International Association of Oil & Gas Producers

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IOGP input to the Roadmap on the EU Smart System Integration

This paper is a summary of IOGP input to the forthcoming EU Strategy for Energy System Integration

The International Association of Oil & Gas Producers' (IOGP) member companies account for approximately 90% of oil and gas produced in Europe. IOGP supports the goals of the Paris Agreement and the EU's objective of climate neutrality by 2050 upon the implementation of enabling measures. Many challenges must be overcome to meet this objective, and the energy transition requires significant investments, new technologies, effective policies and behavioural changes.

IOGP welcomes the European Commission's intention to present an EU Strategy for Energy System Integration, and appreciates the opportunity to provide our input at this stage. Today's energy sector in the EU is the result of the completion of the Third Energy Package, which for natural gas meant the development of an internal market for natural gas in Europe. With respect to the market for natural gas, this objective has largely been achieved at the wholesale market level for the major gas-consuming markets in Europe. Where there are still gaps in individual Member States, these should be addressed under the existing regulatory framework in terms of better implementation of the existing legislation and binding network codes. In some regions across Europe, additional efforts might be necessary to continue diversification of natural gas supply sources.

Nevertheless, we believe that it is the right time to develop an energy system which would build on this success in a cost-effective manner, leading to decarbonisation by integrating various energy sources, increasing energy efficiency and linking them to the existing internal energy market(s) and end users. The upcoming Strategy should safeguard the achievements in the internal gas market, maximise the use of market-based and technology-neutral instruments for achieving EU climate objectives while minimising potential distortive effects from regulatory measures.

An integrated and inclusive approach is best to tackle emissions

Full electrification must not be an objective in itself as more cost-effective carbon-emission reductions may be achieved by using low-carbon liquids (biofuels, syn-fuels) and low-carbon gases (biogas, hydrogen, syn-gas) in hard-to-decarbonise sectors such as aviation, marine, heavy-duty vehicles and industry. The EU should therefore leverage the existing natural gas system for low-carbon gases.

The current natural gas grid delivers a peak capacity which is more than twice as high as the current electricity system. From a geopolitical perspective, one must keep in mind that in a post-pandemic, more fragmented world, the rare earths (72% controlled by China)[1], graphite (70% controlled by China) and cobalt (71% controlled by Congo) needed for electric batteries could become a major issue. Hence, the molecules that provide not only 75% of the primary energy but also most of today's energy storage cannot be disregarded until another efficient technology is available.

An inclusive approach to decarbonisation, which combines renewable electricity with other technologies such as low-carbon liquids and gases from various sources, can deliver decarbonisation faster and at lower costs than an all-electric scenario. Moreover, it can address issues such as the intermittency of renewable electricity and the requirement for high-temperature heat in industry. Additionally, this approach saves valuable time and mitigates any public acceptance

[1] Source: BP Statistical Review, June 2019.

challenges associated with the expanding power infrastructure and its corresponding environmental impacts. An energy transition, which is not 100% renewable-based, does not imply that carbon emissions cannot be net-zero, taking also into account negative emission options to offset very low residual carbon emissions, which all technologies have:

- **Emissions from the power sector or industry can be captured, used, stored and removed from the air** (Carbon Capture Utilisation and Storage (CCUS), direct air capture, etc.). Most of the carbon emission scenarios consistent with the Paris Agreement include Carbon Capture and Storage (CCS). These technologies complement the energy transition and mitigate climate change.
- **The electric option is currently too immature for aviation and marine sector**. Therefore, low-carbon liquid fuels (including biofuels) are an important option when high energy-density fuels are needed.

Creation of a more integrated energy system

IOGP supports the ongoing work by the European Network of Transmission System Operators for Electricity (ENTSOE) and -for Gas (ENTSOG) to continuously improve the coordinated network development planning through the Ten-Year Network Development Plan to better integrate gas and power systems and to drive cost-effective emissions reductions in the following ways:

- Through taking a holistic approach to the cost-efficient use and development of energy infrastructure, which has significant benefits because gas transmission is approximately 10–20 times more cost-efficient compared to the transport of electricity
- To better leverage the flexibility of gas storage; capacity of existing European facilities is 1,440 TWh, which is equivalent to about 20 billion Tesla 75D batteries[2], and LNG supply is flexible and accounts for another 260 TWh of floating worldwide storage

When existing gas infrastructures can be (re)utilised, this further reduces the cost of decarbonisation and avoids stranding assets. Whilst storage and flexibility in the gas sector is less expensive than in the electricity sector, it still involves some additional cost. Network users in the gas sector pay for storage and flexibility through a combination of gas market prices and tariffs for transmission, distribution, storage and LNG services. Gas storage capacities could enable the expansion of power-to-gas technology while creating synergy between gas and electricity sectors. Power-to-gas applications may be potential long-term solutions to deal with excess renewable electricity while utilising the existing gas infrastructure. In the near term, flexible use of gas-fired power generation can provide cross-sectoral flexibility triggered either by (negative) price signals in the electricity market or by a capacity market for power generation. The same costs should apply to parties in the electricity sector that wish to use the gas system to store electricity via power-to-gas applications.

The advantages of gas in the energy transition

The upcoming Strategy should support Member States in their decarbonisation efforts and recognise the crucial role of natural gas in transitioning to a lower carbon economy.

Natural gas already delivers home heating for more than 120 million European citizens[3] and its use can be further developed to deliver air quality benefits. Efficient gas boilers can replace old coal-based furnaces, leading to reductions in CO2, NOX, SOX and PM emissions. Moreover, in areas with no access to the national gas distribution network, liquefied natural gas (LNG) can be supplied to regasification stations that feed off-grid 'island' gas networks.

Natural gas (compressed natural gas (CNG) and LNG) can also contribute to the EU's efforts in reducing emissions from the transport sector. As for road transport, the use of natural gas (CNG/LNG) has some emissions advantages compared to diesel as it is inherently cleaner burning. Gas in the shipping industry is already meeting stringent emissions values set by the 2020 International Maritime Organization (IMO) regulations. Using LNG as a marine transport fuel can reduce SOx emissions by 100%[4], NOx by 80%–90% and CO_2 emissions by up to 21%.[5]

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[2] https://www.clingendaelenergy.com/files.cfm?event=files.download&ui=D8913D33-5254-00CF-FD03018BC5DD9343

[3] Gas already delivers home heating for more than 120 million European citizens: https://gasnaturally.eu/wp-content/uploads/2018/04/gasnaturally_infographics_spreads_032.pdf

[4] See UMAS (2018), 'LNG as a marine fuel in the EU': https://u-mas.co.uk/LinkClick.aspx?fileticket=yVGOF-ct68s%3D&portalid=0/

[5] Jingjing Xu, David Testa & Proshanto K. Mukherjee (2015), 'The use of LNG as a marine fuel: The international regulatory framework', *Ocean Development & International Law*, 46:3, 225-240, DOI: 10.1080/00908320.2015.1054744; 'Life cycle GHG emission study on the use of LNG as marine fuel': https://info.thinkstep.com/lng-ghg-study/.

In their National Energy and Climate Plans (NECPs), several Member States have announced the phase-out of coal from their energy mix, referring to a shift from coal to gas as one of the main solutions to reach their 2030 greenhouse gas (GHG) emission reduction targets[6]. In the short term, switching from coal to natural gas in power generation would significantly reduce up to 60% CO_2 emissions (in the power sector)[7]. Coal-to-gas switching has already helped to deliver significant reductions in EU GHG missions. Coal-to-renewables and coal-to-gas switching each contributed about half to the 24% reduction of coal in power generation in 2019 versus 2018 and were the main drivers behind the 120 MT CO2 savings in the EU power sector[8]. The EU should be pragmatic by allowing technology-neutral market mechanisms such as carbon pricing drive cost-efficient emission reductions from coal-to-gas switching in power generation. Natural gas can also be used as a backup fuel for renewable energy source generation by providing flexibility to balance the system and storage facilities. Furthermore, natural gas could be a technical enabler of deployment of low-carbon gases, i.e. bio-methane, biogas, syn-gas and hydrogen. In this regard there is a need to create a sustainable and flexible framework and financing instruments for the development of the necessary infrastructure and technology.

The role of low-carbon gases

IOGP supports the development of low-carbon gases, including gases from renewable and non-renewable sources. Because of this, any regulatory regime must recognise that Europe will continue to need a reliable market and infrastructure for the supply of natural gas for the foreseeable future to meet energy demand.

Trying to expand the use of low-carbon gases by setting targets for specific technologies (e.g. bio-methane, biogas, syn-gas, green hydrogen, blue hydrogen, etc.) would not promote the most cost-effective and sustainable solutions for meeting decarbonisation targets. Specific technology targets would ignore that each technology may have variable GHG intensity and costs which will not be monitored and stewarded. Furthermore, splitting the internal gas market into different products would damage the success of completing the EU gas market and reverse the gains made by EU citizens in terms of more efficient and cheaper energy supplies.

Renewable gases should be treated on a level playing field with other decarbonised gases. All low-carbon gases should be rewarded for their contribution to decarbonisation goals. Therefore, we support one standardised system for Guarantees of Origin and subsequent certification for renewable and non-renewable low-carbon gases, which include the GHG emissions remaining of the product based on a (standardised) life-cycle basis. Certified emission savings due to low-carbon gases could be recognised under the EU Emissions Trading System (ETS) as reductions of GHG emissions.

Such a technology-neutral approach will accelerate the deployment of low-carbon gases and deliver the most cost-effective solutions for the decarbonisation of gas. This approach will also stimulate infrastructure and market development, as well as research and development to improve technologies. For this reason, all available technologies for the production of low-carbon gases should be encouraged to compete on a level playing field. Some of the new gases are already injected into the distribution grid, provided it complies with gas quality safety limits, and enjoy all the benefits of a functioning, liquid market in gas, reaching a multiple end users connected to the gas infrastructure. We support enabling consistent wholesale trading of the energy content of all gases that are physically injected and consumed between the transmissions and distribution grids or in dedicated hydrogen networks. This provides a level playing field between new gases injected in the Transmission System Operators (TSO) and Distribution System Operator (DSO) networks and further increases the market available for new gases.

The existing regulatory framework for gas has enabled the trade of gas separate from the physical molecules. Transmission of molecules is assigned to unbundled TSOs, and gas is traded separately—as energy—without tracking the molecules. This has opened the market to new participants and has increased market liquidity. The development of low-carbon gases can benefit from this successful experience by separating from the trade and the flow. Unbundling the emission would create a common market for GHG emission certificates from all low-carbon gases, which would enable consumers to set their own pace of decarbonisation without the need to be physically connected to a source of low-carbon gas, and should also help to leverage market efficiencies to significantly reduce costs of decarbonisation.

[6] See IOGP analysis of NECPs: https://www.oilandgaseurope.org/wp-content/uploads/2020/04/NECPs-Factsheet-v2.pdf
[7] https://gasnaturally.eu/wp-content/uploads/2018/12/long-term-vision-of-the-european-gas-industry.pdf.
[8] 2020 Agora/Sandbag report: https://www.agora-energiewende.de/fileadmin2/Projekte/2019/Jahresauswertung_EU_2019/172_A-EW_EU-Annual-Report-2019_Web.pdf

The role of hydrogen

The upcoming Strategy should comprise all hydrogen production pathways, regardless of their 'colour'. What matters is the ability to cost-effectively reduce GHG emissions and contribute to reaching targets. We genuinely believe that hydrogen is the missing link which will enable energy sector integration while reducing emissions, in particular in hard-to-abate.

The Green Deal and its roadmap clearly indicate that the transition to climate neutrality requires a smart and reliable infrastructure and stresses that priority areas include hydrogen, fuel cells and other alternative fuels; energy storage; and CCS and CCU. As IOGP, we welcome this EU commitment, which is also reflected in the NECPs in which 12 Member States foresee a role for CCS and 22 Member States foresee a role for hydrogen in meeting their decarbonisation objectives[9].

In this context, with 17 industry actors from the oil and gas, gas transmission and hydrogen sectors, IOGP is participating in the 'Hydrogen for Europe' study. The aim is to assess how hydrogen can contribute to reaching climate neutrality in Europe and the milestones on the path to 2050. The pre-study is already publicly available.[10]

Today, hydrogen produced from natural gas delivers the lion's share of industrial hydrogen, while hydrogen from renewables is produced in smaller and more expensive volumes and is used primarily in pilot demonstration projects and for transport refuelling stations. Energy-intensive industries will require much larger volumes of hydrogen with a lower CO2 footprint than is currently produced.[11]

Europe will need hydrogen produced from natural gas with CCS and methane pyrolysis in addition to hydrogen produced from renewables to establish a hydrogen economy with competitive value chains. CCS in Europe could support the development of a hydrogen economy while providing up to 5.4 million jobs by 2050,[12] along with the retention of existing high-skilled jobs in Europe's energy-intensive industries.[13] These various types of hydrogen can complement each other in delivering the EU objective of carbon neutrality by 2050.

Hydrogen can be applied at an industrial scale today with proven technologies up to a 97% decarbonisation rate and therefore has a key role to play for the timely development of markets and infrastructure. According to the IEA Report on hydrogen, costs to produce hydrogen from natural gas with CCUS are way lower than those for hydrogen using renewable electricity and electrolysis of water[14]. While the costs of renewable hydrogen production can be expected to decrease with research, development and deployment and could become competitive with hydrogen from natural gas with CCUS over time, it will still be crucial to take into careful consideration the availability of renewable electricity for hydrogen production. This is particularly true in the 2030 time frame and given the envisaged expansion in demand for electricity for personal transport.

Any changes to the gas regulatory regime must recognise the development of hydrogen from reforming natural gas and pyrolysis as well as hydrogen from electrolysis. Given the complex and comprehensive nature of the challenge, at this stage, any attempt at picking winners within hydrogen-related technologies would be detrimental and counterproductive to the energy transition aims. Rapid deployment of a hydrogen market and infrastructure at scale based on natural gas can also facilitate and support the development of hydrogen-related technologies such as power-to-gas technology and the production of synthetic methane. Larger amounts of hydrogen from electrolysis can enable electricity storage using the gas infrastructure (including storage).

[9] See IOGP (April 2020) assessment of NECPs: https://www.oilandgaseurope.org/wp-content/uploads/2020/04/NECPs-Factsheet-v2.pdf.
[10] IFPEN & SINTEF (2019) 'Hydrogen for Europe' pre-study: https://www.sintef.no/globalassets/sintef-energi/hydrogen-for-europe/hydrogen-for-europe-pre-study-report-version-4_med-omslag-2019-08-23.pdf.
[11] See the High-Level Group on Energy Intensive Industries (2019), 'Masterplan for a competitive transformation of EU energy intensive industries enabling a climate-neutral, circular economy by 2050': https://ec.europa.eu/docsroom/documents/38403/.
[12] FCH JU (2019), 'Hydrogen roadmap Europe: https://www.fch.europa.eu/sites/default/files/Hydrogen%20Roadmap%20Europe_Report.pdf.
[13] High-Level Group on Energy-Intensive Industries (2019), Masterplan for a competitive transformation of EU energy-intensive industries enabling a climate-neutral circular economy by 2050: https://ec.europa.eu/docsroom/documents/38403/.
[14] https://www.iea.org/reports/the-future-of-hydrogen/.

Institutional framework to mirror electricity market design

The regulatory framework for electricity and natural gas has been well aligned up to the adoption of the revised Electricity Directive and Regulation in 2019, taking into account that there are structural differences between gas and power markets in particular with respect to supply and storage of energy and cross-border transmission. IOGP agrees that certain features of the 2019 power market reform should be considered for mirroring to the gas markets where this has tangible benefits.

Cross-border flows of gas are already much higher in terms of energy than cross-border flows of electricity. Furthermore, the cooperation between TSOs for gas has been strengthened by the network code on interoperability and data exchange. Hence, we see no merit for additional legal instruments to strengthen regional cooperation between TSOs. Although provisions for inter-TSO compensation are not included in the existing gas regulation, this has not prevented inter-TSO compensation mechanisms for gas being developed where this has been agreed on a bilateral basis between the relevant TSOs and National Regulatory Authorities (NRA) in the context of mergers of market areas. Areas where we could see added value of mirroring include the following:

- **Clear commitment to the internal market and market-based mechanisms**: The recasting of the electricity Regulation 2019/943 makes an unequivocal statement that 'prices shall be formed on the basis of demand and supply' and that 'market rules shall encourage free price formation' (Article 3). Similarly, the legislation underlines the need for market participants to be 'balance responsible' and financially responsible for imbalances (Article 5). Although these principles are already implied by, for example, the gas network codes, any redrafting of the gas Regulation could usefully reinforce these in a similar way for the gas market, including for future low-carbon gaseous fuels.
- **Retail market liberalisation**: The Third Energy Package has been instrumental in establishing functioning gas markets at the wholesale level, but this does not automatically benefit retail markets. The 2019 revisions of the power market aim to better link wholesale and retail markets, and further measures with respect to retail gas market liberalisation would better enable EU citizens to share in the benefits of a competitive wholesale gas market. In addition, an open retail market would also support a functioning wholesale market. EU citizens should have access to the uninterrupted supply of gas at competitive, market-based prices with the freedom to select their supplier of choice. Similar to the provisions in the revised Electricity Directive, Member States should phase out end-user price regulation for gas and use other means, such as social policy, for the protection of energy poor and vulnerable household customers.
- **Basic contractual rights for consumers applying equally for the supply of gas as well as for electricity**: The same applies to bills and billing information and the right to switch suppliers. However, some of the consumer rights are specific to the electricity market and not relevant to natural gas, such as provisions about active customers that generate, store, consume and sell self-generated electricity. In addition, the provisions that entitle final customers to a dynamic price contract do not make a lot of sense for gas which does not have the same granularity of prices during the day. Smart metering is another area where applications differ between electricity and gas, although there are some common benefits, such as improved consumption monitoring and easier switching of suppliers. IOGP believes that only those provisions should be mirrored, which have tangible benefits for gas consumers.
- **Mirroring ENTSO duties**: We see merit in mirroring the provisions on the duties of the ENTSO to act independently and to provide transparency on decisions. We noted the changes to the procedure for the development of electricity network codes, which more closely involve stakeholders. With respect to the development of network codes for gas, ENTSOG has from the start applied an open and transparent process with extensive stakeholder involvement and consultation. We believe ENTSOG has set a high standard for stakeholder consultation which we support very much.
- **More emphasis on obligations of national regulators**: We support mirroring the provisions that put more emphasis on the obligation of national regulators to cooperate with neighbouring regulators and with the Agency for the Cooperation of Energy Regulators (ACER). The role of the Agency has recently been reinforced with the recast of the ACER Regulation. ACER should focus on further improving the coordination and cooperation between NRAs and make recommendations to assist NRAs in sharing good practices.

Some concrete projects

We agree with the Intergovernmental Panel on Climate Change (IPCC), the International Energy Agency (IEA), the European Commission and many others that CCUS is a key technology for the decarbonisation of Europe. The current suite of carbon CCS projects in development aims to capture emissions from industrial clusters where different industries may share a transport and storage infrastructure, allowing for meaningful cost reductions and for cross-sectorial and cross-border industrial systems to develop. Coupled with a hydrogen infrastructure, CCS can also support delivering low-carbon hydrogen across the European economy.

H21 North of England Report[15]: As a concrete project for an integrated energy system, the North of England project is a detailed analysis of hydrogen production and distribution in Northern England for heating purposes.

Clean Gas Project/Net Zero Teesside[16]: Net Zero Teesside is a CCUS project based in North East England. In partnership with local industry and with committed, world-class partners, it aims to decarbonise a cluster of carbon-intensive businesses by as early as 2030. Each year, the project plans to capture CO2 emissions equivalent to the annual energy use of up to 1 million homes.

Northern Lights and the Norwegian Full-Scale CCS project[17]: The Northern Lights project is designed to constitute a ship-based, open-source European CO2 transport and storage network. By recovering CO2 emissions from European industries, the project is looking to achieve economies of scale and lower costs, while also making a larger-scale contribution to reducing CO2 emissions. Due to its pan-European approach, the project will facilitate the establishment of horizontal industry-wide standards to promote the interoperability of the CO2 ships and storage sites. The CO2 shipping component of this project first received Project of Common Interest (PCI) status in 2017. Equinor, Total and Shell are responsible for the transport and storage parts of the project. Northern Lights submitted on 15 May 2020 the plan for development and operation for the first CO2 storage and aim at final investment decisions later in 2020 for a start-up in 2024. The Norwegian Full-Scale CCS project, of which Northern Lights is the transport and storage part, aims to become the world´s first CCS project receiving CO2 from several industrial sources.

The Rotterdam CCUS project Porthos[18]: The CCUS project Porthos (Gasunie, EBN, & Port of Rotterdam Authority) aims at collecting the CO2 from multiple industrial installations in the port area and transporting it in an open-access, public pipeline for offshore storage to a depleted gas field 25 km from the coast at a depth of around 3 km. In December 2019, Porthos signed an agreement with ExxonMobil, Shell, Air Liquide and Air Products to work on capture, transport and storage of CO2. The capture is to take place at the companies' refineries and hydrogen production sites in Rotterdam. The project was awarded CEF funding in January 2019 and has enjoyed the status of PCI since 2017. Finally, the Dutch government has put in place a financing scheme, SDE++, which is a kind of contract for differences between the current ETS price and the needed CO2 price to make the project economically viable.

[15] https://www.h21.green.
[16] https://oilandgasclimateinitiative.com/clean-gas-project/; https://netzerotees.wpengine.com.
[17] https://northernlightsccs.com/en/about/.
[18] https://www.rotterdamccus.nl/en/.

IOGP policy recommendations

Facilitating exchange of views: IOGP is in favour of using existing and future platforms (the establishment of the CCS Forum could be considered) to share experiences and best practises and to further contribute to the definition of an integrated energy system. Our industry is ready to contribute and participate in identifying technology needs, investment opportunities, innovative business models and regulatory barriers and enablers. In this context, we welcome the Commission's proposal to establish a European Clean Hydrogen Alliance as part of the EU Industrial Strategy as well as the European Clean Hydrogen Partnership as part of Horizon Europe. Such platforms should encompass all clean hydrogen production technologies needed to achieve deep decarbonisation, including the production of hydrogen from natural gas in combination with CCS or pyrolysis technologies. We encourage the Commission to create working groups on CCS under these initiatives.

Innovation and support schemes: The European Commission and Member States should expand research, development and innovation programmes for all promising low-carbon, pre-commercial breakthrough technologies and projects to establish an economy of scale such as natural gas-to-hydrogen with CCS, CCU, power-to-gas and low-carbon liquid fuels. In the review of the State Aid Environmental Protection and Energy, it is important to reflect on, inter alia, provisions enabling integration of CCUS and hydrogen into the EU energy system and a suitable scope for Member States to support development of these sectors using state resources. Proper configuration of the integrated energy sector will require expansion and refurbishment investments in terms of the existing gas grid as well. In this respect, we recommend a coherent approach in relation to the available EU financing instruments to tackle the cost-effectiveness aspect of energy sector integration. TSOs and DSOs should be enabled to undertake a reasonable level of R&D activities and pilot projects as part of their regulated activities, without compromising the general unbundling principles. This could include projects for transmission and distribution of hydrogen/natural gas blends and CO2 pipeline transport projects linked to CCUS initiatives. Where the EU provides funding for network-related R&D and pilot projects to reduce CO2 emissions, we believe the mechanisms should not discriminate between sectors and technologies. This ensures that the most cost-effective measures are developed and that public money is spent wisely, a factor which is even more important given the COVID-related economic downturn. R&D support should provide the opportunity for multiple technologies to develop their potential towards decarbonisation. Initial EU support could reduce the lead time for new low-carbon technologies.

Gas quality: The EU should leverage the existing natural gas system. IOGP supports the work undertaken by CEN on gas quality to define an acceptable Wobbe Index range for H-gas. We welcome the suggestion by CEN of a wider range at EU entry points and a classification system for exit points to gas consumers; however, the currently discussed range is still too restrictive for certain domestic gas fields. Gas quality ranges should both increase the diversity of the upstream supply of gas and provide the vast majority of gas consumers—those connected to exit points with a specified class—with a predictable and stable gas quality. This should be supplemented with tailor-made solutions for extended class exit points. It is important to maintain the capacity of the transportation system to blend and commingle gas of different sources by avoiding undue quality restrictions at system entry points; this is especially important in regions where gas supply is not sufficiently diversified, and indigenous gas production is a critical contributor to supply security. This should also allow renewable and low-carbon gas to enter the system. Setting a minimum tolerance level for hydrogen that should be agreed on in Interconnection Agreements between relevant TSO will be helpful to enable cross-border transport.

Development of low-carbon gases: The current regulatory framework for natural gas does not constitute a barrier but rather can be used as an enabler for low-carbon gases. The development of low-carbon gases would benefit when all gases would be traded with natural gas in a single market. IOGP also supports one standardised system for Guarantees of Origin and subsequent certification for renewable and non-renewable low-carbon gases, which include the GHG emissions remaining of the product based on a (standardised) life-cycle basis. Certified emission savings due to low-carbon gases could be recognised under the EU Emissions Trading System (ETS) as reductions of GHG emissions. On the other hand, setting targets for specific technologies would not promote the most cost-effective and sustainable solutions for meeting EU wide decarbonisation targets.

Hydrogen: IOGP supports an all-inclusive strategy, regardless of the 'colour' of hydrogen. What matters is the ability to cost-effectively reduce GHG emissions and contribute to reaching targets.

Infrastructure & blending: The use of existing gas infrastructure for low-carbon gases saves time and costs while reducing the requirement to dramatically expand the power transportation infrastructure, which is an issue in some Member States that faces public acceptance challenges. The parallel development of a dedicated hydrogen infrastructure and the ability to blend hydrogen with natural gas are important. Blending provides a flexible 'default' demand and builds on the existing natural gas assets and the internal market. Hydrogen should be accepted in the natural gas system provided there is either a dedicated outlet or the gas is blended before reaching end users.

Review of gas legislation and network codes: We also support a limited review of EU gas legislation and network codes to determine whether the provisions are fit for purpose for new gases, like hydrogen. However, any review should not roll back the achievements of the natural gas market. For example, the Network Code on Interoperability and EN16726 currently do not explicitly limit the possible blending of hydrogen with natural gas. Whilst we support this, setting a minimum tolerance level for hydrogen that should be agreed on in Interconnection Agreements between relevant TSOs, depending on their grid technical limitations, will be helpful to enable cross-border transport.

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