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BDEW Bundesverband der Energie- und Wasserwirtschaft e.V.
Reinhardtstraße 32
10117 Berlin
Telefon +49 30 300 199-0
Telefax +49 30 300 199-3900
E-Mail info@bdew.de
www.bdew.de

Position Paper

DG Energy Roadmap on „A EU Hydrogen Strategy“

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BDEW supports the goal of EU climate neutrality by 2050 and is committed to the energy sector playing a key role in achieving the 2050 climate target. BDEW stresses that the targets will only be achieved if the necessary framework conditions are created and social compatibility, competitiveness and security of energy supply are ensured. This applies in particular to the desired increase in climate targets by 2030, bearing in mind that each sector must achieve its own targets. BDEW confirms the important role of gas as an energy source and its infrastructure in interaction with other grid-based energy sources in the decarbonisation of all sectors.

In this regard, BDEW welcomes the initiative of the European Commission to launch an EU Hydrogen Strategy in conjunction with the Smart Sector Integration Strategy as hydrogen must become a supporting pillar of the energy transition, especially in order to master decarbonisation in buildings as well as parts of transport and industry. BDEW considers the development of a hydrogen economy as a key European project that demands coordination and collaboration of Member States as well as with third countries to avoid fragmented approaches and to enable markets unlocking its full potential for the decarbonization.

While it is difficult to estimate the medium and long-term demand of hydrogen in concrete terms from today's perspective, the current natural gas sales, e.g. in the industry sector of 363 TWh and in private households of 285 TWh in Germany alone as well as the expected use in the transport sector suggest that large quantities will have to be made available in any case, since it will not be possible to replace all of today's natural gas consumption by efficiency measures or electrification.

Hence, the need for investment is high: starting with the necessary expansion of renewable energies, through the establishment of hydrogen production, to adjustments in infrastructure and consumers' applications. Starting the hydrogen economy can therefore trigger a broad investment boost in sustainable and climate-friendly technologies. The success of this ramp-up is not least a prerequisite for maintaining Europe's industrial leadership in a climate-neutral world. Moreover, as the development of clean hydrogen can contribute significantly to the EU's economic recovery after the COVID-19 pandemic, BDEW welcomes the identification of clean hydrogen as one of the priorities in the EU recovery package.

Role of clean hydrogen

BDEW strongly believes that all renewable and decarbonised gases (biomethane, renewable hydrogen, the methanization of hydrogen to synthetic natural gas, methane pyrolysis, hydrogen from natural gas and other carbon separation and CO2 sequestration paths) and the already existing gas infrastructure will have to play a key role in the future EU energy system. Thus, it is important to provide for **a path towards decarbonisation that is open to all forms of renewable and decarbonized gases and all sectors** (industry, transport, heating, power generation).

Amongst renewable and decarbonized gases, hydrogen will play a major role as it can provide climate-neutral energy and feedstock to the industry, transport, heating and electricity sectors, and thereby help to substitute fossil fuels. Like the other renewable and decarbonized gases, hydrogen enables short-term as well as seasonal storage of energy and its long-

distance transport. In particular, renewable hydrogen supports the integration of renewable electricity generation as it decouples the energy production and usage in location and time and can become an important flexibility provider, particularly in situations of abundant renewable energy and incentivized by low market prices. Hydrogen from natural gas (with carbon or CO_2 separation) can help to push the market ramp-up by making available larger quantities in the short and medium term, which are needed for a conversion of infrastructure and application technologies, and for achieving the climate targets.

Therefore, hydrogen should have a large share in the market ramp-up of renewable and decarbonised gases. To help the hydrogen economy gain traction and enable companies at all parts of the value chain to participate in the market ramp-up **a European hydrogen strategy should focus on all sectors**. A strategy that only takes partial aspects or individual applications into account would remain short-sighted and piecemeal, hindering to unlock the full potential. Any decision to restrict energy sources and sectors for hydrogen at this early stage of a future hydrogen economy bears the risk of creating path dependencies and inefficiencies in the medium and long term.

More specifically, from BDEW's perspective an EU hydrogen strategy should consider the following policy and legislative actions:

I. Establishing a framework for hydrogen production and demand

From BDEW's point of view, the ramp-up of renewable and decarbonized hydrogen has to be based on market principles of supply and demand. Therefore, the development of markets for hydrogen has to be the first step to incentivize investments in production technologies.

In this regard, it is fundamentally important for an EU hydrogen economy as for the future climate-neutral energy system to establish a **technology-open and cross-sectoral level playing field referring to GHG emissions** or their reduction. **EU-wide carbon pricing** is key to this level-playing-field. For this reason, BDEW calls for additional carbon pricing in the non-ETS sector. Since different systems of non-ETS carbon pricing exist today in some member states, an increasing convergence of the national solutions including an adequate development of taxes and levies should be aimed at. In the long term, a synchronization with the European ETS could be envisaged. In addition, Member States should be given the **necessary freedom to reduce the burden of charges and levies on electricity**. To this end, the Energy Tax Directive should be geared towards CO_2 taxation and allow tax rates of zero.

An additional key requirement for the future production of renewable hydrogen and the methanization of hydrogen is the **further expansion and integration of renewable energies**. Obstacles to the further deployment of renewables are automatically also barriers to unlocking the potential of renewable gases which should be addressed at EU level in order to efficiently reduce GHG emissions.

The production of hydrogen in the EU contributes to the flexibility of the overall energy system as well as to the industrial leadership by establishing a European hydrogen industry.

However, third country imports might become necessary to supplement EU production for covering the hydrogen demand in all sectors. To be able to realize European production as well as global import potential, cooperation is essential within the European Union and with third countries. Therefore, an **EU hydrogen strategy should boost Member States' and international cooperation**.

II. Integrating clean hydrogen in the internal gas market

From BDEW's point of view, the role of the liquid and competitive EU internal energy market is essential and must also be maintained when the energy system is restructured as it ensures affordable energy prices, improves the competitiveness of the industry and serves consumers. Consequently, **hydrogen should be integrated in the well-developed internal market for gas** to enable free cross-border flow and trade and to avoid a fragmentation of markets. Therefore, in addition to the political commitment of an EU hydrogen strategy, BDEW sees a clear need to **modernize the regulatory framework for the internal gas markets** e.g. by including hydrogen in the existing gas market legislation and adapt the relevant Network Codes.

An imperative basis for the integration of hydrogen and further development of the gas market is a systematization or **classification of renewable and decarbonised gases** in the EU legal framework reflecting the life cycle emission factors to enable comparability among them and with other energy sources. This should be combined with the establishment of a **simple and transparent European system for Guarantees of Origin (GoO)**. This is the only way to achieve comparability of the different gaseous energy sources, which can then be used both in environmental policy assessment and in product development. For the creation of a liquid European market for GoOs, the application of the "book & claim" principle is essential. Without this principle, the commodity can only be traded together with the GoO. This would not only lead to nationally separated gas markets, but these would also be divided into two sub-markets for conventional and renewable or decarbonised gases splitting liquidity between them. Consequently, trading in a liquid market would also not be possible.

III. Enabling the transformation of the infrastructure

The existing gas infrastructure (transmission and distribution networks and storage facilities) serves, via repurposing of existing pipelines, as a basis for the development of a hydrogen economy. As a basic rule, for reasons of macroeconomic efficiency **the expansion of a comprehensive parallel infrastructure for hydrogen should be avoided** as long as this is not more cost-efficient in specific cases or no additional usage options are available. The prerequisite for this is the technical and regulatory management of increasing shares of renewable and decarbonised hydrogen in all areas of infrastructure (network, storage) and up to applications.

In principle, hydrogen networks should fall under the **same regulatory rules as gas networks**, as defined in the 3rd Energy Package, if hydrogen is used as an energy carrier in the

public energy supply for households, industry, commercial consumers, power plants and refuelling stations. Therefore, the **existing gas market legislation should be amended** to enable the transport of hydrogen under a regulatory regime. Considering that existing natural gas networks can be retrofitted for the transportation of hydrogen, the role of TSOs should be amended allowing them to develop and operate hydrogen networks under the same regulatory provisions as natural gas networks, including the regulatory recognition of the respective costs. Network operators who are upgrading their networks for higher hydrogen content or transforming them for pure hydrogen, should not be placed at a regulatory disadvantage.

A central feature of the scale up of renewable and decarbonised gases is the **increasing feed-in of hydrogen into existing methane networks** gradually increasing the admixture rate in the network. Currently, in most Member States the technical gas quality regime is not yet “hydrogen-ready”, as the technical standards for feed-in tolerance are very low and diverse. This could lead to barriers for a European sector integrated energy market. The technical feasibility of an increased feed-in of hydrogen will have to be examined and, where necessary, technical adaptations will have to be carried out. This requires extensive cooperation between Member States as well as intelligent linking of existing infrastructures (electricity, gas and heat networks) and an intensification of coordinated infrastructure planning on the corresponding grid levels of each sector (electricity, gas and, if applicable, heat). These include the legal possibility for the regulated gas infrastructure to transport hydrogen and the establishment of an EU-wide, initially low technical limit up to which the feed-in and transport of hydrogen is permitted.

Depending on the specific local situation of the DSO and TSO grid and the ability of the customer installations **higher shares of hydrogen blends can be possible enabling the local production of hydrogen** through PtG or pyrolysis, which is an important step towards decarbonisation. Ongoing developments on the appliance sector e.g. in the UK and Germany show that local hydrogen blends between 20 and 30% could be possible with few adaptions. Pilot projects and research programs are essential to have a better understanding of the set-up of smart gas grids equipped with sensors and membranes to make the best use of all local renewable and decarbonized gases in the vicinity to the gas consumers. In order to address the purity demands of sensitive customers membrane filter technology separating H2 from CH4 in an admixture are an important feature to consider in drafting new regulation for the gas networks. The steps necessary to increase the end user's compatibility with hydrogen beyond this limit should, on the other hand, be laid down in the national frameworks and leave sufficient room for the companies operating and their customers to make the necessary adjustments.

The **taxonomy regulation** should include and define the transportation of hydrogen and activities that enable the gas system to increase the blend of renewable and decarbonised gases as sustainable activities. The expansion and retrofit of all gas transmission and distribution networks should be defined as transitional activities in the framework of article 10 (2) of the Taxonomy Regulation. Moreover, the transport of hydrogen is not yet provided for in the regulatory framework for the internal gas market, although it will play a substantial role in decarbonising the EU economy. It should be integrated in this framework.

IV. Supporting Research and Innovation

The ramp-up of the utilization of hydrogen for the economy in all sectors remains an important topic for research and development for the foreseeable future. In addition to the large-scale implementation and industrial policy aspects (PtG systems, network technology, applications for renewable and decarbonized gases), regulatory learning plays a particularly important role. Supporting projects for the production of renewable and decarbonised gases, e.g. by allowing for "sandbox clauses" for the realisation of pilot plants and **provide regulatory and market incentives**, e.g. for the systemic combination of biomethane production and the storage or use of the resulting CO2 for the methanization of hydrogen. This can help to **diminish first-movers' disadvantages** and therefore stimulate economic activities for renewable and decarbonized gases.

Contacts:

Malte Nyenhuis
Telefon: +32 2 77451-16
malte.nyenhuis@bdew.de

Maria Noack
Telefon: +49 30 300199-1363
maria.noack@bdew.de