

Notes GAC WS2 Plenary meeting

13 November, 10.00-12.00 CET

Welcome by the Co-Chairs:

The Co-Chairs welcomed participants and reminded that for the sake of transparency all participants should identify themselves when joining the meeting. They also reminded that the notes of the previous meeting together with the discussion paper had been distributed to the participants earlier.

The Co-Chairs introduced Catharina Sikow-Magny from DG ENER (European Commission) now acting as a successor for Klaus-Dieter Borchardt in the capacity of the senior official representative at WS2. In her turn, Catharina Sikow-Magny welcomed the participants and said that she was happy to be there in this new function and support the discussion on gas-related issues between EU and Russia.

Item 1. Presentation “EU-Russia Cooperation on Hydrogen” by Wim Groenendijk

Wim Groenendijk introduced the discussion on hydrogen and the potential for EU-Russia cooperation in this area. He reminded that the European Union has recently issued its [Hydrogen Strategy for a Climate Neutral Europe](#) which clearly demonstrates the ambition of the EU to move towards fully renewable hydrogen produced from solar and wind. It is also clear, however, that it will be difficult to produce hydrogen completely within the EU borders, and therefore imports may still be needed, and this is where Russia could definitely play an important role. WS2 meetings seem to be the right place for this discussion.

He mentioned that Russia and the EU have complementary needs and opportunities in the field of natural gas. Namely, Russia has extensive natural gas reserves providing income from gas flows to the EU and capital-intensive gas infrastructure to produce and transport natural gas to the EU, while the European Union has a large market for natural gas being an important element of its energy mix, as well as capital intensive gas infrastructure for import, transport, distribution, and use of natural gas. Among other things, natural gas can play a significant role in replacing coal-fired power plants.

He also mentioned that the following measures can be seen as a solution for some of the issues:

- reducing the carbon footprint of Russian gas flows to the EU;
- aiming for carbon neutrality in the transition to fully renewable hydrogen;
- ensuring mutual benefit of Russia and the EU in their future deals.

He concluded that WS2 is a right platform to discuss these issues and to explore further possibilities, and in the nearest future the idea is to focus on two key aspects: 1) reducing the emission footprint of Russian gas flows to the EU (e.g. using methane/hydrogen mix as fuel gas at compression stations), and 2) exploring different ways of converting methane into hydrogen. He expressed a feeling that perhaps pyrolysis may deserve a little more attention, even though it is still largely an experimental technology. For example, the technology of splitting methane into hydrogen and solid carbon (*carbon black*) has rather promising business prospects, and it could represent a value rather than a cost (e.g. at some point it could become an alternative to concrete along with avoiding CO₂ emissions typically associated with production of concrete). At the same time, he said, the technology is still fairly experimental, and tangible examples are needed.

Item 2. Presentation “Russia’s Hydrogen Strategy in the making and prospects for effective Russia-EU cooperation in this field: different aspects for WS2 GAC discussions” by Andrey Konoplyanik

Andrey Konoplyanik welcomed the participants. He started his presentation with the introduction of the recent changes to the Russian legislation in the field of climate and energy: (1) Presidential Decree as of 04.11.2020 on reduction of GHG emissions in Russia by 2030; (2) Governmental Ordinance as of 09.06.2020 on Energy Strategy of Russia to 2035; (3) Governmental Ordinance as of 12.10.2020 on hydrogen action plan in Russia up to 2024.

He then shortly elaborated on the substance of each document.

The Presidential Decree on reduction of GHG emissions aims at achieving the following objectives:

- (i) ensuring decrease of GHG emissions by 2030 to 70% level as of 1990 levels with maximum consideration of absorbing capacity of the forests and other natural ecosystems conditioned with sustainable social & economic development;
- (ii) developing and approving Russian long-term development strategy with low GHG emissions till 2050 taking into consideration industry-specific features;
- (iii) ensuring conditions for measures to reduce and prevent GHG emissions, and to increase their absorption.

The Russian Energy Strategy to 2035 contains a special section dedicated to hydrogen – first time ever - which sets the goal for Russia to become one of the world leaders in the field of hydrogen production and exports. Among others, it indicates the following measures to support this goal: state support for development of infrastructure for transport and consumption of hydrogen and methane-hydrogen mixes, development of domestic low-carbon technologies of H₂ production by gas conversion & pyrolysis, electrolysis; developing regulatory base for hydrogen safety in energy, and some others.

But he has pointed out that since criteria for H₂ energy development in Russia’s Energy Strategy is established as specific volumes of export of H₂, this creates the floor for different interpretations, incl. wrong perceptions on how best to organize the external trade segment of Russia’s H₂ strategy: in straight-forward reading that might be perceived as the necessity to produce H₂ deep inside Russia (in case of renewable H₂ – at the locations of nuclear and/or hydro power stations; in case of H₂ from natural gas – at the sites of its production) and to transport it to the EU as H₂ or methane-hydrogen-mixes (MHM) by the existing gas transportation system which should be modernized for H₂/MHM transportation. Which is totally counter-productive from A.Konoplyanik’s view due to technical and economic reasons which he explained later on.

The Russian Hydrogen Action Plan includes 43 action points, among them:

- developing state support measures for export of H₂ for energy use (which also, from his view, make different interpretations/perceptions possible);
- providing for establishment, manufacturing and implementation of pilot projects for H₂ production without CO₂ emissions;
- providing for establishment, manufacturing and implementation of gas turbines on methane-H₂ mix (MHM);
- carrying out research on marketing of carbon black;
- international cooperation, etc.

He has underlined that since under “International cooperation” section of the Action plan the current task is “to prepare proposals”, this means that now is the critical stage for domestic and international debate on how best to organize such cooperation in practical terms on a mutually beneficial basis. This is especially important since from the outside Russian H2 strategy in the making is now seen as export-oriented which means as if aimed at domestic production of H2 and its export in the form of H2 and/or MHM to the EU, which from his point of view is not the case or should not be the case.

Speaking of current developments in the field of hydrogen, he expressed regrets that pyrolysis is de facto ignored in the EU Hydrogen Strategy (the term is mentioned only twice in the document and with some inaccuracies) and it is probably not fair enough given the prospects of this technology for the mutual benefit of Russia and the EU. He also stressed the importance of making marketing of carbon black a special point in the Russian Hydrogen Action Plan. He also mentioned that in early October there was some debate on how to effectively organize the export-oriented decarbonization of gas supplies from Russia to the EU which was stipulated by a speculation that as if Russia is considering to develop “Nordstream-3” pipeline for exclusively H2 transportation to the EU. He underlined that there exists wrong perception among some specialists, both in Russia and abroad, on long-distance high-pressure transportation of hydrogen through pipelines as being a technologically proven and available solution, while this is not yet the case.

He presented a consolidated system of arguments against long-distance high-pressure transportation of H2/MHM from Russia to the EU by pipelines based, inter alia, on publication of prominent specialists from SPB Mining University (Mr.Litvinenko et al) and Gazprom practice. In turn, he has mentioned an alternative view on organisation of H2 cooperation between Russia and the EU (which he has presented at the 31st WS2 meeting on 18.09) based on transportation of natural gas to the EU and production of clean (without CO2 emissions) H2 downside in the EU (in the EU “H2 valleys”) based on pyrolysis technologies which should be jointly commercialised by the competent companies of both countries.

In this regard he has specifically addressed the issues of bankability (financeability) of such H2 production projects: how to consider carbon neutrality (with reference to carbon border adjustment mechanism/CBAM) and necessity to contractually protect (to ring-fence) natural gas flows for such clean H2 production projects.

He also said than a close look should be taken at the upstream of renewable hydrogen production which might appear to not be as clean as it is considered to be. He has referred to recent D.Yergin statement that “New supply chains for net-zero carbon requires carbon” and has underlined that there is no “clean energy” as such: RES energy (electricity) is also not clean if one will consider carbon intensity (and related GHG emissions) of the upstream parts of RES production cycles, incl. manufacturing cycles of RES equipment up to mining of iron and other ores and including much higher material intensity of RES equipment compared to power generation based on fossil fuels. This is why it is improper, from his view, to consider renewable H2 (produced with RES electricity) as if the only “clean H2” and thus to discriminate – as being “non-clean” - all other H2 production technologies, including “clean” (since produced without CO2 emissions) H2 from natural gas by pyrolysis and similar technologies.

It may be counterproductive in certain cases to stipulate intensive growth of renewable H2 due to incremental direct and indirect costs. If renewable H2 is produced upstream, at producer-end, where economy of scale can be used to downgrade unit production costs, this will require long-distance transportation of H2 (in whatever form) and such transportation costs will “eat” (at least some if not all) economy of scale savings in production costs.

Besides, H₂ by electrolysis has indirect extra costs (due to higher energy density of its production – 10 times higher than from natural gas, acc. to BASF) which can be reduced only if the electricity price is negative or zero. In any case, if 40 GW are to be located outside the EU (in countries like Morocco or Ukraine), and only half of the required volume is produced in the EU, H₂ by pyrolysis produced downstream the EU could provide additional mutual benefits both for the EU and Russia.

By way of conclusion, he characterized the current discussion at WS2 as very timely to ensure that international cooperation in this field goes in the right direction.

During the presentation, there were some written questions and comments from the participants. Many of them agreed that transportation of hydrogen by the existing export pipelines may be seen as counterproductive, but also wondered if ammonia pipelines, ammonia tankers, or other liquid organic hydrogen carriers (LOHCs) could be considered as major vehicles for exporting hydrogen. Another opinion was expressed that existing pipelines are perfectly suitable to transport either methane, hydrogen, or mixtures, at least within some EU countries. Commenting on this in the end, a proposal was made to consider these options in more details as potential alternative solutions for long-distance transportation to the EU of H₂ if produced upstream in Russia.

There was also a comment that there is a clear need for new type of LTCs for exporting natural gas for clean hydrogen production via pyrolysis, as well as there were concerns over the potential border tax which, if introduced, might be detrimental to these plans.

Item 3. Open discussion.

There were four scheduled interventions, from Messrs. Stephan Kamphues, Ralf Dickel, Francisco de la Flor and Alex Barnes.

Stephan Kamphues (ENTSOG) expressed an opinion that some of the Member States will never achieve their climate targets without a strong increase in the use of natural gas to replace coal. The emissions reduction in the UK and the US is a good example of what can be done, and this approach could be taken with the current position of coal in the energy mix of Poland, for instance. There is also a need to talk about the gas value chain again, and the first thing to be done in this regard is to tackle fugitive methane emissions across the value chain in parallel with reducing energy consumption and CO₂ footprint of the gas value chain. He supported what had been said regarding methane-hydrogen mixes as fuel for compressor stations describing them as an option worth trying. ENTSOG stands ready to support it and GIE also must be considered as a strong partner for developments in this area. This can be a very good step towards a cleaner gas value chain. Certainly, much more needs to be done, and the goals cannot be reached with renewables alone, so there will be a need for low- and zero-carbon gas, particularly for the hard-to-decarbonise sectors. So, all tracks should be explored that lead to low- or zero-carbon gas society. Pyrolysis is already pursued in some EU countries and it seems to be very promising. There is time to test and develop this technology, as it should be remembered, for example, how long it took the EU to get to the present levels of wind energy.

At the same time, he urged Gazprom to become more active in terms of real projects demonstrating feasibility and advantages of the pyrolysis technology for hydrogen production reminding that the question of price also matters. He also proposed to amend the title of the “Clean hydrogen from natural gas alliance” initiative suggesting that a direct reference to “natural gas” should be avoided as controversial in the context of EU recent developments. There should also be more details regarding

how carbon black could be developed and used, and also how it would fit the purposes of creating “intelligent” circular economy.

Ralf Dickel (OIES) reminded that time is of the essence, so it is not reasonable for the EU to restrict itself to renewables and energy efficiency only, as well as to exclude gas to reach the 2050 targets. The past experience shows that energy efficiency targets are often not met, while renewable targets are mainly met in the electricity sector. In Germany, there is about 45% of renewables in the electricity sector, but only around 20% in the final energy mix, and the remaining 80% should be tackled somehow. It is hard to imagine how this can work without gas. Besides, people often confuse the time horizon of 2050 with the instruments (such as renewables) that may be used to achieve these targets. Therefore, there is a strong case for gas and it will be certainly very important to make practical steps to demonstrate the decarbonisation potential of gas. This can be achieved by fuel switching as the easiest way, but also by adjusting the emissions trading regime, and by tools such as hydrogen and methane-hydrogen mixes. This can result both in reducing carbon dioxide emissions and saving natural gas used in turbines, so this might be the business case to be upheld by companies like Gazprom in and outside Russia. Pyrolysis technology is now on the move, but it is still very small and needs to be scaled up to prove itself as an attractive commercial option. He agreed that time is of the essence, so the possibilities of gas should be explored. He also mentioned, in the context of German hydrogen strategy, that there is a lot of ongoing research, so there is room for cooperation in this field to be strengthened. For example, WS2 could further discuss the research issues related to EU-Russia cooperation, as well as trade issues regarding future imports of energy, whether in form of natural gas or hydrogen.

Francisco De la Flor (GIE) underlined that the final target is decarbonization, so all technologies should be retained. He reiterated an idea that all technologies must undergo the full life cycle assessment, while not only their carbon footprint but also economic features must be taken into account. He also strongly supported the idea of mixtures suggesting that this is a very good way to start and to help foster decarbonisation.

Alex Barnes (Alex Barnes Associates) agreed that it is important to keep the way open for all types of technologies. There have been already a lot of scenarios for reaching the net-zero target by 2050; many people, however, overlook the fact that all such scenarios are incredibly reliant on assumptions about regulatory and policy tools that are still being developed and which do not always work, as was the case with the recent impact assessment for 2030 target which involved a considerable drop in energy like natural gas. This assumption was based on improving energy efficiency, but this is something where the Member States were not good at achieving their targets for the last 20-30 years. So rather than assuming that certain pathway is going to work, policymakers need to encourage all solutions as long as they are effective in objectively reducing GHG emissions. Scenarios are easy to write but difficult to implement.

Catharina Sikow-Magny (European Commission) expressed her interest in the discussion and described WS2 as providing a suitable platform for informal non-politicized expert-level discussions on possible options of cooperation on hydrogen between Russia and the EU. She said that the EU is ready to hear more details regarding the proposal to set up the “Clean hydrogen from natural gas alliance”. At the same time, she explained that any decision on the EU side on the possible alliance cannot be taken at this stage, as the EU is now defining its own hydrogen strategy, its position vis-à-vis other countries and blue hydrogen. Therefore, the EU needs more time to explore all the possibilities. She agreed that meanwhile the options of blending hydrogen in the grid and upscaling pyrolysis technology should be further discussed in this forum. She also suggested that the next

meeting discussion should focus on methane emissions reduction in the context of the EU strategy that has been recently adopted.

Another participant expressed his opinion that the EU has already opted for implementing the hydrogen strategy by following the green path by 2050, *inter alia* by giving preference to green technologies and green hydrogen. Therefore, the European Commission does not seek to close all other options, and the current production capacities will stay in the market; however, in the long-term perspective both the EU and the Energy Community should move in the “green direction”. He also commented on the upcoming taxonomy that should pave a clearer way for hydrogen production in the EU and Members States. Afterwards, WS2 could become a suitable forum to discuss how Russian companies intend to move forward with their hydrogen plans.

He also raised a concern regarding the potential state support that the Russian government could provide for hydrogen development in the country. He warned against the case when government support could distort the market through state support mechanisms and suggested that this topic should be followed up closely in the future.

Another participant stressed the value of carbon black (solid carbon as by-product of pyrolysis) and reminded that one should not forget about its fertilizing value helping plants to grow and then capture more CO₂. He suggested that this should be incorporated into the EU vision.

A participant from the banking sector commented on the bankability of the discussed projects and explained that from this point of view clear output of production needs to be present. It is important to work on this together with Gazprom or any other company that develops the relevant project in order to understand the perspective of cash flow which is normally the key issue in every financial model. He also mentioned that any such project should have some support from governments, big banks, and government structures.

Andrey Konoplyanik replied to some of the above comments. He mentioned that even though the European Commission is now unable to take the decision regarding the alliance, now is the right time to debate on these issues and to make proposals in order to broaden the vision, discuss the alternative options. Regarding the market distortion issue, he commented that according to Avicenna/Ibn Sina (or Paracelus?) it's the doze that convert poison into medicine and vice versa, and the governments have their sovereign right to define what needs to be created. In the past, both Russia and the EU have seen cases when government support was needed for economic development. He has reminded that without direct state support (state subsidies) there would have been no intensive development of RES in the EU – this was a pure investment support measure. EU PCI programme is a system of complex measures to provide pre-investment support to the projects of common interest. All gas interconnectors and regazification terminals in the EU, including Swinoujscie LNG regaz terminal in Poland, were partly funded through PCI programmes of different years. The currently debated EU Carbon Border Adjustment Mechanism (carbon border tax) can be also considered not a climate-protection instrument but as a trade measure of state support of local EU business in international trade – and it is already considered as such (moreover, as a protectionist measure) by a number of states and this issue was even raised recently within WTO. All of these measures are aimed for making local businesses more (or just) competitive. However, he agreed that this could be a topic for further discussion.

The Co-Chairs thanked all the participants and the speakers also mentioning the growing interest in participation. They announced that the next webinar is planned for December, and the invitation will

be distributed shortly to the participants. The subject of the next meeting will be the EU methane reduction strategy, its implications and opportunities.