

【欧州】【Common】

Common - Environmental issues: ENVI Committee calls for support of transition to renewable and ultra-low-carbon hydrogen production for a climate-neutral Europe

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【概要 : Summary】

According to the European Commission, in sectors with still increasing GHG emissions, like the transport sector, reaching the 2030 and 2050 GHG emissions reduction targets depends on a fast and large-scale deployment of alternative fuels and low GHG emission propulsion systems.

Hydrogen fuel cell propulsion does not create direct pollution at the point of utilisation, and therefore, this technology is considered being one of the possible alternative fuels in the transport sector, alongside electrification, based on renewable energy. However, deploying hydrogen in Europe still faces challenges as it still needs more investment into the hydrogen development, an enabling regulatory framework, and a large-scale infrastructure network, among others, in order to reach a mass market.

Hydrogen is only climate neutral if its production is based on the utilization of renewable energies. Currently, the majority of hydrogen production is still fossil-based and clean or low-carbon hydrogen is not yet cost-competitive. The large-scale deployment of clean, green hydrogen, which is produced by using renewable energies, is one of the key factors for the EU to achieve a higher climate ambition, reducing GHG emissions by 50% to 60% by 2030, and to achieve the net-zero emission

target in 2050. On 29 October 2020, the European Parliament's Committee on the Environment, Public Health and Food Safety (ENVI Committee) presented its draft opinion on the hydrogen strategy for a climate - neutral Europe and called on the Parliament's Committee on Industry, Research and Energy (ITRE Committee) to incorporate several suggestions into its motion for a resolution. The ENVI Committee emphasized the importance of a clear commitment to the transition to renewable and ultra-low-carbon hydrogen production as one of the keys to achieve the EU's 2050 climate neutrality target.

【記事 : Article】

1. Background of the EU's hydrogen strategy for climate neutrality

The European Green Deal, presented in December 2019, sets the main goal for Europe to become the first climate-neutral continent by 2050. The European transport sector is one of the remaining economic sectors in the EU that continues to show difficulties to decarbonise. The transport sector's GHG emissions are still increasing.

In the 2013 "Clean Power for Transport: A European alternative fuels strategy" (COM/2013/017 final), the European Commission identified electricity, hydrogen, biofuels, natural gas, and liquefied

petroleum gas (LPG) as alternative fuels for the transport sector. Furthermore, the European Commission's Alternative Fuels Infrastructure Directive (Directive 2014/94/EU) also mentions hydrogen as a potential alternative power source. Therefore, in order to enable the transport sector to decarbonise, hydrogen is considered becoming one of the key enablers to achieve this target.

As hydrogen fuel cell propulsion does not create direct pollution at the point of utilisation, this technology is considered being a promising option to replace combustion engines in transport. However, since the production of hydrogen itself does release CO₂, the climate neutrality of hydrogen depends on how the hydrogen is actually produced. In fact, hydrogen powered transport means can only reach zero CO₂ emissions if the production method of hydrogen is based on renewable energies (green hydrogen or renewable hydrogen). If hydrogen were produced from renewable energies it would make hydrogen fuel cell power units totally carbon neutral. "Renewable hydrogen" is hydrogen produced through the electrolysis of water, powered by electricity, which needs to be produced from renewable sources. In this case, the full lifecycle GHG emissions of the production of renewable hydrogen are close to zero. Renewable hydrogen could also be produced through the reforming of biogas (instead of natural gas) or biochemical conversion of biomass, among others. Therefore, renewable hydrogen is the most compatible option with the EU's climate neutrality and zero pollution target.

In the EU, the aim is to developing renewable hydrogen, produced by using mainly wind and solar energy. However, this renewable, green hydrogen is currently also the most expensive option of hydrogen production. Furthermore, there is the investment required for the infrastructure including hydrogen filling stations and the transportation of hydrogen to filling stations, among others. Therefore, the European Commission launched the Clean Hydrogen Alliance, which brings

investors together with governmental, institutional and industrial partners, to build on existing work and to identify technology needs, investment opportunities, and regulatory barriers and enablers. The Clean Hydrogen Alliance will enhance the funding support and help bridge the investment gap for renewables generated by the COVID-19 crisis.

2. The EU's hydrogen strategy for a climate-neutral Europe

Hydrogen can offer a solution to decarbonize parts of the EU's transport system. In the past, there has been an increasing interest in the utilisation of hydrogen. However it never entered the mass market and currently, hydrogen represents only a modest fraction of the global and the EU's energy mix and it is still largely produced from fossil fuels. The hydrogen production, notably from natural gas or from coal, results in the release of 70 to 100 million tonnes CO₂ annually in the EU. Therefore, for hydrogen to contribute to climate neutrality, its production needs to be based on renewable energies.

This is the reason why the European Commission presented its Communication on "A hydrogen strategy for a climate-neutral Europe" (COM(2020) 301 final) on 8 July 2020. According to this strategy, hydrogen can replace fossil fuels in some carbon intensive industrial processes. The EU Hydrogen Strategy (COM/2020/301) addresses how to transform the hydrogen potential into reality, through investments, regulation, market creation and research and innovation and how to find a viable solution to decarbonise different sectors. The priority is to develop renewable hydrogen, produced by using wind and solar energy or other renewable energies. Therefore, the most important prerequisite for reducing GHG emissions by using hydrogen is to base its production on renewable energies. This promotion of green, renewable hydrogen is the target of the European Commission's Hydrogen Strategy for a

climate-neutral Europe and the Clean Hydrogen Alliance. However, since green hydrogen is not yet cost-competitive against fossil-based hydrogen, the Commission underlines the potential of low-carbon hydrogen (via Carbon Capture Storage) as a facilitator to scale up production and stimulate the market demand for hydrogen.

According to the Commission, the application of hydrogen in the transport industry will require a phased approach. From 2020 to 2024, the installation of at least 6 gigawatt of renewable hydrogen electrolyzers will be supported in the EU, with a production of up to one million tonnes of renewable hydrogen. It could also be applied to heavy-duty transport, such as buses, lorries, coaches - currently responsible for about 6% of total EU CO2 emissions.

In the second phase from 2025 to 2030, hydrogen needs to become part the EU's integrated energy system, with at least 40 gigawatt of renewable hydrogen electrolyzers and the production of up to ten million tonnes of renewable hydrogen in the EU. In this phase, renewable, green hydrogen should become cost-competitive with other forms of hydrogen production. The applications should include trucks, rail and some maritime transport applications, among others. In the last phase towards maturity from 2030 to 2050, renewable hydrogen technologies should reach maturity and be deployed at large scale across all sectors, which are difficult to decarbonise, including modes of transport, such as aviation and deep-sea shipping. In this phase, renewable electricity production needs to massively increase and renewable electricity might be used for renewable hydrogen production by 2050.

The Commission will propose policy and regulatory measures to create more certainty for investors, facilitate the uptake of hydrogen, promote the necessary infrastructure and logistical networks, adapt infrastructure-planning tools, and support investments, in particular through the Next Generation EU recovery plan.

3. The ENVI Committee's opinion on the hydrogen strategy

Considering the potential of green hydrogen, in June 2020, the ITRE Committee had adopted an own-initiative report on a comprehensive European approach to energy storage to meet the EU's commitments to become carbon neutral by 2050. The draft report, prepared by rapporteur Claudia Gamon, acknowledged the high potential of green hydrogen for energy storage and for energy-intensive industries. It highlighted the importance of shifting towards the production of green hydrogen with electricity coming from renewable energy sources. This could provide significant flexibility to the electricity system without producing GHG emissions.

On 29 October 2020, the ENVI Committee presented a draft opinion on a hydrogen strategy for a climate-neutral Europe (ENVI_PA(2020)658815 PE658.815v02-00). The ENVI Committee called on the European Parliament's ITRE Committee, which is the lead responsible Committee on the hydrogen strategy, to incorporate the ENVI Committee's draft opinion and suggestions into the ITRE Committee's motion for a resolution.

While the ENVI Committee welcomed the European Commission's intention to establish the EU as a standard-setting and world-leading region for hydrogen, it emphasised that hydrogen is an important tool to decarbonise the energy system and to achieve the goals of the Paris Agreement. An ambitious strategy could reduce annual CO2 emissions by roughly 560 Mt by 2050. Therefore, since the ENVI Committee sees renewable and low-carbon hydrogen as the basis for future investments, it calls on the Commission to introduce a comprehensive terminology and criteria for the certification of renewable and low-carbon hydrogen. Furthermore, the ENVI Committee notes that hydrogen may be produced through a variety of processes and stresses the importance to clearly commit to a transition to renewable and ultra-low-carbon hydrogen production. The

Committee also points out that during a transitional period, incentives would be required to scale-up renewable and ultra-low-carbon hydrogen in the industry sectors and the transport sector, on the basis of the EU-Emission Trading System (ETS) framework.

Since hydrogen can be considered being a key enabler of the renewable energy transition, the ENVI Committee calls on the Commission to also support the retrofitting of existing and developing missing networks to replace gas with hydrogen in the medium term. The ENVI Committee stresses that while the hydrogen's potential to decarbonise energy intensive industries is already acknowledged, there are still up to 95% of hydrogen produced by using fossil resources. Therefore, the ENVI Committee calls for a significant scaling up of research and investments in renewable hydrogen applications and for changing state aid rules to allow for a targeted support of developing and deploying renewable hydrogen production.

Moreover, the ENVI Committee calls for the establishment of new energy partnerships and for inter-connectivity with neighbouring countries. Especially new partnerships with African countries are considered being a win-win business opportunity, since they support the development of the renewable and hydrogen energy industries on both sides.

Finally, in order to decarbonise the transport sector, the European Commission and the EU Member States have the task to support the further development of renewable hydrogen, carbon capture and storage and hydrogen compatible infrastructures when considering their future investments. They should make these tasks a key spending priority under the EU's programmes and funds including the Recovery and Resilience Plans, Just Transition Plans, InvestEU, Horizon Europe, TEN-E and TEN-T, and the ETS Innovation Fund.

4. Conclusion

Hydrogen is considered being a key enabler of the renewable energy transition. It can help to

decarbonize sectors, like the transport sector, which have still high or increasing GHG emissions. Since currently most of the hydrogen production is based on the utilization of fossil resources, it will be of great importance that the Commission and the EU Member States make it a priority to financially support the development of renewable hydrogen, carbon capture and storage and hydrogen compatible infrastructures under the financing and funding programmes and plans.

Meanwhile, the economic crisis following the Covid-19 pandemic could also cause a significant delay to the adoption and commercial rollout of clean hydrogen. The pandemic's impact could even permanently endanger the clean hydrogen sector and its role as the missing link in the energy transition. Therefore, the Next Generation EU recovery plan for the recovery of the EU's economy from the COVID-19 pandemic includes financial resources to facilitate the utilisation of renewable, green hydrogen.

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