the shortest and most efficient route. This is how the transit risks for the Turkish consumers have been significantly reduced.

The advantages of the direct gas pipeline route were also proved within the periods of peak demand against the low temperatures in Turkey that Gazprom has always been capable of covering. It is also important to note that at certain periods "Blue Stream" operates more than at full capacity upon the request of Turkish party. This in particular happened under some force majeure circumstances linked to single cases when other parties could not have managed to meet their obligations within the gas supply or gas transit contracts towards the Turkish consumers.



Following Gazprom's 2017 export results, a new record on Russian natural gas supply to Turkey of 29 bcm has been set. This is 6.2% (1.7 bcm) more compared to the previous maximum of 2014 (27.3 bcm). As for 2017, 15.8 bcm of natural gas was delivered to Turkey via the "Blue Stream" gas pipeline, which amounted to more than 55% of the total annual supply imported by this country from Russia. The undeniable success of "Blue Stream" has become fundamental for the new gas pipeline project "TurkStream" aimed at further enhancing energy security of the Turkish consumers as well at delivering new volumes of the Russian gas to the southern borders of Europe.



Onshore facilities of the "Blue Stream" pipeline



Andrea Gerini: 'We expect at least 10% of the car market in 2030



***Andrea Gerini** is the secretary general of NGVA Europe, the natural and bio gas vehicle association. Graduated in 1990 as Mechanical Engineer at Politecnico di Milano, he started as research engineer at IFP (Institut Français du Pétrole) working on the development of Internal Combustion Engines fed with alternative fuels. Since 2013 he was responsible of the Collaboration & Strategic Programs area within R&T (Research & Technologies) division of FCA Powertrain Engineering for the coordination of the collaborative programme actions for the EMEA Region. Since several years, he is member of the Expert Group on Fuels & Energy as well as on Powertrain within the EUCAR association and CRF representative in the Energy & Environment Working Group within ERTRAC association. Starting from March 2017 he has been appointed new Secretary General at NGVA Europe in Brussels.*

In an exclusive interview he spoke to EURACTIV's energy and environment editor, Frédéric Simon.

Full text of the interview is available at: https://www.euractiv.com/section/energy/interview/gas-chief-we-expect-at-least-10-of-the-car-market-in-2030/

What is the situation today regarding the use of gas in transport?

Transport is high on the EU agenda now as this sector needs to be decarbonised. The Commission's second mobility package was published in autumn last year, and the third package will be out in May. So we thought it's high time we talk sustainable mobility.

Gas in transport is not exactly a novelty. Technologies have existed since decades, in Europe at least for 20 years. Worldwide, there are about 25 million natural gas vehicles running. For Europe, the number is only 1.3-1.4 million. So Europe is not the key player.

Has the share of gas vehicles evolved in Europe?

It has remained more or less stable. Even if we have seen a lot of interest over the last years, especially in the heavy-duty sector.

At the moment, the market penetration of natural gas vehicles is 0.5%. But some countries are champions – Italy for example, where most of the fleet is concentrated because of historical reasons linked to the availability of gas and technologies for natural gas vehicles.

Germany is also a promising market where new investments are taking place. The Volkswagen group, for instance, has put 15 new gas-fuelled models on the market. And the market for Compressed Natural Gas (CNG) in Germany has increased by 300% in the last year, Still, this is an important sign in relation to decarbonisation and air quality objectives adopted at the European level. These targets cannot be achieved with a silver bullet solution, today indicated in the electro-mobility. A broader range of solutions is required to deliver on those objectives, and natural gas can play its part.

With such a small market share, and low economies of scale, cost probably weighs against natural gas.

The question of cost is increasingly related to cost-effectiveness. We are starting from conventional vehicles with internal combustion engines. And from there, you get a range of solutions. On the one hand, you have electrification – from hybrid to plug-in and full electric. And on the other hand, you have alternatives like natural gas.

And of course, there is a cost linked to the components that you are adding to the vehicle, which are affected today by the low volumes of production. Today, a CNG car is 10 to 15% more expensive than a conventional vehicle, so similar to a mild-hybrid or hybrid vehicle. And CNG is anyway less expensive than a plug-in electric.

And buses?

For buses, the cost difference is about the same. So when you compare natural gas with full electric or fuel cell buses, natural gas is less expensive. Looking at the evaluations that were made last year as part of the green public procurement criteria, natural gas buses tend to represent a 15% cost increase compared to an 85% increase for full electric solutions.

So the real question is what kind of benefits you get from each solution, which leaves the door open to multiple answers. Northern European countries have tended to opt for the full electric solution while in Eastern Europe, they are still quite far from being able to afford this.

Norway is often seen as some sort of "dream country" leading the way on battery-electric vehicles. But think of Greece or Southern Italy – they are far from being able to afford it.

So you see gas more like a bridging fuel?

No, it would be a very long bridge, then. It's been 20 years since natural gas has been around. And what does it bridge? The system is open to all kinds of low-carbon, low-polluting vehicles.

Electricity will surely be a big player. But when you look at all the different bottlenecks standing in the way of a massive uptake for electro-mobility, you see that conventional solutions will continue to be on the market for at least the next couple of decades. And maybe there will be different hybridisation solutions and alternative fuels that will lower the emissions of internal combustion engines.

Electricity makes up only 20% of final energy consumption. So if you want to cover everything that is now covered by oil-derived fuels with electricity, you would need to make huge investments. This is why the market needs to be divided up between electricity and the different gases, including hydrogen.

Europe is currently engaged in a global race to electrify transport. Is there really still a place for gas-powered vehicles in that context? It seems the direction is pretty clear now – at least when it comes to passenger cars.

I am more optimistic and I'll tell you why: we expect a 30% market share in 2030 for battery electric vehicles, despite the remaining questions about grid and recharging infrastructure.

Regarding the remaining 70%, diesel will continue to play a role but it will start disappearing. And speaking about gasoline engines, they use the same technologies as natural gas. And here, there is a huge potential to include natural gas as a bridge to other solutions – like electricity, gaseous fuels and advanced biofuels.



Because that 70% may have a hybrid powertrain but the internal combustion engine will still be there.

How do you expect demand to evolve in the future? Looking ahead to 2030 and 2050, do you expect that the share of gas will increase or diminish?

For passenger cars, we expect to reach a market share of at least 10% in 2030. And that is realistic, it's not a dream.

For 2030, what I can say is that we project to multiply our fleet by ten, reaching 13 million vehicles in Europe. This means that we will have reached the volume necessary to bring costs down and be competitive. So natural gas will be a conventional fuel at this stage, it won't be a niche market anymore. And it will be a fuel available all over Europe.

And that would be power-to-liquids, essentially?

No, in 2030 there is an assumption to potentially include renewable gas in the mix. We see the potential reaching 30% of the total natural gas mix used for transport across Europe on average.

Power-to-gas will accelerate, most probably starting from 2030 because there will be a serious need to convert the renewable electricity production in chemical form.

Between now and 2030, we see most of the renewable gas being produced via the conventional waste biomass conversion route, with some power-to-gas already in place.

And after that, looking towards 2050?

There are some publications. Recently Ecofys did a study saying more than 100 billion cubic meters (bcm) of renewable gas will be available by 2050. Today, transport is a modest consumer of natural gas, around 2 bcm. With our roadmap, we think we will reach around 29 bcm in 2030. So transport will still be well below other sectors in terms of gas consumption, well behind the heating sector and electricity production.

So all these elements support our forecast that natural gas can cover at least 10% of energy demand for passenger cars. And we could go even further for buses and trucks. Because these are two sectors where electrification will be very difficult – certainly for long-distance haulage.

This is despite the fantastic semi-trailer from Elon Musk, who is promising fantastic acceleration with an electric motor. But the reality is that hauliers need to run 1,500 kilometres at low cost with a reliable solution.

And in the last three years, we've seen demand for LNG trucks multiply by ten. So hauliers now consider LNG as a second fuel, it's no longer an alternative fuel.

The volumes are still small though, I suppose.

Volumes are small indeed, we are talking about a few thousand registrations per year for natural gas trucks compared to 15 million truck registrations overall in Europe. But the numbers are rising.

You said you expected a 10% market share for cars running on natural gas in 2030. What are your expectations for trucks?

For trucks we expect at least a 20-25% market share in 2030. For buses, at least 30%.



New Contract for Gas Supply to Slovenia Signed



Elena Burmistrova and Bostjan Napast at contract signing ceremony. Photo by Tamino Petelinšek/Slovenian, Press Agency Source: Slovenian Ministry of Foreign Affairs

Alexander Medvedev, Deputy Chairman of the Gazprom Management Committee, Elena Burmistrova, Director General of Gazprom Export, and Bostjan Napast, Chairman of the Management Board of Geoplin d.o.o. Ljubljana, took part in the ceremony marking the conclusion of a medium-term contract or natural gas supply to Slovenia on April 13, 2018, in Ljubljana.

The event was attended by Karl Erjavec, Minister of Foreign Affairs of the Republic of Slovenia, and Doku Zavgayev, Ambassador Extraordinary and Plenipotentiary of the Russian Federation to the Republic of Slovenia.

The new contract provides for annual supplies of 600 million cubic meters of gas from January 1, 2018 to January 1, 2023.

"This year marks 40 years since the start of Russian gas deliveries to Slovenia in 1978. Geoplin d.o.o. Ljubljana is our long-standing partner. I am confident that the new contract for natural gas supplies will reinforce the relations between our companies and open a new page in the history of energy cooperation between the two countries," said Alexander Medvedev.

"Today's event is another proof of our effective long-term cooperation with Gazprom. This contract symbolizes a crucial strategic alliance. Our reliable partnership with Gazprom is a guarantee of uninterrupted gas supplies to our company and Slovenia for years to come," said Bostjan Napast.

Russian gas supplies to Slovenia began in 1978. Between 1978 and 2017, more than 14 billion cubic meters of gas was delivered to Slovenia, including 607.2 million cubic meters in 2017. The previous contract between Gazprom Export and Geoplin d.o.o. Ljubljana expired on December 31, 2017. Geoplin d.o.o. Ljubljana, a major natural gas importer to Slovenia, is a partner of Gazprom Export in the Slovenian market.



Alexander Medvedev (third left), Elena Burmistrova, Director General of Gazprom Export (second left), and Bostjan Napast, Chairman of Management Board of Geoplin d.o.o. Ljubljana (third right), take part in ceremony held in Ljubljana to mark conclusion of medium-term contract for natural gas supply to Slovenia. Photo by Tamino Petelinšek/Slovenian, Press Agency Source: Slovenian Ministry of Foreign Affairs

EU Gas Demand Hits Six-Year Record in 2017

The total consumption of natural gas in the countries of the European Union (EU) in 2017 amounted to 491 bcm, which is 6% more than in 2016. This is the highest level of demand for the "blue fuel" since 2010, the Market Observatory for Energy of the European Commission (EC) states in its Quarterly Energy Report on European Gas Markets for Q4 2017, published on March 26.

The volume of EU gas imports in 2017 amounted to about 360 bcm, exceeding the value of 2016 by 10%. As noted in the EC report, all major gas suppliers — Russia,



Norway and Algeria — registered a year-on-year growth in Q4 2017, while Russia retained the largest market share, having increased the pipeline supply by 12%.

The EU's own gas production in 2017 amounted to 128 bcm, which is 3% less than in the previous year. In particular, in 2017 the Netherlands became a net importer of gas for the first time in history. The annual gas consumption in this country exceeded the volume of its own production.

Read more on the Market Observatory for Energy page of the European Commission website.



Russian Gas Export Sets New Records

Gazprom reports a growth of production and supply despite the end of calendar winter. According to preliminary results of Q1 2018, an absolute monthly record of 19.6 bcm was set for gas supplies in March to the Far Abroad countries. The previous record of 19.1 bcm was set in January 2017.



The landfall of the Nord Stream pipeline in Germany

Within Q1 2018, Gazprom supplied a total of 54.4 bcm to the Far Abroad countries. The increase amounts to 3.3 bcm or 6.6% compared to the same period of 2017. According to the Q1 results, supplies increased to Germany by 12.2%, to France by 11.1%, to Austria by 83.5%, to the Netherlands by 127%, to Finland by 15.5%, to Greece by 36.4%.

Gazprom also increased gas production. In March 2018, 46.5 bcm were produced, which is higher than Gazprom's production in January and February of this year and also 20.5% (7.9 bcm) more than in March 2017. This is the maximal volume of gas production for this month over the last six years.

Through late February and early March 2018, Gazprom has been also breaking records for ten consecutive days, setting new historical maximums of daily gas supplies. A new record level of 713.4 mcm was reached on March 2. In 2017, the maximum value was set on December 19 at 640 mcm.

In addition, this February broke a record for the total exports volume: Gazprom exported a total of 17.4 bcm, which is 6.8% (or 1.1 bcm) higher than in February 2017, and the absolute maximum for this month in the entire history of deliveries to the Far Abroad.

Compared to February 2017, gas exports to Germany in February 2018 went up by 8.5%, to Austria by 115.8% and to the Netherlands by 146.8%.

"These figures are more than impressive. They are indicative of the huge, unique opportunities available to Gazprom and, by extension, to our consumers in Europe.





Portovaya gas compressor station

We are a responsible supplier. Yet again, we are doing something only Gazprom can do in the European market, by promptly responding to the sharp rise in demand and providing consumers with the required amounts of gas", said Alexey Miller, Chairman of the Gazprom Management Committee.

The growth in demand for Russian gas in Europe was also noted by market participants. Bloomberg newswire quotes meteorologist Giacomo Masato from brokerage company Marex Spectron Group: "We see the coldest end of the winter in years, and Russia is the first supplier with enough spare capacity to meet an extreme surge in demand."



Nord Stream 2 Receives Full Set of Permits in Germany and Finland

On 27 March 2018 the Federal Maritime and Hydrographic Agency of Germany issued the Nord Stream 2 AG the permit for the construction and operation of the 30-kilometres-long pipeline section in the German Exclusive Economic Zone (EEZ) in accordance with the Federal Mining Act (BBergG).

The Stralsund Mining Authority had on 31 January 2018 approved the construction and operation of the pipeline in the German coastal waters (within 12 nautical miles) as well as its landfall area.

"We are pleased that all necessary permits are now in place for the 85 kilometers-long German route section," said Jens Lange, Permitting Manager for Germany at Nord Stream 2 AG.

The extensive process for the approvals was carried out in accordance with German national law since April 2017.



Pipe storage near the German port of Mukran, © Nord Stream 2 / Axel Schmidt



Offshore seabed survey by the "Stril Explorer", © Nord Stream 2 / Axel Schmidt

On April 11, 2018, Nord Stream 2 AG received the second of two permits required to construct and operate the planned natural gas pipeline in the Finnish EEZ, completing the permitting procedure in Finland. This permit was granted by the Regional State Administrative Agency Southern Finland in accordance with the Water Act. The first permit received on April 5, 2018, was the Government's consent for the use of the Finnish EEZ.

"This is an important day for our project: following a very thorough analysis and extensive engagement the Finnish authorities have approved our detailed plans to construct and operate the 374-kilometre Finnish section of the 1,230-kilometre Nord Stream 2 Pipeline. We look forward to continuing the constructive co-operation with the authorities during the construction and



subsequent operation phases of the project as they monitor the implementation of our plans," said Tore Granskog, Permitting Manager Finland at Nord Stream 2 AG.

The Finnish permitting procedure was initiated in autumn 2017 after the environmental impact assessment (EIA) phase, which was a pre-requisite for proceeding to the permitting phase. The EIA and statements received during the consultations are used as a basis for decision-making in permitting. Nord Stream 2's Finnish EIA report was awarded a "Good EIA Award" by the Finnish Association for Impact Assessment in March 2018 and was credited for the inclusion of an extensive amount of information about the project's implementation alternatives and their environmental impacts, among others. During the process, extensive consultations were carried out with various stakeholders.

The national permitting procedures in the other three countries along the pipeline route — Russia, Finland, Sweden and Denmark — are proceeding as planned. Nord Stream 2 AG expects the remaining permits to be issued in the coming months.



Pipe transshipment in the German port of Mukran, © Nord Stream 2 / Axel Schmidt

Gazprom Export LLC Signed Contracts to Supply Helium from the Amur GPP



Visual rendering of Amur Gas Processing Plant

In early 2018, Gazprom Export LLC completed the bidding procedure to sell helium from the Amur gas processing plant (Amur GPP). This resulted in the signing of the long term sale and purchase agreements (SPAs) and the allocation of the vast part of the Amur GPP Helium quantities among the largest global industrial gas companies. The procedure was held in 2016-2017 with the support of Gazprom Marketing and Trading Ltd.

"In addition to natural gas rich fields of Eastern Siberia allow to produce such a valuable product as helium, which is needed by many industries. We are glad that growing demand for the products from Amur GPP — the world's largest helium production facility — resulted in conclusion of long-term contracts", Director General of Gazprom Export Elena Burmistrova noted.

The logistic infrastructure for the transportation and treatment of helium containers on the Russian territory, including Helium Hub in Primorsky Kray, will be built up and operated by Gazprom Gazenergoset Helium LLC. Once prepared for exports, the helium containers will be delivered from the Russian Far East ports to the global markets.

The Amur GPP will become the the Russia's largest and the world's second largestgas processing plant with annual capacity of 42 billion cubic meters of feed gas. The plant will process multi-component gas from the Yakutian and Irkutsky gas production centers and extract valuable components, primarily helium, ethane, LPG and pentane-hexane fraction for the purposes of the petrochemical and other industries. The processed natural gas will then be exported to China via the Power of Siberia pipeline. The Amur GPP helium facility is to be commissioned in 2021 and will reach the annual output of 60 million cubic meters (2.1 bscf) by 2026-2027.



Visual rendering of the Helium Hub



Gazprom's 13th Investor Day Held in New York and London

Gazprom held its 13th annual Investor Day in New York (February 6) and London (February 8).

Taking part in the events were Andrey Kruglov and Alexander Medvedev, Deputy Chairmen of the Gazprom Management Committee, Vsevolod Cherepanov, Member of the Management Committee, Head of Department, Mikhail Rosseev, Deputy Chief Accountant, Kiril Polous, Head of Directorate, and management representatives of the Company's structural units and subsidiaries, such as Gazprom Neft, Gazprom Export, and Gazprom Energoholding.

As usual, the Investor Day attracted a wide range of portfolio managers and analysts from major global investment funds and credit institutions based in the United States, Europe, and Asia-Pacific. Among the visitors were analysts from leading international and Russian investment banks, including J.P. Morgan, Morgan Stanley, Credit Suisse, Renaissance Capital, VTB Capital, and Gazprombank. An online broadcast was organized for members of the investment community unable to attend the events in person.



Investor Day in New York

Gazprom's top officers presented an overview of major developments and trends in the global energy market, as well as information on the Company's operational and financial results, efforts in key markets, competitive advantages and strategic development plans for its gas and oil businesses.

Visitors were especially interested in the efforts taken by the Company to strengthen its foothold in foreign markets. It was noted that Gazprom was the largest supplier of gas to Europe and Turkey, with absolute records for gas exports set in the last two years.

The Company currently implements several important investment projects at once. The TurkStream and Nord Stream 2 gas pipelines are meant to improve the reliability of Russian gas supplies to Europe. Meanwhile, the eastern route of gas deliveries to China — via the Power of Siberia gas pipeline — will give the Company access to the world's most promising gas market.



Alexander Medvedev

The attendants also discussed the particularities of Gazprom's financial policy. It was highlighted that the Company applied a conservative approach to budget planning and exercised rigorous cost control, including during the drawing up of investment programs. Moreover, Gazprom keeps production costs low, has a significant liquidity cushion and access to various sources of financing, and efficiently works at debt capital markets. Thanks to its robust performance and meticulous strategy, Gazprom maintains a high level of financial stability even amid peak investment expenses and debt payments.



At meeting with representatives of leading international investment funds

In the course of the Investor Day, over 30 individual meetings were held with leading international investment funds.

Investor presentations available at: http://www.gazprom.com/f/posts/41/295497/investor-day-2018-en.pdf



Hello, Happy Pancake Week!

Hello, Happy Pancake Week, the traditional holiday of seeing off the winter and welcoming the spring took place in Pushkin on February 17, 2018. For the third year in a row, Autonomous Non-Commercial Organization "House of the Future" supported by Gazprom Export LLC, organizes this charity event for children as a part of the grand Pancake Week Celebration in Tsarskoye Selo of Pushkin District.





This year the event was attended by 150 students from various social and special education institutions of St. Petersburg and Leningrad Region: Boarding House No. 4 for Mentally Disabled Children (Pavlovsk), Mga Special Correctional School, Center for Rehabilitation of Disabled Persons and Disabled Children, Nikolsky Resource Center and SOS Children's Villages.

The celebration began with the procession around the real Pancake City. The children took part in traditional Russian games, and each child could choose what they liked the most: fast climbing the pancake post, play a tug-of-war, hold a bogatyr boxing match, and much more. Additionally, the children viewed a happy play by Petrushka Muppet Theater, danced in a round, and sang chastushka songs to balalaika music.



A special part of the event was the "Children for Children" inclusion program, in which children from orphanages prepared unique workshops for children from other social institutions. This year the outdoor fun was continued inside, in the Youth Center, where various workshops took place. The children made small Pancake Week dolls, and painted wooden bird sculptures that were prepared for them by their peers from the social institution - SOS Children's Villages.

After the festivities all the children were treated to pancakes and tea from a real samovar.









St. Petersburg Ladies Trophy 2018



Vera Zvonareva and Timea Bacsinszky

St. Petersburg Ladies Trophy, an international WTA Premiere Series tennis tournament was held in St. Petersburg on January 29 – February 4, 2018 at Sibur Arena Sport and Concert Complex and Dinamo Tennis Center. Gazprom Export LLC served as the title sponsor of the event.

This year the tournament brought together the list of strongest participants ever. Four of the participants represented the top 10 of the world rating, and another four – the top 20. World's No. 1 in tennis Simona Halep (Romania) and World's No. 2 Caroline Wozniacki (Denmark) were among the participants. Other participants representing the top ten of the world's tennis rating included Jeļena Ostapenko (Latvia) and Caroline Garcia (France). Her compatriot, Kristina Mladenovic (World's No. 11), who won the tournament last year, returned to St. Petersburg to defend her title. Other representatives of the top 20 tennis players of the world taking part in the event were Julia Görges (Germany), and Anastasia Pavlyuchenkova and Elena Vesnina, both from Russia. Other Russian participants in the event included Daria Kasatkina, Ekaterina Makarova, and Natalia Vikhlyantseva.

Vera Zvonareva (Russia) and Timea Bacsinszky (Switzerland) won the final game in the doubles against Alla Kudryavtseva (Russia) and Katarina Srebotnik (Slovenia). The game lasted slightly over an hour and ended with the score of 2:6, 6:1, 10:3. Vera Zvonareva became the first Russian tennis player, who won St. Petersburg Ladies Trophy.

The tournament's culmination was the singles final, where Petra Kvitová, two-times winner of Wimbledon, triumphed over last year's winner of St. Petersburg Ladies Trophy, Kristina Mladenovic. The Czech athlete gave not a single chance to Mladenovic, and after defeating her 6:1 and 6:2 was declared the winner. The final match lasted a mere 1 hour and six minutes. Kvitová's current title is her 21st WTA title in singles. This victory takes Kvitová to fifth spot in the WTA rating.







Petra Kvitová and Kristina Mladenovic at the awards ceremony

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