SolarPower Europe's response to the Public Consultation on the Hydrogen and Gas Market Decarbonisation Package

Side Paper

General position

Electrification is the most cost-efficient way to decarbonise most sectors of our economy. For hard-to-abate sectors which cannot be electrified, renewable hydrogen produced via electrolysis and with renewable electricity is the privileged decarbonisation option due to its numerous advantages (i.e. inexhaustible resource, most sustainable, integration of renewables in the system, strategic value due to Europe's leading role in renewables and electrolyser development, job creation etc.). Therefore the production and use of renewable hydrogen needs to be scaled-up and supported, notably through a robust system of certification, appropriate support mechanisms and planning and provision of necessary infrastructure.

The Gas decarbonisation package must ensure "competition in the market", and outline key principles (neutrality of network operation, third party access, cost reflective and market compatible network tariffs, treatment of private networks). It is essential to avoid lock-in effects, while hydrogen investment supported by governments must avoid cross-subsidies between gas and electricity consumers. The principle of liberalisation should be reinforced, clarifying that "emerging technologies" such as electrolysers are not natural monopolies and, hence, cannot be owned or controlled by TSOs/DSOs.

Solar Power Europe's key recommendations on the Public Consultation on the Hydrogen and Gas Market Decarbonisation Package:

- Focus **market uptake measures** towards renewable hydrogen as the most sustainable and future-proof solution. When considering the implementation of renewable gas targets in the gas decarbonisation package, it is critical that such **targets only focus on electrolysis-based renewable hydrogen and incentivize the build-out of new renewable installations**.
- Establish a robust EU **certification and verification system** for renewable hydrogen, allowing consumers to make informed choices, avoiding double-counting of renewable production, and greenwashing.
- Foster a **coordinated planning and operation of hydrogen and electricity infrastructures,** at EU and national level. The Energy Efficiency First principle should apply, which includes not incentivizing blending and focusing on existing hydrogen networks in a first phase.
- Ensure **"competition in the market", and outline key principles** (neutrality of network operation, third party access, cost reflective and market compatible network tariffs, treatment of private networks).
- **Enable the market-based development of dedicated hydrogen storage facilities** in the EU, supporting flexibility (seasonal storage) and energy security (less imports needed). We expect hydrogen to develop primarily in local clusters (for instance around industrial areas or close to renewable resources). A minimum level of transport infrastructure is needed to connect local clusters among each other or with dedicated storage facilities and should be planned with the involvement of all relevant stakeholders.
- Harvest the **large untapped domestic renewable energy resources** within the EU to supply the foreseen 40GW of electrolysers that will be installed in the EU by 2030 and develop the appropriate infrastructure in the EU. Imports of renewable hydrogen are unlikely to take place before 2030.

SolarPower Europe
Rond-point Robert Schuman 3
1040 Brussels
+32 2 709 55 20
info@solarpowereurope.org
www.solarpowereurope.org

Blending

Blending hydrogen with natural gas into the gas network should not be incentivized and be approached with caution. In principle, priority should be given to the use of hydrogen in sectors for which no other more effective and efficient decarbonisation options exist. It has to be kept in mind that the potential of blending to decarbonize end-uses is limited: knowledge to date indicates that blending percentages between 2-10% (in volumetric terms, which is even less in energy content and thus GHG reduction potential) are technically feasible with few adaptations in some Member States. Some operators consider 20 % the upper bound due to the requirements for downstream users to be adapted beyond this point. Blending should therefore not slow-down electrification policies in those sectors currently relying on gas grids (such as buildings). Indeed, where electricity can be used directly, this is more efficient than the use of hydrogen; according to the National Academy of Sciences of the US, there is a loss of 30% efficiency due to electrolyser performance. On the other hand, specifically incentivizing blending might favor the most cost-efficient hydrogen technologies in the short term, which are mostly fossil-based, non-renewable hydrogen sources. It would therefore not satisfy the objectives of the EU Hydrogen Strategy.

In addition, the efficiency of end-user appliances must be considered. Ensuring the sound prioritisation of end-uses is therefore critical to align with the energy efficiency first principle and avoid an increase in CO2 emissions in the short term.

However, in some very specific conditions blending can help to kickstart the market for some renewable hydrogen projects. It is critical that such situations are approached on a case-by-case basis and under strict conditions:

- Only during "transitional period" (in line with EU Council position).
- Only renewable hydrogen should be injected into gas grids.
- Only if additionality criteria can be ensured and verified
- Electrolysers should be connected to grid branches that will surely be repurposed for pure hydrogen. Careful planning and assessment is thus needed.

This position on blending comes supported by facts. Blending hydrogen with natural gas reduces the decarbonising potential of hydrogen. For example, 20% blending in Spain could avoid emissions of 6 MtCO2, but with the same green electricity needed to produce hydrogen for that blending percentage, all the residential heating and domestic hot water in Spain (113 TWh/y) could be decarbonised, avoiding 28 MtCO2. Thus, blending can be compared to adding water to gasoline. Moreover, blending diminishes energy efficiency, as the need to compress hydrogen before injecting it to the pipeline is almost 4 times higher than that of gas. At the other end, most turbines cannot admit more than 20% hydrogen contents without technical damage.

Storage

Until dedicated storages are made available for hydrogen and are connected to the hydrogen backbone, it will be necessary to leverage on the available line-pack flexibility in hydrogen grids. By increasing the pressure on them, excess hydrogen production can be stored in the grid when RES production is high, while operating pressures can be reduced when RES infeed and hydrogen production is low. In this way intermittent power production and hydrogen offtake can be aligned. This is technically possible and must be allowed for as part of the review of the Gas packageCurrently, grid operators are not allowed to ‘market’ this flexibility, withholding the possibility to develop such services on a market basis.

Certification

The EU should establish an EU standardised certification and verification system for renewable hydrogen. The certification and verification system should provide the right information to allow consumers to make informed choices, avoid double-counting of renewable production and limit greenwashing. Therefore, it should contain information about the origin of the energy and carbon footprint, as well as information about additionality (including physical traceability and time correlation). The certification and verification system needs to reflect these essential consumer needs, while not adding disproportionate complexity for hydrogen producers and users.