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Cefic response to the European Commission's inception impact assessment on the Hydrogen and Gas markets Decarbonisation Package

Cefic supports Europe's ambition to become climate neutral by 2050 requiring breakthrough technologies and enabling frameworks for the very large investments required. The Green Deal recognises that energy intensive industries are indispensable for Europe's transition. The chemical industry provides low carbon solutions to all other sectors to the European economy, including efficiency solutions to multiple value chains such as the construction sector.

The chemical industry is already nowadays a major producer and consumer of hydrogen. On a local level, production and consumption are typically well-balanced today. Beyond its use as a chemical raw material, hydrogen can also be used as an energy carrier which does not release CO_2 if combusted for energy generation. Hydrogen will play a key role in the decarbonization of the chemical industry if it is provided from emission-free production processes, which also includes CCS options, and at competitive cost.

Moreover, for processes for which electrification is not yet technically or economically possible, renewable and low carbon fuels (like biogas, hydrogen, synthetic fuels, high-octane liquid fuels, advanced fuels…) can also be part of the solution to assist the chemical industry.

For these options to become a reality, appropriate infrastructures, as well as a favourable regulation around production, storage and distribution of renewable and low carbon fuels is required.

Cefic therefore welcomes the approach proposed in the inception impact assessment, leading to the design of competitive decarbonised gas markets.

Already in the 2019 Vision on Hydrogen[1], Cefic identified key elements of the regulatory framework needed to support the development of a hydrogen market. Coupling our previous comments with the approach indicated by the Commission, Cefic would like to stress the following points:

- **Ensuring the proper functioning of energy markets**

  The market principles supporting the liberalisation of the electricity and gas markets should be extended to hydrogen and renewable and low carbon gases. These include, inter alia: level-playing field, free energy flow, non-discriminatory access, transparency in tariffs setting, unbundling, and electricity and gas TSO and DSO to keep a market neutral role when it comes to energy storages, power-to-gas facilities or electrolysers. Specifically on the free energy flow, no restrictions should be imposed on the origin of hydrogen for the users of hydrogen for energy and feedstock purposes.

  The EU regulatory framework should include clear and comprehensive definitions for different types of hydrogen, which can contribute to the aim of abating GHGs. A manageable and robust EU-wide system to certify production of renewable and low carbon gases (including the GHG intensity

[1] https://cefic.org/policy-matters/climate-change-and-energy/hydrogen/

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on a standardised life cycle basis) and Guarantees of Origin (GoO) will therefore be needed (e.g. ISO). Certification must be done by an official body to ensure the credibility of the system, including outside the EU borders. The certification and verification system should be used to prove origin of the renewable or low carbon energy carriers produced in EU or imported to EU, to prevent double counting and in a consistent way connect with the electricity GoO setup.

- **Creating lead markets**

  Renewable and low carbon gases, including low carbon hydrogen, are currently not cost-competitive and not available in sufficient volumes. The competitiveness of these gases needs to rapidly improve to compete with current sources of energy production. To minimise societal costs, it is essential that renewable and low carbon gases are accommodated in a technology neutral manner.

  In addition to support measures for production, support measures would also be needed in parallel to stimulate the creation of lead markets of these gases:

  - Production: innovation is crucial to develop new production technologies and energy carriers, to optimize production processes and to lower the production costs. Support measures need to be technology neutral, market-responsive and create least distortion to the market functioning.
  - Consumption: policies to incentivise use of hydrogen on the demand-side need to be stimulated, including the use of hydrogen as an energy carrier or as feedstock for chemical processes. These new technologies have high investment and operating costs, and will have to compete with existing technologies, moreover on a global scale. Therefore, development of such new applications should not be constrained by extra criteria on e.g. the origin of hydrogen. Throughout the transition, any colour of hydrogen will aid the uptake of the demand side.

- **Ensuring gas quality**

  The chemical industry can use hydrogen and renewable and low carbon gases both as feedstock and as energy carriers. Such gases would have to be delivered as homogeneous molecules (i.e. either all hydrogen or all "methane-compatible").

  This calls for a very careful approach to gases quality management. From the perspective of the chemical industry, just blending hydrogen in the natural gas grid can have negative impacts which are three-fold:

  1. It will lower and widen the Wobbe band, which affects the stability of equipment. Existing gas turbines can be very sensitive to hydrogen content. Boilers and cogeneration equipment will also need to be adapted to changing burning properties. A well-developed measurement and control technology would therefore be needed to monitor the fluctuations of hydrogen content. Cefic supports a small Wobbe Index (WI) at exit points for end-use purpose, including stability criteria (WI range, rate of change) and ensuring the appropriate local WI information, and a wider WI at entry points to support a liquid gas market.

2. It may render natural gas unusable as a feedstock due to downstream processes not being able to process the hydrogen (or causing upsets). Processes using natural gas as feedstock in chemical reactions are very sensitive to hydrogen (e.g. desulphurisation of natural gas, acetylene production). The operation, safety and efficiency of certain processes can already be compromised by hydrogen contents as low as 1.5% of volume.
3. It may affect cross-border trade of hydrogen and natural gas. A preferred general way forward would be the establishment of parallel methane and hydrogen pipelines at the TSO level, with a possibility of blending from hydrogen pipelines into methane pipelines where it makes sense, ensuring grid compatibility with consumers sensitive to hydrogen shares. This would also be a crucial feature for safeguarding a functioning cross-border trade of hydrogen and natural gas. At the same time, parallel infrastructures are key to supplying consumers of pure gases, especially large consumers in the industrial sector. At the DSO level there might be more flexibilities for blending hydrogen in the network areas, as long as this does not cause any technical damage to consumers particularly sensitive to natural gas quality.

Given the challenges in integrating hydrogen and renewable and low carbon gases, it is of utmost importance that the transmission system operator (TSO) is ultimately responsible to deliver homogeneous gases to the chemical industry.

Cefic also welcomes the Commission's plan to address the rules on gas quality management, building on gas quality standardisation work undertaken in CEN/CENELEC.

At the same time, the Commission should clarify whether it envisages a distinct hydrogen vs. fossil/synthetic/bio methane infrastructure/policy, or (some degree of) mixing/blending as transitional measure is to be expected. And, if the latter, how it intends to address technical and economic aspects, such as heterogeneous gas compositions, different acceptability levels of gas qualities across end-user categories, avoidance of sunk-investments, ad so-forth.

- **Safeguarding industrial competitiveness**

Hydrogen and renewable and low carbon gases are among the necessary tools to support the chemical industry on its path to climate-neutrality. Yet, as an overall condition, a rapid improvement of competitiveness will be an absolute pre-requisite for these gases to become competitive with current sources of energy production.

As long as these gases are not competitive, support measures need to be put in place to assist the chemical industry in the low-carbon transition while preserving its international competitiveness.

Moreover, any new supportive regulatory framework should allow for cost-competitive hydrogen and renewable and low carbon gases imports (e.g. hydrogen, ammonia or synthetic fuels) into to the EU.

- **Promoting an "energy system" approach**

Infrastructure should be carefully planned to safeguard gas quality requirements, allow safe and efficient transport and build on the potential of hydrogen as a storage solution.

The development and deployment of hydrogen and renewable and low carbon gases is also strongly correlated to the developments in the energy markets and in energy systems integrations. To allow markets to properly function, delivering lowest costs for society, the regulatory framework should be technology neutral.

In view of such energy system approach, Cefic also considers that the regulatory framework should deliver consistency across energy markets, while strengthening consumer rights. To reduce the risk of inconsistencies and dilution of consumers' rights, stand-alone legislation on hydrogen and/or on renewable and low carbon gases should be as much as possible avoided.

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About Cefic
Cefic, the European Chemical Industry Council, founded in 1972, is the voice of large, medium and small chemical companies across Europe, which provide 1.2 million jobs and account for 16% of world chemicals production.