CEER Public Consultation Regulatory Challenges for a Sustainable Gas Sector

Q2 To what extent should a common European threshold for the blending of hydrogen in gas networks be mandatory and which timing should be taken into account? Please explain your reasoning.

From the viewpoint of gas-based power generation, to achieve the target of a carbon-neutral economy, the switch to renewable gas is essential. This will maximise the value of dispatchable, reliable and efficient power and heat generation, independently of weather conditions – complementing variable renewables such as wind and photovoltaics generation. In terms of amounts, hydrogen and synthetic methane will probably have a predominant role among the renewable gases.

The gas power plants technology is optimised for a specific gas composition. The injection of new, renewable gases in the gas network has an impact on that gas composition. While e.g. biomethane can be handled without bigger problems (already today around 17 000 gas engines are running on biogas in Europe) the impact of hydrogen blending on engine power plants needs to be carefully assessed: Today engine power plants can operate with a share of 5% hydrogen in the gas pipeline. Higher shares up to 20% will be achievable for most new plants over the coming years and manufacturers are working on solutions for even bigger amounts. However, most existing plants were not designed for high amounts of hydrogen – how far they can be retrofitted is still under examination. Nevertheless, an important aspect, when considering blending of different gases into the gas network, is the need to ensure a certain stability of the gas quality delivered to customers (i.e. at exit point). Limited variations can be handled by the technology without modifications. However, larger changes in the composition – not only related to hydrogen content – may need additional (soft- and/or hardware) adaptations. Short-term variations at the connection point to the power plant must be kept within a reasonable range and the speed of the variation (rate of change) needs to be controlled. For this reason, information on the expected changes need to be communicated by the grid operators in a structured way and well ahead. Should big variations in the amount of hydrogen in the gas pipeline become reality, it will need to be ensured that at the exit point to power plants the gas composition stays within reasonable ranges.

Setting up targets to inject certain amounts of renewable gases into the gas pipeline could help accelerating the decarbonisation of the gas sector – as well as its users, such as gas power generation. The aspects mentioned above should be taken into consideration in the discussion.

Q3 Under which circumstances or conditions should hydrogen networks be regulated, and should this regulation be in the same way as gas networks or are there alternatives? Please explain your reasoning.

It is important that all potential customers have access to renewable gases. The relevance of using renewable gas in dispatchable power generation should not be underestimated: (renewable) gas power plants are needed in combination with variable renewables to ensure the stability of the electricity grid and provide enough power and heat, meeting seasonal peak demand. Securing the supply of renewable gas to the power sector is, in this sense, a new dimension of the term “security of supply”.

Q4 Is ‘cost efficiency’ a legitimate reason for pro-active market intervention which may be contrary to a general “technology neutral” approach? Please explain your reasoning.

It is not clear at what stage and for what purpose “cost efficiency” would be considered – for the customers, for the system, of a given technology…. Other aspects, such as the contribution to the well-functioning of the energy system needs to be also considered.

Q5 Which role do you see for power-to-gas infrastructures?

Power-to-Gas infrastructures bring together the electricity and the gas sector; in the same way, gas power plants can combine the gas, electricity and heat sector. Their combination ensures optimum sector coupling.

Ensuring sufficient hydrogen or synthetic fuels from Power-to-Gas is key in the decarbonisation efforts. It is therefore of utmost importance that all players are encouraged to invest in this technology. The generated decarbonised hydrogen should be fed into the gas grid and made available to all interested economic sectors, in a neutral way.

Q6 In your opinion, do the electricity and gas tariff systems create possible distortions to the efficient deployment and use of power-to-gas technologies? If yes, how and in what circumstances?

One challenge is created by the combination of both tariff systems.
If hydrogen is sold to the application paying the highest prices, this is pure hydrogen for industrial customers and transport. Electricity prices do not allow to pay similar prices for hydrogen as input factor for gas power plants. Since, however, the electricity system needs gas plants to provide the residual load, which at the same time need to be decarbonised, there is a need to ensure the availability of renewable gas for power generation. This could be done e.g. via contracts for difference – but the renewable gas amounts need to be ensured.

Q12 Do you see a risk for stranded assets in your country? If it becomes of relevance, what could be the appropriate regulatory tools to reduce this risk?

Looking at the whole gas infrastructure (i.e. beyond the gas grid), it should be noted that gas power plants, currently needed to accelerate the coal phase-out (and by this considerably reduce carbon emissions), can be already equipped or later retrofitted to operate with renewable gases, including different amounts of hydrogen. This ensures that they will not become stranded assets, providing valuable dispatchable renewable power – a capability needed in a system with high shares of variable electricity from wind and PV – as well as heat. However, to achieve this, the supply of renewable gas to gas power plants – central as well as increasingly decentral – is essential.

Q13 In your opinion, should decisions on decommissioning be assessed with methodologies similar to those used for investing in new cross-border infrastructures? Do you see the need of an EU framework for decommissioning infrastructure with a cross-border impact?

It is often argued by supporters of a high level of electrification that costs could be saved by decommissioning large parts of the gas infrastructure, especially in the distribution grid. In an increasingly decentralised energy system, we will see a growing share of decentral dispatchable gas power plants, not only to provide electricity when wind and PV do not deliver, but also in cogeneration plants. These power plants need access to the gas grid to perform this key task.

Q14 What are the critical points that should be addressed regarding the gas market design?

Setting incentives for decarbonising the whole gas grid – not only by providing a parallel infrastructure for pure H2 for a limited customer group.

Q15 Considering the possible development of renewable gases, in your opinion, do you see a need to update the gas market design?

Yes. A target for renewable gas needs to be defined, also outlining a process to achieve them (a roadmap specifying concrete steps on specific dates to ensure the necessary previsibility). This will ensure that investors feel confident in investing in the technology needed (avoiding the risk of investing in stranded assets).