WindEurope answer to the European Commission roadmap on the Hydrogen & Gas markets Decarbonisation Package

March 2021

WindEurope welcomes the European Commission (EC) combined roadmap and inception impact assessment on the Hydrogen & Gas Markets Decarbonisation Package and calls for it to:

- **Foster renewable hydrogen in the hard-to-abate sectors;**
- **Ensure the development of a competitive European hydrogen market; and**
- **Accelerate the deployment and reinforcement of a cost-efficient energy infrastructure.**

WindEurope believes that a rapid renewables-based electrification is the most cost-effective way to decarbonise our economy and reach climate neutrality by 2050. The direct use of this renewable electricity should be prioritised where it is the most cost-effective and energy efficient decarbonisation pathway. Renewable electricity should also be used to produce renewable hydrogen in activities which cannot reduce CO_2 emissions otherwise, such as the hard-to-abate sectors[1].

1. Foster renewable hydrogen in the hard-to-abate sectors

In the harder-to abate sectors, where direct electrification is nor cost-efficient, nor technically viable in the timeframe needed to reach net-zero ambitions, other ways to decarbonise are needed. Indirect electrification, including the production of renewable hydrogen could contribute to the decarbonisation of sectors such as:

- **Heavy industrial processes**: substituting the fossil-based hydrogen for energy and feedstocks with renewable hydrogen in the production of chemicals, steel, cement and in refineries.
- **Heavy-duty road transport**: heavy trucks, certain utilitarian vehicles and some public transport.
- **Shipping and aviation**: transatlantic shipping and aviation.

The barriers to tackle the uptake of renewable hydrogen are:

- **Defining renewable hydrogen in the EU legislation:** a clear and consistent European definition for renewable hydrogen applicable across all the end-uses in which it will play a role for decarbonisation. Electrolysed renewable hydrogen powered by 100% renewable electricity should be the reference. All forms of hydrogen should be clearly defined so as to inform policymaking;
- **Energy Taxation**: Today electricity is taxed when consumed, including when supplied to storage facilities. This opens the door to double taxation of electricity stored and re-sold. To avoid this, the revised Energy Taxation Directive should state that electricity supplied to storage facilities & electrolysers cannot be considered as end-consumption;
- **Scale and cost reduction for electrolysers:** Producing hydrogen with electrolysers costs roughly double than with fossil-fuels[2]. The use of electricity represents 65-80% of the operational costs of electrolysers (IEA). Targeted industrial policy is needed;

[1] Heavy industry (cement, steel, and chemicals), heavy-duty road transport, aviation and shipping.
[2] 21 IEA, 2019. The Future of hydrogen. p.55

- Some **infrastructure developments** could be required depending on the end use of renewable hydrogen. Renewable hydrogen used as feedstock for industry is a high value gas that is needed in pure form. Infrastructure for transporting renewable hydrogen from locations with high wind concentration (and grid congestions) to industrial clusters will be needed in the future. **Policymakers should support the development of renewable hydrogen on a local basis in Europe to serve the existing demand for hydrogen which already has its local infrastructure**;
- **Lack of hydrogen refuelling stations** across Europe both for heavy duty transport, public transport and passenger vehicle; and
- **Renewable hydrogen production can also be a source of demand flexibility.** It could help smoothing the short-term variability of the wind supply. However, its cost structure limits its use for this service today. Demand flexibility would be cheaper from other sources (e.g. industrial demand, battery systems). Renewable hydrogen will add more value as a source of seasonal storage.

2. Ensure the development of a competitive European hydrogen market

The EU Hydrogen Strategy sets the ambition to install at least 6 GW of renewable hydrogen electrolysers in the EU by 2024 and 40 GW by 2030. To get there, Europe should focus on how to create the right market conditions and a regulatory framework that recognises the value of the use of greenest solution in the sectors where it is most required.

Policymakers should support the development for the commercialisation of renewables hydrogen by:

- **Ensuring the Guarantees of Origins (GO) allows to track renewable energy (renewable electricity and renewable hydrogen) clearly and effectively**. GOs for renewable energy play an important role to stimulate final customer's demand for renewable energy. The EU should aim for full disclosure with a GO system covering all hydrogen and electricity. Within this, renewable energy GOs should only be issued for energies that are 100% renewables-based;
- **Targeting the development and upscaling of electrolyser** technologies through industrial policies for securing technology leadership and reducing the cost of renewable hydrogen production;
- **Supporting the uptake of a robust European electrolyser industry** and the creation of a knowledge base by continuing Research & Innovation on system integration;
- **Ensuring that grid tariffs are cost-reflective** for power-to-gas injected to the gas network, and for the input electricity when power-to-x infrastructure provides flexibility to the energy system; and
- **Ensuring that power-to-x remains a competitive activity**: it has to be developed by market operators, to avoid distortions and inefficient outcomes. TSOs and DSOs should not be involved in competitive activities like power-to-gas, as they will have a potential conflict of interest when planning, granting access and operating / dispatching infrastructures.

3. Accelerate the deployment & reinforcement of a cost-efficient energy infrastructure

To reach net-zero emission by 2050, Europe will need a highly flexible energy system with very large shares of wind and solar energy as foreseen by the EC 2050 Long Term Strategy[3]. **Accelerating the**

[3] European Commission, In-depth analysis in support of the Commission Communication COM(2018) 773, *A Clean Planet for all - A European long-term strategic vision for a prosperous, modern, competitive and climate neutral economy*, November 2018.

deployment of smart and stronger electricity grid infrastructure is crucial for a successful European hydrogen strategy.

Increasing the electricity share in Europe's energy mix would also require larger and stronger grids which will allow faster and cheaper energy sector integration. Thus, **optimising the existing power grid infrastructure should be the priority together with further development of this grid**. In that regard, TSOs should have greater incentives to save on OPEX by applying optimisation technologies. The revised Trans-European Networks for Energy (TEN-E) Regulation should be aligned with a renewables-based electrification & prioritise electricity infrastructure.

According to various stakeholders[4], gas demand has often been overestimated. So, the **extension of the gas infrastructure to accommodate and transport renewable gases and renewable hydrogen should be carefully assessed**. In some cases, it might not even be necessary to connect power-to-gas facilities to the grid (e.g. on-site production of renewable hydrogen). It could be consumed locally on the territory of an industrial customer; then a grid connection becomes obsolete.

Repurposing the existing gas infrastructure for the transport of renewable hydrogen and other renewable gases could unlock a cost-efficient pathway towards the upgrading of renewable gases' role in the energy system. But it could also lead to stranded assets if not done carefully.

Blending hydrogen with natural gas into the gas network should be approached with caution and analysed in detail, making sure that hydrogen does not end up feeding final uses for which other more effective and efficient decarbonisation options already exist and avoiding a lock-in into technologies using gaseous fuels with limited decarbonisation potential.

Europe should carefully assess the need for extensive retrofitting of the existing gas infrastructure. A large demand for renewable hydrogen is still uncertain as are locations where it will be produced and used. The first deployment of renewable hydrogen projects should start from solutions that see generation as close as possible to the consumption point.

[4] http://www.caneurope.org/docman/climate-energy-targets/3580-2020-can-gas-pp/file
https://www.e3g.org/docs/E3G_Trends_EU_Gas_Demand_June2015_Final_110615.pdf
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