BLUE FUEL

Gazprom Export Global Newsletter

2020/ Issue 53



Elena Burmistrova Speaks at Eurasian Economic Forum in Verona Page 5

Power of Siberia Launched Page 9

Hydrogen as a Key to Environment Protection Goals Page 13

Open World Project in Germany Page 26

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In this issue

2020/ Issue 53

To Our Readers....4

Role of Natural Gas in Achieving Energy Security in Europe and Goals for Tackling Climate Change Speech by Elena Burmistrova....5

Gazprom Commences First-Ever Pipeline Supplies of Russian Gas to China....9

Gazprom Export Expands New Export Routes: First Small-Scale LNG Cargo from Russia Shipped to Mongolia....11

It's Not Just about Natural Gas: First LPG Supplies from Russia Arrive in China by Rail....12

Hydrogen – a Key Energy Source to Achieve Climate Protection Targets....13

International Scientific Conference «Energetika XXI: Economy, Policy, Ecology» 20

Open World Project in Germany....26

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To Our Readers

The launch of Russian natural gas pipeline supplies to China became one of the most pivotal moments of the previous year in the global energy. It had been over five years of collective effort to make this project come true. Developing the new field in the dense forests of Eastern Siberia, and stretching the pipeline for thousands kilometers through undeveloped lands – these were the real challenges. Gazprom solved them, bringing natural gas to consumers in the Russian Far East and in China. However, this is not yet the end of the project. Now, Chayandinskoye field is to be connected with another gas and condensate field, unique by its deposits, Kovyktinskoye. That will bring gas supplies to the Chinese market to the contract level of 38 bcma.

All gas majors and other industry players focus on the Asian markets as the most perspective area for business development. The most dynamic economic growth, along with population growth inevitably result in a surge in demand for energy resources in Asia. According to the IEA, the region will generate over 60% of global energy consumption surplus. At the same time, much of the Asian countries are facing vast environmental problems. Therefore, those issues will become drivers for the growth of 'green' fuels consumption, including natural gas as the cleanest fossil fuel. Most of the analytics predict that the main part of global gas demand growth will come from Asian countries, whose share will rise from 20% to 28%, making the region the biggest natural gas consumer in the world. It means that in the mid to long term Asia will need more gas, and this appetite cannot be satisfied by indigenous production only. According to some forecasts, import supplies to the region could reach up to 510 bcm in 2040.

Still, realization of these plans requires huge investments into gas related infrastructure. And this is one of the main challenges on the way to the 'golden age of gas' in Asia. Could Asian countries create such infrastructures? Are gas majors ready to invest enough in development of Asian markets?

Another challenge is a high level of correlation between natural gas price and effective demand in Asian countries. Possible economic slowdown can negatively influence coal-to-gas switch. Suppliers and local customers should balance their interest to ensure further development of gas industry. But are the suppliers ready to keep relatively limited price level to attract new consumers and push further demand growth? And are buyers ready to keep on track the development of the new energy balance, where natural gas will be a foundation fuel? These are not easy-to-solve issues, but without positive answers, we cannot move forward to creating sustainable energy system, which will meet the needs of people and environmental challenges.

Role of Natural Gas in Achieving Energy Security in Europe and Goals for Tackling Climate Change

Eurasian Economic Forum
2019, Verona



Elena Burmistrova,
Deputy Chairman of the PJSC Gazprom Management Committee,
Director General of Gazprom Export LLC

In 2019, Russia and Italy celebrate a remarkable date in our energy partnership: 50 years of the first contract for natural gas supplies and 45 years of actual deliveries. I congratulate all of us on this important anniversary.

I have started my speech with this historic parallel on purpose. Today, we are talking about natural gas' role in the European energy security. If we are looking for a country that made natural gas the foundation of its energy sphere, Italy is the best example. The country is the third natural gas consumer in European Union, while gas enjoys No. 1 position in the country's energy mix. Gas is firmly in place to provide electricity, heat in utility services, private sector and industry. Besides, for many years, Italy has been an absolute leader in Europe in terms of gas motor fuel use. The country has over 1,200 gas-fueling stations; there are more than a million of NGVs. Italy's experience is paramount for Gazprom, since we maintain a close dialogue with our Italian colleagues while developing Russia's segment of natural gas transport.

We are very proud of the results of our half-a-century partnership with Italian colleagues. Even in neighboring European countries, natural gas has become the foundation for the development of a number of spheres and created new incentives for economic growth. At the same time, gas also provides many other opportunities for optimization and reduction of costs. For example, this year's launch of emissions trading scheme facilitates the use of gas in electricity generation. Germany, our biggest gas consumer, has decided to phase out coal by 2038. I suppose that natural gas is the best substitution in this



situation. It will help reduce emissions, ensure stable and flexible energy supply without price spikes. Gas can provide the same solution for the heating sector. Gas has it all to be classified as 'perfect fuel' – it is secure, abundant, flexible, multi-use; it provides environmental and economic benefits, allows various trading schemes and technologies. There is no other similar energy carrier. Gas plays a key role for the sustainability of European energy.

Hence, it is quite surprising that some vocal critics are calling for a 'new energy of XXI century' and abandoning all fossil fuels, including gas. In other words, they claim that security of energy supply contradicts climate goals.

I am happy that, according to the President-elect of the European Commission Ursula von der Leyen, Europe is going to pioneer and lead the global energy transition. Moreover, we witness millions of Europeans stand up for climate. This deserves respect. When we are called upon to take action to save the planet for the generations to come, it is our responsibility to heed. We, representatives of business and politicians, must do whatever it takes to create a sustainable economy, ensure secure energy supply and confidence in future. I believe that this is going to be the energy system with gas at its foundation.

It is quite possible that global economy has never had such a wide spectrum of opportunities for reorganization of its energy system before. Arguing that gas is an optimal solution is not motivated by commercial interest, but objective reality. In the heating sector, transition to gas reduces emissions of CO_2 by 29%, particulate matter (PM) – by 85%. In comparison to diesel, gas rids transport of 23% of CO_2 and 90% of NOx while also increasing efficiency. Coal-to-gas transition is even more impressive. For

example, in electricity generation, which produces a third of Germany's CO_2 emissions, the transition shrinks them by 67% and sulfur oxide – by 90%.

Furthermore, in comparison to an 'all-electric' world, natural gas may ensure cost reduction in all sectors of economy. Gas is the cheapest way of delivering energy: it is manifolds cheaper than electricity. American Gas Association claims that losses of energy transmission from a generator to a household via gas account for 8%, while for electricity, the corresponding share is 68%.

In future, natural gas can play an entirely new role in low-carbon energy: as hydrogen. On the one hand, hydrogen can be produced from natural gas, while carbon capture and storage technologies (CCS) may help produce a carbon-free fuel, which is a goal of all developed nations. On the other hand, gas supply in the existing gas infrastructure can be supplemented with hydrogen, which will immediately reduce emissions. Finally, pure hydrogen can be pumped into the existing gas grids, thus making the implementation much easier and cheaper. Nowadays, many European companies from energy and industrial spheres are working on hydrogen projects. Gazprom is also keeping up.

I believe that natural gas can be not only a transitional fuel for gradual reduction of emissions but also a long-term solution, an integral part of the new European energy sector. It is reasonable in terms of economy and technologies.

However, we, together with our partners, still have much to do about informing the public of gas' advantages. Natural gas tends to be demonized for the sake of short-term political and economic aims. Dear colleagues, I am convinced that we should defend natural gas together. Natural gas does not need any preferences unlike renewables. Still, it is obvious that gas does need nondiscriminatory and depoliticized treatment by politicians and public.





Gazprom Commences First-Ever Pipeline Supplies of Russian Gas to China

A ceremonial event marking the start of first-ever pipeline supplies of Russian gas to China via the eastern route — the Power of Siberia gas trunkline — took place on December 2, 2019.

The idea of gas supplies to China via the "Eastern route" led to the most ambitious investment project in the global gas industry. Framework has built a section of the Power of Siberia gas pipeline stretching for some 2,200 kilometers from Yakutia to the Chinese border near Blagoveshchensk. The border-adjacent Atamanskaya compressor station and a cross-border section with a two-string submerged crossing under the Amur River are also completed.

According to the Sales and Purchase Agreement between Gazprom and CNPC, gas will be delivered for 30 years. These supplies are secured by a vast resource base. Currently, Power of Siberia receives gas from Chayandinskoye, the largest field in Yakutia (1.2 trillion cubic meters of gas reserves). Its design annual output of 25 billion cubic meters of gas is expected to be reached in 2024.

In late 2022, Power of Siberia will start to receive gas from another field – Kovyktinskoye (2.7 trillion cubic meters of gas reserves), the most prolific field in Eastern Russia. At the moment, the field sprovides basis for creating the Irkutsk gas production center, with pre-development operations underway. In the future, an approximately 800-kilometer stretch of Power of Siberia will be constructed between Kovyktinskoye and Chayandinskoye.

With their unique experience and expertise, Gazprom's professionals implement the project with utmost efficiency in the given extreme climatic conditions such as, for example, the extreme colds in Yakutia, where temperatures can be as low as −62 degrees Celsius. The Power of Siberia passes through wetlands, mountainous terrains, seismically active zones, and areas of permafrost and rocky ground. Gazprom is applying cutting-edge technologies along with domestic hi-tech equipment meeting the best world standards for this project. For instance, the Power of Siberia gas pipeline is built with Russian-manufactured pipes fit with anti-friction internal coating, as this helps reduce gas transmission costs. On the outside, the pipes are insulated with innovative Russian nanocomposite materials providing anticorrosion protection, which guarantees a long service life for the pipeline. Pipes of



enhanced deformation capacity and special pipelaying solutions were used for crossing the active tectonic faults. Russian factories mastered the production of these pipes especially for Power of Siberia.

The project is carried out with a particular focus on a high level of process and environmental safety. Based on detailed surveys, and as early as at the design stage, the technical solutions were chosen to be as environmentally-friendly as possible. These solutions include minimally manned technologies, comprehensive process automation, use of renewable energy sources, and provision of continuous environmental monitoring.

“We are witnessing a historic event for Russia and China. The eastern route – Power of Siberia – is a global, strategically significant and mutually beneficial project. A new scope of energy cooperation between the two countries with a prospect for further development. Clean energy today and tomorrow, for decades to come”.



Alexey Miller,
Chairman of the Management Committee and Deputy Chairman of the Board of Directors of Gazprom



Gazprom Export Expands New Export Routes: First Small-Scale LNG Cargo from Russia Shipped to Mongolia

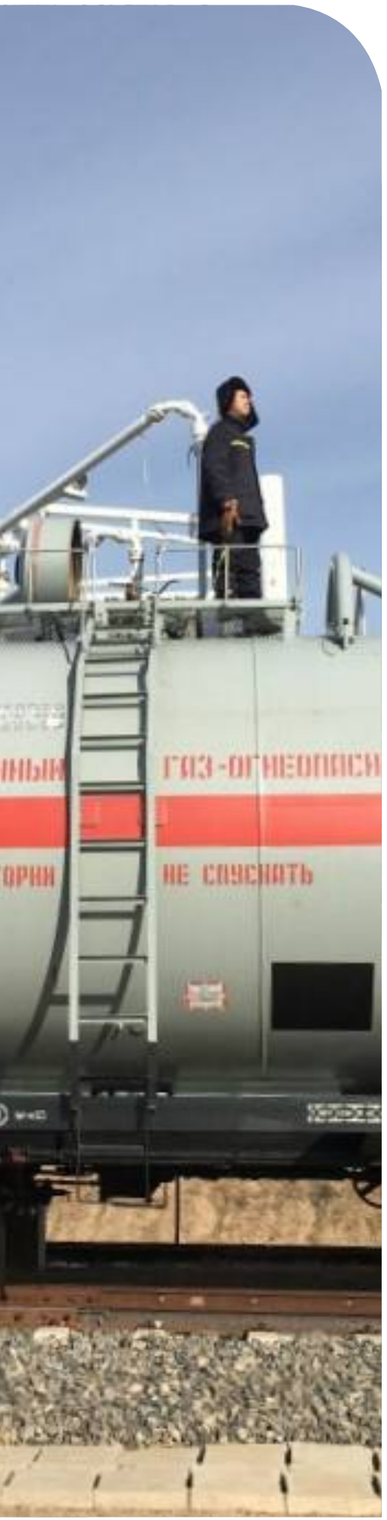
On October 22, the first ever rail LNG shipment was loaded in special cryocontainers in Yakutsk. It crossed the Russian-Mongolian border on November 2, and in two days arrived in Ulaanbaatar. The total size of the cargo was 36.0 tons of LNG (equivalent to approx. 50,000 cm of natural gas).

The ‘Siberian Fuel and Energy Company’ (SITEK) was the shipper of the cargo. The buyer was the Mongolian company UB Metan. The LNG will serve as motor fuel on public transport in Ulaanbaatar, the capital of Mongolia. In total, according to the buyer, the demand for LNG in Mongolia in 2020 can reach 8,000 tons (equivalent to 11 mcm of natural gas).

“It is pleasant that Mongolia has now joined the list of the countries where Russian gas is delivered. The use of natural gas on transport is one of the most promising factors of gas consumption growth. I am sure that the residents of Ulaanbaatar will appreciate the environmental benefits of LNG as motor fuel,” said Deputy Chairman of the Gazprom Management Committee, Director General of Gazprom Export Elena Burmistrova.

“Since 2017, UB Metan has been successfully developing the use of natural gas on the Mongolian market. We are the first and only company in the country that imports natural gas and refuels vehicles. In cooperation with Gazprom Export and SITEK, we delivered LNG from Russia to Mongolia by rail in our own tank containers for the first time. This is a significant event not only for our company, but for the economic cooperation of our countries as well. We are focused on expanding this cooperation”, said the Director of UB Metan Bold Basjargal.

“The LNG demand on the Mongolian market is rapidly growing. The new LNG export route created by Gazprom Export and SITEK for the first time brings Russian gas to new markets via railway transport, allows to involve Russian railways and to increase the demand for cryocontainers produced in Russia», said Director General of SITEK Georgy Trofimov.



It's Not Just about Natural Gas: First LPG Supplies from Russia Arrive in China by Rail

In early November 2019, Gazprom Export LLC has for the first time ever supplied liquefied petroleum gas by rail from the Russian Federation to the People's Republic of China. This was a part of preparations for exports from the Amur gas processing plant, which is under construction at the moment. Altogether, the buyer has received eighteen tank cars filled with propane-butane technical mixture at a terminal of the Manzhouli gateway station. The LPG was produced at Surgut Condensate Stabilization Plant, named after Viktor Chernomyrdin.

> **"The launch of the Amur gas processing plant will significantly enlarge the volume and product range of the exports portfolio of Gazprom Export. Now, we are actively pursuing the marketing strategy of the products of the plant, and testing new logistics. That will enable us to start the Amur plant's exports as soon as possible after its launch," – says Deputy Chairman of the Gazprom Management Committee, Director General of Gazprom Export Elena Burmistrova.**

In August, a test cargo with propane-butane technical mixture was successfully supplied by Gazprom Export to PRC. The cargo was delivered with rail and road transport via gas-filling station near Ussuriysk.

Hydrogen – a Key Energy Source to Achieve Climate Protection Targets

By Gerd Müller-Syring, Marco Henel, Anja Wehling, Cindy Klärig
DBI Gas- und Umwelttechnik GmbH

The time is right to realise hydrogen's potential to play a key role in a clean, secure and affordable energy future. Hydrogen is an allrounder and can be a key energy source for a successful energy transition in Europe and worldwide.[1] First, it can help to decarbonise sectors which may not be electrified. Hydrogen is a costefficient option; it has low CO_2 abatement costs in 'mobility', 'industry' and 'heating' sectors especially for heavy duty transport, chemicals, iron and steel. Hydrogen secondly provides answers to open challenges in energy transport, and seasonal energy storage. It is a chemical energy carrier with good storage properties and versatile applications. To realise its potential, we will need to transport hydrogen in large quantities to the consumer. Pipelines offer here an ecological and economical solution.

Renewable and low-carbon gases play an important role in achieving netzero emissions by 2050 and can complement the energy system especially the electricity system. The International Energy Agency – the leading global energy authority – predicts in its recent World Energy Outlook (WEO) a future gas demand for biomethane of 2326 TWh and **low-carbon hydrogen** of 1221 TWh in 2040.[2] The WEO's definition of low-carbon hydrogen includes production by

- electrolysis using low-carbon electricity, ('green' hydrogen)
- gasification of biomass ('green' hydrogen)
- from natural gas equipped with CCUS ('blue' hydrogen)
- "methane splitting" or methane pyrolysis ('blue' hydrogen) [3]

1. International Energy Agency, „The future of hydrogen", 2019, p. 13; IRENA „A Renewable Energy Perspective", page 7.

2. International Energy Agency, „World Energy Outlook 2019", p. 578; sustainable development scenario. Wordwide natural gas production in 2018 was 38462 TWh (IEA); the predicted low-carbon gas demand for 2040 is about 10 % of the today's production.

3. Ibid, p. 586.



The WEO further estimates for the sustainable development scenario, that low-carbon gases (hydrogen and biomethane) will cover over 15% of the gas demand in Europe and Asia in 2040. Replacing natural gas demand with low-carbon gases will avoid 500 million tonnes CO_2 emissions globally every year.[4]

To achieve a sustainable energy supply, hydrogen needs to be generated predominantly by renewable sources. This pushes forward economic developments e.g. in the production of the needed electrolysers as a future key technology. However, sufficient production may cause challenges. Hydrogen production with electrolysers needs water and renewable electricity: Both resources may be tight, depending on the region. Germany, for example, is densely populated and we do not have sufficient areas for renewable electricity production in the future to cover our demand. Especially given the fact that in addition to the todays electricity demand, further sectors such as residential heat, transport and industry may introduce electricity-based processes and will increase the demand for renewable electricity. Even in Germany, we have regions suffering low water resources also today, for example the Fläming region south of Berlin. If the summers remain dry, conflicts are likely to arise between agriculture and water suppliers.[5] Further water demand by electrolysers can increase the conflict.

The International Panel for Climate Change (IPCC) estimated in 2018 that human activities have cause approximately 1,0 °C of global warming today.[6]

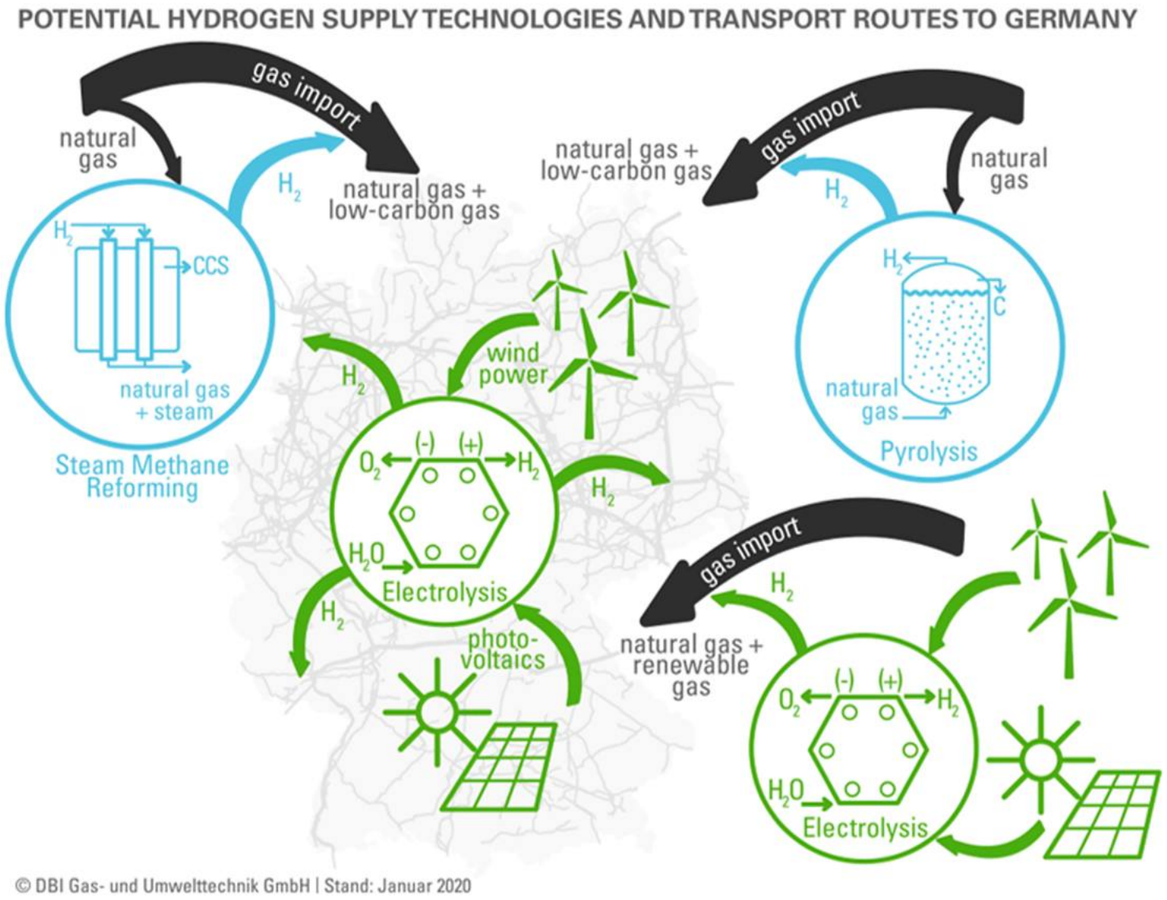
4. *Ibid, p.* 603

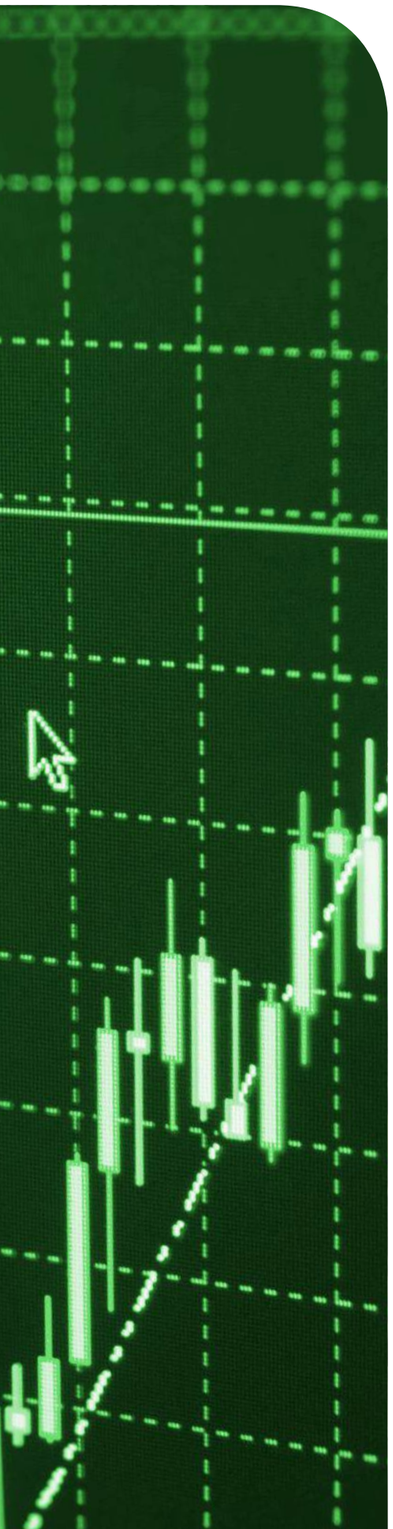
5. ZEIT ONLINE, „Wasserkappheit: Umweltbundesamt warnt vor Streit ums Trinkwasser", 05.07.2019, https://www.zeit.de/wirtschaft/2019-07/trinkwasser-knappheit-sommer-trockenheit-umweltbundesamt, 24.01.2020

6. IPPCC Special Report: Global Warming of 1.5 °C, p. 51, https://www.ipcc.ch/sr15/, 24.01.2020

The slow progress achieved so far underpins the need for effective near-term CO_2-mitigation options. **Gas from conventional sources can support the climate goals effectively, if it is deeply decarbonised** with a carbon footprint well below oil, coal and even natural gas. Germany's gas supply routes are versatile, though mainly relying on supply from the north and east. The future production of green hydrogen via electrolysers may be supplemented by blue hydrogen.

A perspective for Germany's future supply with low-carbon hydrogen





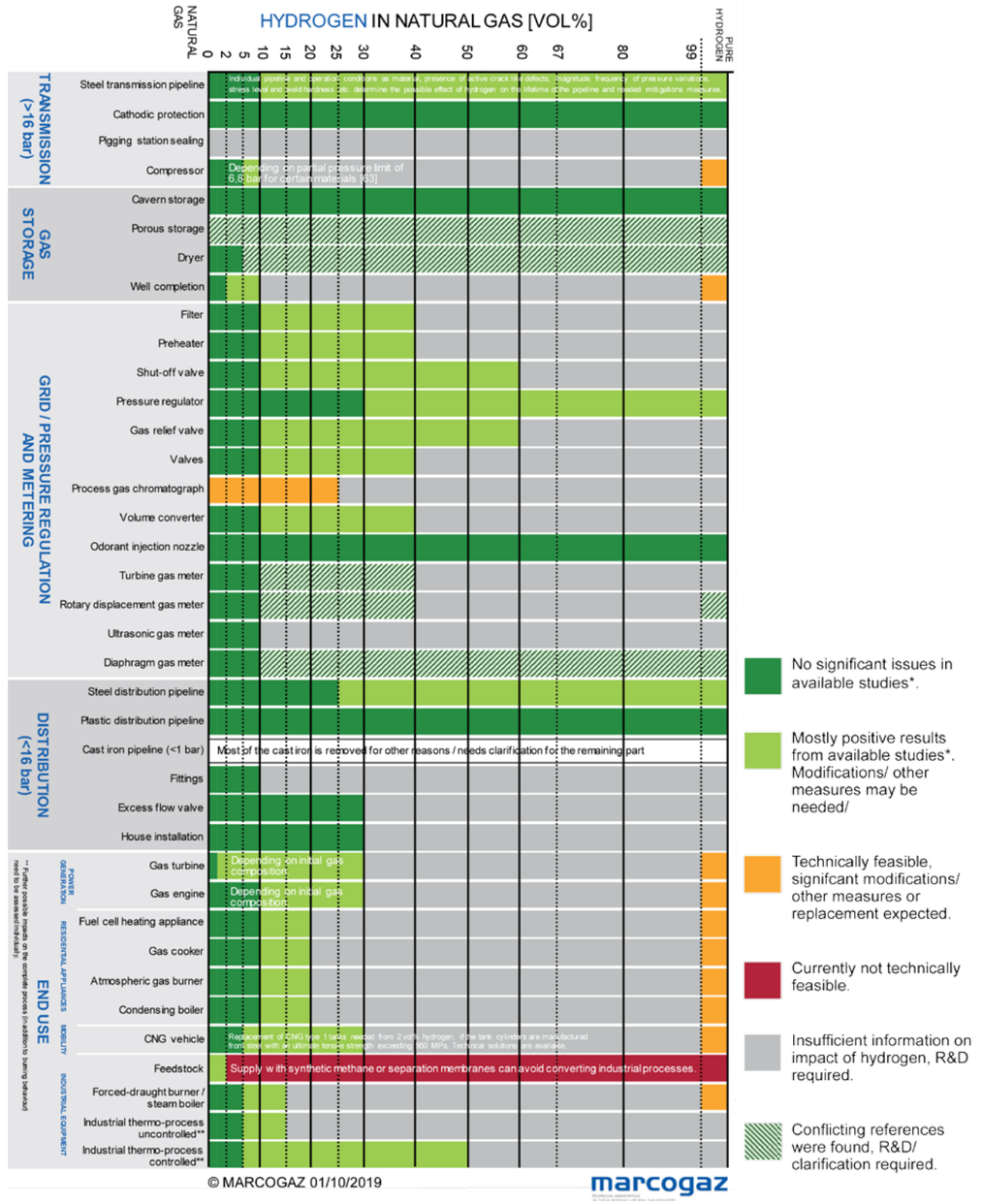
Decarbonisation with low-carbon gases can be realised comparatively inexpensively with hydrogen in Europe, since essential infrastructures such as gas networks exist and may be used with moderate adjustments. Low-carbon gases including hydrogen could transform today's natural gas supply into a low-carbon energy system and enables us to achieve climate targets cost-effectively. Decisive steps and adjustments are underway: The first step is adjusting the gas infrastructure to rising hydrogen concentrations perhaps with the vision to convert it entirely to a hydrogen infrastructure someday.

Hydrogen Tolerance of the Existing Gas Infrastructure incl. Underground Gas Storages End-User Equipment

Gas experts analysed the hydrogen tolerance of the entire gas network in various projects and collective knowledge is available now for policy makers, experts and interested stake-holder.

The properties of hydrogen-natural gas mixtures and pure hydrogen and natural gases differ. Can the existing natural gas infrastructure and end-user equipment cope with of these new gases? MARCOGAZ, as the representative body of the European natural gas industry, compiled available test results and published technical limits for hydrogen in existing natural gas infrastructures and end-use applications. The infographic illustrates the technical capability of the gas infrastructure and end-user equipment to handle mixtures of hydrogen and natural gas in transport, storage, distribution and use.

OVERVIEW OF AVAILABLE TEST RESULTS



Source: https://ec.europa.eu/info/sites/info/files/energy_climate_change_environment/events/documents/02.c.03_mf33_background_-_marcogaz_-_infographic_hydrogen_admission_-_j_dehaeseleer_g_linke.pdf



It currently focuses on material aspects and functional principles.

Results for natural gas infrastructure and residential appliances:
The findings are promising: Major elements of the gas transmission, storage and distribution infrastructure and residential gas appliances are expected to accept 10 volume per cent H_2 in natural gas without modification already today. Although, some networks and residential appliances are already being operated with 20 volume per cent of hydrogen. Major elements of the infrastructure and residential appliances are expected to be able to accept 20 volume per cent H_2 but require moderate modifications. Higher concentrations beyond 20 volume per cent H_2 are still subject to R&D and require further measures or even replacements.

Results for industrial processes:
The results are promising, though more cautious for industrial processes: Many industrial processes (except feedstock) are expected to be able to accept 5 volume per cent H_2 in natural gas without modification. Current power plant gas turbines, industries using natural gas as feedstock and also CNG steel tanks are assessed to be sensitive to even small quantities of hydrogen and need further R&D and mitigation measures when planning to convey higher hydrogen concentrations. Thermo-processing equipment (such as furnaces and burners) are expected to be able to accept 15 volume per cent H_2 with modifications. Higher concentrations above 15 volume per cent H_2) can be tolerated but needs R&D, further measures or replacement.

The expert group of the European gas industry developed a joint understanding with the results on page 17 - a decisive step forward to show the H_2 readiness of the infrastructure today and short-term potential for development.

H_2-PIMS - Safe Transport of Hydrogen in the Natural Gas Network

Pipeline maintenance today is governed/supported by software-based systems called PIMS. PIMS stands for software-based pipeline integrity management systems; they are used by gas network operators to continuously maintain pipeline integrity, sustain risk reduction and determine optimised strategies for cost-efficient maintenance. The successful conversion of the existing natural gas infrastructure for the transportation of natural gas/hydrogen (NG/H_2) blends or pure hydrogen needs to satisfy the currently applied integrity level of natural gas transportation systems. Hydrogen exposure can increase the risk of embrittlement for metallic materials, reducing their durability and life-expectancy. The H_2-PIMS project aims to develop an innovative analysis system incl. material property data. The H_2-PIMS module is an exten-sion to the PIMS systems and will serve network operators to assess safety, condition and operation of their network sections in the transmission network e.g. for hydrogen-rich gas blends.

In addition to the effect on the materials, the admixture of hydrogen also impacts other operational aspects during transport. As mentioned before, hydrogen changes the gas quality pa-rameters and influences the capacity of pipelines.

The transport of hydrogen may therefore require changes in the pipeline or compressor ca-pacity. Beyond the laboratory results for material parameters and the H_2-PIMS module, the H_2-PIMS project developed two roadmaps to guide network operators through the adaption of natural gas pipelines. One roadmap for hydrogen admixture up to 10 volume per cent and one to transport pure hydrogen in former natural gas pipelines.

The technical overview of hydrogen tolerance as well as the extensive research in the H_2-PIMS project are two out of several projects that are supporting the transition to realise hydrogen's and the gas network's potential.





International Scientific Conference "Energetika XXI: Economy, Policy, Ecology"

Changing Global Energy Market and Its Prospects



Stanislav Babich,
Director of the Center of Resources and Environmental Policy, UNECON

The modern global energy market is rapidly transforming. Technical process paves the way for new opportunities in production, transportation and energy consumption, while approaches to the regulation of energy market are changing. Main directions of changing configuration of modern energy markets are determined by their regionalization and diversification. Most economies successfully implement innovative technologies to decarbonize their energy and energy-intensive sectors. Transport remains the most challenging sphere in that regard. In the context of such global trends, it is important to realize the growing role of natural gas.

These and other issues were discussed at the annual International Scientific Conference "Energetika XXI: Economy, Policy, Ecology", which was jointly organized by St. Petersburg State University of Economics and PJSC Gazprom. Over the last 12 years, the conference has proved to be one of the leading international venues, where experts, think-tanks, government, and business representatives from Russia and the European union meet. The conference was held on November 13-14 at the Courtyard Marriott Hotel in St. Petersburg.

Key Topics of the Conference

The modern trends on the global energy market are related to its intensifying regionalization. Foremost, it is entwined with most European countries' policies seeking energy security.

Each European country is developing its own energy policy by expanding the use of various alternative energy resources, nuclear power, energy-saving technologies and innovation activity.

Hydropower industry and pumped storage power plant's development in Europe have no prospects because of required vast lands. Lack of capacity and unwillingness to store waste on their own territory limits nuclear power energy development in the countries. It is important to realize that global nuclear waste market is highly scarce.

Along solving their own tasks, European countries have common interests under the EU policies that are focused on decarbonization of energy and economy as a whole. The popularity of alternative energy in Europe in the 1980s and 2000s contributed to a brand new approach to technologies of equipment for such energy sources. It expanded the post-industrial sector of economy.

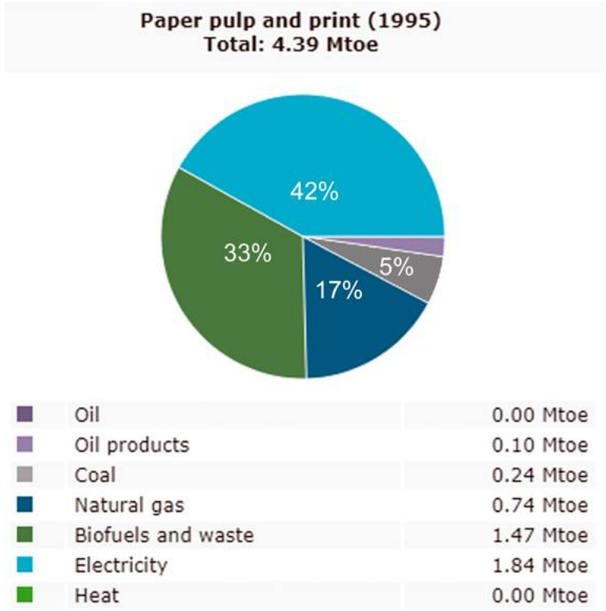
At the same time, the modern trends of the European energy market and ensuring energy security and sustainable development are related to the decrease of the use of hydrocarbons.



In the early 2000s, the European Union focused on use of natural gas coupled with domestic alternative energy sources such as solar, wind, recycled industrial and household waste, as well as biofuel. By now, impressive results have been achieved in some countries. For example, over the past 20 years, the share of biofuels in Finland's pulp and paper industry has grown from 33% to 58%.



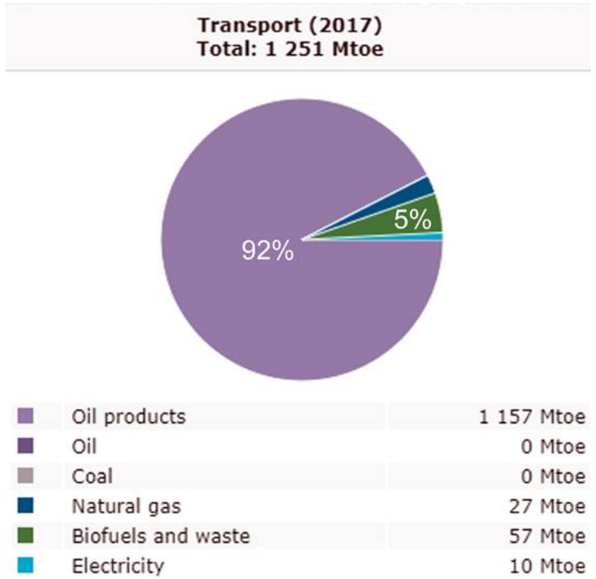
Changes in fuel and energy balance in Finland (1995-2017)



Source: IEA

At the same time, the share of natural gas in the energy-intensive industries in most European countries changed just slightly. The most problematic sector for the implementation of Paris Climate Agreement, along with maintaining energy security, is the transport sector and its conversion to innovative fuels. By now, oil products dominate in this sector. Thereby the main efforts of European countries are concentrated in this area.

Fuel consumption in transport sector in Germany (2017)



Although in the last few years, hydrogen fuel and E-mobility are enjoying particular attention, most experts believe that gas motor fuel is the key and a promising solution to the transport decarbonization problem in transition, and can be at least a bridge-technology from conventional engine fuels to innovative ones.

Electric transport gains growing momentum in Europe and competition of different types of energy resources becomes more apparent particularly in electricity generation and on the consumer gas market.

On the one hand, implementation of alternative sources make challenges for natural gas under the EU energy policies. On the other hand, the development of electric transport and the growth of energy capacity of the economy and the lifestyle of most European countries in general makes natural gas more attractive as a competitive, environmental-friendly, energy-intensive and transportable energy resource.

Young Researchers Seminar

For the first time, the Energetika Conference included a Young Researchers Seminar. Students and postgraduates from universities of Russia, Germany, and China as well as young specialists from Gazprom Export and other divisions of Gazprom had an opportunity to offer up their ideas for leading international experts and to participate in open discussion.



The Young Researchers Seminar has shown the importance and essential need in a new kind of specialists in global energy sector and in gas markets in particular. Such experts will analyze and predict main trends of energy markets development in terms of their regional socio-economic and natural resource characteristics and possible technological, economic and political risks.

Traditionally, a special place at the annual conference is reserved for a round table of an international group of experts. Such round tables, devoted to particular topics of current industry development, were already held in Berlin, Beijing, Xi'an, and Copenhagen.

The recent round table in Copenhagen was aimed at assessment of the growing interest in hydrogen fuel in the countries of Northern Europe and the Baltic region.

"This year, among other topics of the "Energetika 21" conference, decarbonization and hydrogen were the major issues of interest between East and West. Russia can play a leading role on this market. The event started with Young Researcher's Seminar and it was great to see and feel the fresh energy of the young women and men".



Michael Kranhold,
Director Customer Management,
50Hertz Transmission GmbH



Peter Klingenberger, Independent Expert,
Senior advisor,
Uniper Energy StorageGmbH

"The XXI International Scientific Conference that traditionally takes place in St. Petersburg in November has again proved to be a mature and professionally conducted forum for energy related matters. The format provided for a wide coverage of technical, economic and political aspects that were openly and thoroughly discussed by the participants from various European countries. The first ever introduced Young Researchers Seminar turned out to be an effective and successful part triggering fresh ideas complimentary to the overall content of the conference".

"I am convinced that necessary effective solutions cannot be implemented only by political aspirations, but they should be developed in cooperation with the scientific and business community. It is noteworthy in this regard that the XXI International Scientific Conference opens its doors to professional community for young professionals who are empowered to bring new ideas, approaches and breakthrough solutions to the discussion".



Elena Burmistrova,
Deputy Chairman of the PJSC Gazprom Management Committee,
Director General of Gazprom Export LLC

It is today that fundamental changes and possible scenarios for the global energy market's development are being formed. The success of decarbonization plans under the Paris Climate Agreement and sustainable development of the global economy depend on application of innovative energy technologies. Many countries now are choosing the "green path of clean energy", but the success of this path depends, first of all, on the correct "transition" to the climate neutrality and correct consequent steps leading to it. Natural gas was and remains such supporting fuel that provides safe solutions for the energy mix, i.e. minimizing the risks associated with the instable nature of renewables.

Thus, natural gas in the context of the "decarbonization" energy policy and sustainable economic development remains one of the most important resource that provides stability of European energy markets in their new diversified energy mix.



Open World Project in Germany

In October 2019, Germany hosted events of the Open World international charity culture project, organized by the Austrian non-profit organization Energy for Life – Social Foundation and sponsored by two companies – Gazprom Export LLC and German energy company Verbundnetz Gaz AG.

This year, among the participants the project were singers and dancers, as well as performance groups from Russia and Germany: a classical music instrumental ensemble 'Strict Style' (St. Petersburg); the 'Happy Childhood' choreography group (Kazan); Milana Pavlova (Kazan), a winner of numerous international contests with a unique voice; students of the St'ART theater studio (Leipzig); and an ensemble of accordion players from the Johann Sebastian Bach Music School (Leipzig).



By tradition, the project's main event was a series of concerts featuring talented young musicians and performers before a full house at the Central Drama Theater of Leipzig. The children performed their best numbers and received a standing ovation from the German audience.

Besides, an extensive excursion program was organized for the children, including sightseeing tours around the city, as well as a visit to the Monument to the Battle of the Nations and a trip to one of Europe's oldest zoos.



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