Questions and Answers on the Hydrogen and Decarbonised Gas Package

Brussels, 15 December 2021

1. What are renewable and low-carbon gases and why are they important for the climate?

Renewable gases are gases produced from biomass including biomethane, as well as hydrogen produced from renewable sources. **Low carbon gases** produce at least 70% less greenhouse gas emissions than fossil natural gas across their full lifecycle. Both types of gases substantially contribute to climate change mitigation, while renewable gases have a better performance in terms of carbon reductions than low carbon gases.

Currently, some 300 Mtoe (350-400 bcm) of gaseous fuels are consumed in the EU per year, of which 95% is natural gas. They account for roughly 25% of total EU energy consumption, used for 20% of EU electricity production, and 39% of heat production. In line with the policy scenarios that underpin the "Fit for 55" initiative, biogas and biomethane, renewable and low-carbon hydrogen and synthetic fuels (E-gas) will gradually replace fossil natural gases and represent very significant shares of the gaseous fuels in the energy mix towards 2050. Conversely, the share of natural gas is projected to be significantly reduced. The remaining volumes would be coupled with Carbon Capture Usage and Storage (CCUS) technologies.

In most areas, direct electrification will be the most cost-effective and energy-efficient way to decarbonise final energy demand. Indeed, electrification coupled with an increased use of renewables, improved energy efficiency and applying the circular economy will deliver most of the emission reductions across the energy system. That said, electrification is not feasible in all sectors. Some will continue to rely on gases. This is why renewable and low-carbon gases have an important role to play to reach the EU's climate goals.

2. How does this package fit in with the proposals adopted on 14 July?

On 14 July 2021, the Commission adopted the first set of proposals to make the EU's climate, energy, transport and taxation policies fit for reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels. The July package promotes the demand and production of renewable and low carbon gases, including hydrogen. Today's proposals (regulation and directive) enable the market to decarbonise gas consumption, and puts forward policy measures required for supporting the creation of optimum and dedicated infrastructure, as well as efficient markets. It will remove barriers to decarbonisation and create the conditions for a more cost effective transition. The present initiative is complementary to the revised Renewable Energy Directive (REDII), Energy Efficiency Directive (EED) and Emissions Trading Scheme (EU ETS).

3. How will the package enable cross-border trade of renewable and low-carbon gases and facilitate their access into the market?

There is significant potential to scale up the production and consumption of renewable and low-carbon gases, which make up less than 5% of the gas market today. The Impact Assessment underpinning the proposal has shown that entry tariffs are a significant barrier to the entry of renewable and low-carbon gases into the system. In order to address this the Commission is proposing to grant discounts of 75% on these entry tariffs. The Commission is also proposing to eliminate cross-border tariffs for renewable and low-carbon gases to facilitate sales across borders into the European market and exploit the most promising production spots. Similarly, in the future, no cross-border tariffs will apply for the dedicated hydrogen network, promoting competition, affordability, and security of supply.

4. Will it be possible to integrate renewable and low-carbon gases into the existing gas grid?

Some renewable gases are already integrated into and compatible with the existing gas grid, but they are often injected into the distribution grid where they do not necessarily have access to wholesale markets. This is why the Commission is proposing to ensure that even smaller installations connected to the distribution grid will be given equal access to wholesale markets. It

encourages also reverse flows of gas or alternative measures to commercially and physically integrate distribution grids to the larger transmission grids. Renewable and low-carbon hydrogen can also be blended with natural gas up to a certain percentage, but this requires that the quality of the gas is closely monitored.

5. Will this package phase out fossil natural gas?

The Commission's proposals creates the conditions for the gradual phase-out of fossil natural gas. The key objective is to facilitate the penetration of renewable and low-carbon gases into the energy system, enabling a shift away from fossil natural gas. The uptake of these new gases will also contribute to achieving the EU's 2030 climate objectives and climate neutrality at the latest in 2050. Whilst recognising the transitional role of fossil natural gas, the package encourages Member States to ensure that their planning is carried out with the decarbonisation goal and European Climate Law in mind and to avoid lock-in effects and stranded assets, ensuring a gradual and timely phase-out of fossil natural gas wherever electrification or a switch to renewable or low-carbon gases are possible. To avoid the lock-in of fossil natural gas, a limit is set for long-term gas contracts, which should not be able to extend beyond 2049.

6. What impact will this package have on gas prices and security of gas supply in Europe? How will it contribute to better protecting the European energy system against future shocks?

Whilst the main objective of the package is to foster the deployment of renewable and low-carbon gases, it will also have a positive effect on energy security and gas prices in the medium term. This is because renewable gases can be produced domestically and hence lead to a reduction of import dependency.

An integrated gas market allows consumer access to the cheapest gas available on the market. The same principle applies to biomethane, hydrogen and other renewable and low carbon gases, ensuring consumers are protected and empowered to switch suppliers to make cost-effective low carbon choices. The package will allow to exploit the production cost differences across the EU so that the cheapest means of production prevails through fair competition. It is necessary to exploit the potential of the market in bringing the costs of production down.

The package aims to increase the resilience and security of supply of the European gas system by extending the scope of the gas security of supply regulation. The Commission proposes to extend the scope of the regulation to renewable and low-carbon gases in the natural gas grid, while including new provisions on cybersecurity to ensure continued security of the European energy system. Moreover, this regulatory package aims to make solidarity between Member States operational through new arrangements and clarifications on controls and compensation costs. Finally, the security of supply regulation will be revised to enable more effective gas storage, to anticipate and prevent risks at regional level. This includes measures that can be activated for emergency situations, e.g. in case of an EU supply crisis, including forms of joint procurement of gas stocks.

The measures will help ensure a high filling level of storage at the beginning of the heating period in the EU. The larger the volume of gas "in stock" the more the EU can compensate for temporary shortages of gas supplies or shortages of other primary energy sources.

Ultimately, the roll out of domestically produced renewable and low-carbon gases will decrease the dependency of Europe on imports of fossil fuels and curb the impact of global market shocks, strengthening the resilience of the EU energy system.

7. How will the package enable the development of hydrogen infrastructure?

This package aims to create a hydrogen market with fit-for-purpose infrastructure and cross-border coordination, including interconnectors, where hydrogen can be cost-effectively brought from areas where can it be easily produced from renewables to the industrial customers that need it. Existing natural gas networks can be repurposed partially for transporting hydrogen, with significant cost savings compared to new-build infrastructure.

Considering the nascent and local nature of hydrogen production and consumption in the early phases, we have to avoid the creation of natural monopolies. The package proposes rules on the operation and financing of hydrogen networks, on transparency of gas quality parameters and hydrogen blends, on the repurposing of natural gas networks for hydrogen transport, unbundling and non-discriminatory network access. This will create the right environment to invest in hydrogen infrastructure and develop a competitive hydrogen market. To ensure optimal development and management of the EU hydrogen network and to facilitate trading and supplying hydrogen across borders, a European Network of Network Operators for Hydrogen (ENNOH) will be established.

5. Why is the Commission proposing to introduce a certification system for low-carbon

hydrogen and synthetic fuels produced from it?

There is an existing and upcoming project pipeline for the production of renewable and low-carbon gases in Europe, and consumers need to be able to differentiate between the available gases. Certification rules for low-carbon gas and its derivatives will complement the certification schemes for renewable fuels and gases proposed in July, and will apply both to imported and domestic production to ensure a level-playing field and avoid carbon leakage.

Developing an international framework to create a global market for hydrogen-based solutions, including harmonised safety and environmental standards, is of vital importance in the EU's efforts to lead the clean energy transition. The EU is already in close contact with many of our international partners to identify the way forward, both bilaterally as well as in multilateral fora such as the Clean Energy Ministerial (CEM) Hydrogen initiative, the International Partnership for Hydrogen and Fuel Cells (IPHE) and the International Renewable Energy Agency (IRENA).

9. What is integrated network planning and how will it affect the development of renewable and low-carbon gases?

Integrated network planning means that, at the national level, there may continue to be two separate network plans for gas and electricity, but both will need to be developed on the basis of a joint scenario covering electricity, gas and hydrogen. This is already the case on the EU level and it helps to ensure that there is a common vision between different energy vectors in the future. The package introduces an additional national network planning for hydrogen and an EU-wide ten-year network development plan. The latter will include the modelling of an integrated network, build on national hydrogen network plans, national investment plans, cross-border interconnectors, and identify gaps in investments especially with regards to cross-border capacities.

At the same time, integration will also take place vertically, as distribution system operators and district heating infrastructure operators are required to exchange relevant information for the purpose of developing the plan. The plan should also avoid the development of stranded assets, and provide transparency on network parts that are not needed anymore and could be used for transporting hydrogen in the future, as well as providing indications for the optimal size and location of power-to-gas installations such as electrolysers. This will help to integrate renewable and low carbon gases.

10. How will the package address consumers' needs?

For new gases to play a full role in the energy transition, the retail market rules should empower customers to make sustainable and low carbon choices, minimise barriers to switching suppliers, and increase the level of customer engagement and protection. Currently, the retail gas markets exhibit market concentration and low levels of new entry and innovation; this prevents customers from benefiting from open competition. To be empowered, customers need sufficient information on their energy consumption and its origin, as well as efficient tools to participate in the market.

Today's proposals mirror most of the provisions on consumer protection and empowerment in the electricity sector, wherever they are adaptable to the gas market. With the new rules, consumers may switch suppliers more easily, use effective price comparison tools, get accurate, fair and transparent billing, have better access to data and new smart technology, can act as active customers and participate in citizen energy communities operating on a level playing field.

Moreover, Member States should take the appropriate and necessary measures to protect and support vulnerable and energy poor customers through energy efficiency improvements and social security systems amongst others. The decarbonised gas market should not be developed without them being able to fully benefit from it.

11.How will the package improve the functioning of storage in the EU and facilitate joint procurement of strategic stocks?

The package includes provisions on efficient use of gas storage and on voluntary joint procurement. Member States shall include an analysis of their storage levels and of potential risks related to security of supply, also from when storage is owned by third-country entities in their common risk assessment at regional level. Whenever risks will be identified they will have to introduce possible counter-measures from a range of options, including minimum storage obligations, tendering or auctions. Member States will have to agree on the procedures to activate these measures and on the joint financing.

They will benefit from facilitated cross-border exchanges of gas and cross-border transparent access to storage facilities.

The proposal also enables Member States who wish to do so, to set up a to set up a mechanisms for

voluntary joint procurement by Transmission System Operators (TSOs) of strategic gas stocks, which could be released in case of emergency. The voluntary mechanism should be in line with the energy market and competition rules and open to the participation at a later stage of other Member States who wish to do so.

Furthermore, the Commission has already set up new cross-border regional gas risk groups to analyse gas supply risks across the EU. The risk groups will advise Member States on the design of their preventive and emergency action plans, and will emphasis the role of gas storage.

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