



2020/2242(INI)

28.1.2021

OPINION

of the Committee on the Environment, Public Health and Food Safety

for the Committee on Industry, Research and Energy

on a European strategy for hydrogen
(2020/2242(INI))

Rapporteur for opinion: Hildegard Bentele

(*) Associated committee – Rule 57 of the Rules of Procedure

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SUGGESTIONS

The Committee on the Environment, Public Health and Food Safety calls on the Committee on Industry, Research and Energy, as the committee responsible, to incorporate the following suggestions into its motion for a resolution:

- A. whereas the goal of the Paris agreement is to contain the rise in the average temperature of the planet to well below 2° C compared to pre-industrial levels and to continue the action taken to limit the rise in temperature at 1.5° C from pre-industrial levels;
1. Welcomes the Commission's intention to establish the European Union as a standard-setting and world-leading region for hydrogen; stresses that hydrogen is an important tool to decarbonise the energy system, carbon intensive industrial processes and parts of the transport system in the transition towards the Union's updated 2030 climate goals and the Union's climate neutrality target for 2050 at the latest, as enshrined in the proposal for a European Climate Law (COM/2020/0080) to achieve the goals of the Paris Agreement; notes that an ambitious strategy can generate up to 1 million jobs and EUR 150 billion in annual revenue by 2030, while reducing annual CO₂ emissions by roughly 560 Mt by 2050¹, depending on the technologies used, and should aim to bring benefits to all Member States by fostering a Hydrogen Union;
 2. Regrets the current multitude and lack of clear terms used to qualify different types of hydrogen; calls, therefore, on the Commission to introduce comprehensive terminology and European-wide standards and criteria for the certification of hydrogen on the basis of life-cycle emissions assessments, since this is crucial to ensuring transparency regarding the EU's carbon footprint and transparency regarding the origins of hydrogen, and constitutes the basis for any future investments; considers that such terminology needs to fit into a robust international framework in order to avoid mislabelling or the double counting of environmental impacts;
 3. Notes that hydrogen may be produced through a variety of processes; stresses the importance of a clear commitment to the rapid transition towards renewable - hydrogen, with a bridging role for low-carbon hydrogen that significantly reduces life-cycle GHG emissions and avoids future lock-in effects to achieve the Union's 2050 climate neutrality target, while ensuring technological neutrality and a cross-sectoral approach in order to maximise scale effects and drive down costs across applications; notes that the cost of renewable hydrogen is currently up to three times as high as the cost of fossil-based hydrogen; notes that studies suggest that costs for the production of hydrogen from renewable energy could fall significantly² and reach cost parity with fossil-based hydrogen by 2030 in regions where renewables are cheap; stresses that investments are important in order to improve the cost-competitiveness of renewable hydrogen as compared to fossil-based hydrogen; welcomes the fact that Next Generation EU highlights hydrogen as an investment priority, and calls on the Commission to also develop a roadmap for the deployment and upscaling of electrolyzers and to forge partnerships at EU level to ensure their cost-effectiveness in

¹ Fuel Cells and Hydrogen Joint Undertaking (2019) Hydrogen Roadmap for Europe

² International Energy Agency (2019): The Future of Hydrogen; European Commission (2020): Hydrogen Strategy; EPRS (2020): Path to Hydrogen Competitiveness.

the main sectors of hydrogen use; stresses, in this context, the importance of allowing for flexibility to use various available production pathways, including innovative technologies such as pyrolysis and residual waste treatment that ensures efficient use of resources and fully respects the waste hierarchy; notes the role of environmentally safe carbon capture and storage in making heavy industry climate neutral, where no direct emission reduction options are available;

4. Is of the opinion that in order to achieve the transition towards the Union's updated 2030 climate goals and the Union's climate neutrality target for 2050 at the latest, fossil-based hydrogen should gradually be phased-out and replaced;
5. Calls on the Commission, the Member States and industry to ramp up additional renewable electricity capacity in order to avoid a counterproductive competition between electrolysers for the production of hydrogen and other direct uses of renewable electricity and to ensure an overall reduction of greenhouse gas (GHG) emissions; emphasises the need for better incentives for using surplus renewable energy for the production of hydrogen and underlines the need for transparency regarding the certification of origins of electricity-generated hydrogen and of life-cycle emissions; notes, in particular, the potential of offshore renewable energy and on-site closed loop systems combining renewables production in the proximity of industrial sites and sites that distribute renewable hydrogen, as a large share of demand will be needed in pure form (as industrial feedstock or as an energy carrier in high-temperature processes such as steel production); calls on the Commission to explore the potential of hydrogen production by renewable energy communities in order to strengthen decentralisation and the engagement of citizens in the energy transition; stresses, furthermore, the need to continue investing in research in potential new renewable hydrogen sources, such as hydrogen from photosynthesis, from algae or from electrolysers with sea water;
6. Points out that a reliable regulatory framework and temporary incentives during a transitional period will be required to ensure a level playing field, remove unintended and redundant regulatory hurdles and scale-up renewable hydrogen, while having a bridging role for low-carbon hydrogen that significantly reduces life-cycle GHG emissions and avoids future lock-in effects;
7. Underlines that adequate CO₂-pricing and funding are key factors for fully developing the potential of renewable hydrogen in a cost-effective manner; calls on the Commission to use the upcoming revision of the EU Emissions Trading System to examine which changes are needed to allow hydrogen to fully unfold its potential to reach our climate goals, while taking into account the risks of carbon-leakage; calls for coherent and coordinated support on a European scale to allow producers and users to roll out predictable hydrogen production with long-term security; calls, in this regard, on the Commission to consider the development of innovative instruments, such as carbon contracts of difference (CCfD) covering the difference in cost from moving away from fossil-based hydrogen, end-use targets for specific sectors, or European Investment Bank guarantees to reduce the initial risk of co-investments until they are cost-competitive and a carbon border adjustment mechanism; notes that, in order to allow for such targeted support, the Renewable Energy Directive³ and Energy and

³ Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources, OJ L 328 21.12.2018, p. 82.

Environment State Aid Guidelines should also be adapted accordingly;

8. Welcomes the Commission's initiative to revise EU energy taxation; calls on the Commission to take the necessary measures in accordance with the Treaties, to adequately include external costs into fossil fuel consumption prices, ensure the cost-competitiveness of hydrogen generated from electricity, and level the playing field across energy carriers to facilitate sector integration and decarbonisation;
9. Underlines the importance of the energy-efficiency-first principle; is of the opinion that hydrogen is an important and necessary supplement to direct electrification and provides added value as a vector for renewable energy storage and for the decarbonisation of hard-to-abate sectors, where direct electrification is not the most optimal choice due to cost- and energy efficiency, technological possibilities and regional conditions in the short and medium term;
10. Underlines that hydrogen, as an energy carrier, has the potential to enable the renewable energy transition through energy storage and sector coupling, as it can balance and provide flexibility and security of supply in the electricity network and can contribute to decarbonising heat production in limited cases; notes the potential of using existing infrastructure for hydrogen transmission; asks, therefore, the Commission to update and harmonise regulations on hydrogen blending in the short term, while ensuring that this does not lead to a lock-in of fossil gas mixed with hydrogen, and, where relevant and following a thorough impact assessment of infrastructure plans, technical possibilities, possible injection points and demand clusters and while taking into account corresponding costs and benefits and GHG reduction possibilities, support the gradual retrofitting and repurposing of existing networks and prudently invest in the development of missing hydrogen networks, including transnational infrastructure, to facilitate the creation of a common European hydrogen network;
11. Stresses the potential for hydrogen to decarbonise energy intensive industries and its importance as an industrial feedstock; notes, however, that up to 95 % of hydrogen used in EU industry today is fossil-based; strongly believes that the rollout of renewable hydrogen to decarbonise these existing hydrogen applications should be prioritised, while acknowledging a bridging role for low-carbon hydrogen and calling for a comprehensive approach to avoid further locking-in dependence on fossil-based hydrogen; calls, therefore, for the significant scaling up of research, investments and knowledge exchange, in particular for renewable and innovative hydrogen at lower technology readiness applications in industry, including simplifying access to funding for research projects, smaller actors and start-ups, and for State-aid rules to allow for targeted support;
12. Recalls that the transport sector is responsible for a quarter of EU CO₂ emissions and is the only sector where emissions have not been reduced compared to the 1990 baseline; underlines the potential of hydrogen as one of the instruments contributing to the reduction of CO₂ emissions in transport modes, in particular where full electrification is more difficult or not yet possible; stresses that hydrogen in pure form or as synthetic or biokerosene is a key factor in the substitution of fossil kerosene for aviation; emphasises the great potential for hydrogen to reduce GHG emissions in the maritime transport sector for medium and long distances, while also noting the advantages of green

ammonia over long distances; emphasises the role of hydrogen for the medium-term decarbonisation of parts of heavy-duty vehicles, in particular long-haul transport, buses, construction or agriculture machinery; notes that hydrogen-powered cars could also be a supplement to battery electric cars; further underlines the potential of hydrogen as an energy carrier in the railway sector to replace diesel where track electrification is not economically feasible and welcomes the successful use and serial production of hydrogen powered trains in several Member States;

13. Calls on the Commission to increase research and investments in this regard, under the Sustainable and Smart Mobility Strategy; notes the comparatively high willingness to pay for clean fuels across mobility and transport modes; calls on the Commission to assess whether the Renewable Energy Directive needs to be revised in order to ensure a level playing field with other renewable energy and calls on the Commission to accelerate the development of an EU-wide hydrogen refuelling network in the upcoming revision of the Alternative Fuels Infrastructure Directive⁴;
14. Notes that the Union's high future demand for cost-competitive renewable energy and hydrogen is likely to exceed Europe's potential⁵; calls on the Commission to better assess renewable hydrogen production and consumption potential in the EU; underlines that renewable hydrogen may in time also be sourced cost-efficiently outside Europe and stresses, in this regard, the strategic role of ports; calls, therefore, for the establishment of new energy partnerships and for inter-connectivity with neighbouring countries, taking into account the fact that new partnerships, especially those with African countries, could arise as a win-win opportunity, provided that the strategies are aligned with the partnering countries' economic, social and environmental interests, concerns and decarbonisation objectives, are non-detrimental to the energy security of the partnering countries and the Union, human rights or sustainable community livelihoods, and contribute to sharing know-how;
15. Calls on the Commission and the Member States to make the development of the electricity grid and research and development of renewable hydrogen, hydrogen compatible infrastructures a key spending priority under the Recovery and Resilience Plans, Just Transition Plans, InvestEU, Horizon Europe, the Trans-European Networks for Energy (TEN-E) and the Trans-European Transport Network (TEN-T), European Structural Investment Funds and the ETS Innovation Fund; while acknowledging a bridging role for low-carbon hydrogen that significantly reduces life-cycle GHG emissions and avoids future lock-in effects; underlines that subsidies for fossil hydrogen should be phased out; underlines that dedicated support tools should be accessible for small and medium-sized enterprises (SMEs) in the Union given the significant role they play in hydrogen research and innovation; calls on the Commission to further explore synergies between TEN-T and TEN-E to optimise the production, use and transport of hydrogen; stresses the importance of important projects of common European interest to enable EU-wide cooperation on investments and projects and connect actors at all levels to share know-how and pool knowledge so as to move towards a robust interconnected European hydrogen value chain; underlines, furthermore, the importance of applying

⁴ Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the deployment of alternative fuels infrastructure, OJ L 307 28.10.2014, p. 1.

⁵ Hydrogen for Climate Action (2020). Green Hydrogen for a European Green Deal. A 2x40 GW Initiative; FCH Joint Undertaking (2019). Hydrogen Roadmap Europe.

the do-no-significant-harm principle to ensure that infrastructure build-out supports the most cost-efficient decarbonisation paths;

16. Calls on the Commission and the Member States to develop sectoral transformation strategies in this regard, together with social partners; stresses the need to promote training and learning for skilled workers in the sectors concerned as well as for future professionals; calls on the Commission to collect data about the possible impacts, opportunities and challenges in the transformation of industry, transport and energy towards the scaling-up of hydrogen; highlights the opportunity that hydrogen represents for regions that are currently in the transition towards decarbonisation; stresses that the Hydrogen Strategy, in line with the Just Transition Fund and Recovery and Resilience Facility, should look into the potential access to funding for renewable hydrogen infrastructure for these regions;
17. Holds the opinion that, given the specific properties of hydrogen, such as molecular size, low density and high flammability, high safety standards for its production, transport and storage are of utmost importance to minimise the risks of natural and man-made disasters and for a wide public acceptance of hydrogen; requests, therefore, that best-practice examples and a hydrogen-safety culture be promoted throughout the Union;
18. Calls for work to be carried out to assess and improve the resource use in hydrogen production, in line with the circular economy, especially regarding raw material use for electrolyzers and water use; insists on the importance of investing in research and innovation to develop reliable recycling and dismantling techniques and infrastructures for precious and scarce materials in hydrogen fuel-cells in the European Union; recalls that such an industry is both indispensable to ensuring an environmentally friendly use of renewable hydrogen, and to establish European leadership in the energy transition; stresses, furthermore, the need to minimise the impact on regional water supply from hydrogen production from electrolyzers, notably through careful spatial planning when establishing renewable hydrogen production facilities, and to avoid any contamination of water, air or soil, deforestation or loss of biodiversity, as a result of the hydrogen-related production chain;
19. Emphasises the importance of communication campaigns both with industry and society to explain the upcoming economic and environmental benefits of the hydrogen energy transformation;
20. Notes that currently only 0.1 % of worldwide hydrogen power comes from renewable energies, meaning that hydrogen production is still responsible for 830 million tonnes of world CO₂ emissions every year;
21. Welcomes the efforts made by European steel producers to switch from fossil fuels to green hydrogen as a way of producing fossil-free steel;
22. Supports measures to coordinate efforts of different stakeholders to create a common approach among policymakers, industry, and investors;
23. Welcomes the Clean Hydrogen Alliance as a tool to coordinate the deployment of clean hydrogen throughout the EU, with an expected cumulative investment from EUR 180 to

EUR 470 billion by 2050 and notes the potential for EU leadership in clean hydrogen; calls for strategic investments into the production and use of clean hydrogen, into the creation of a network for infrastructure, research and innovation; supports, therefore, the efforts made by the Alliance in order to establish a workable pipeline of renewable hydrogen projects eligible for funding, as a role model for public-private partnerships;

24. Stresses the importance of national and regional implementation of the strategy to ensure full usage of all potential coherent national legislation, and the possibility of inter-regional cooperation;
25. Welcomes the fact that almost all Member States have included plans for clean hydrogen in their national energy and climate plans and 26 Member States have signed the Hydrogen Initiative;
26. Calls for the establishment of a framework for sharing progress reports and best practices between the Member States so as to ensure that the most effective and cost-effective technologies are implemented, that they cooperate successfully and have a common usage of assets;
27. Encourages the Commission to boost the identification and promotion of areas in the EU considered to be hydrogen clusters or hubs; calls for special support for these environments to ensure that they can carry out their work as a driving force in the implementation of the European hydrogen strategy; underlines the importance of conferring leadership on the European Hydrogen Valleys Partnership as the key stakeholder for the organisation and transfer of knowledge between European clusters;
28. Stresses the potential of decentralised hydrogen production for the creation of jobs and value in rural areas; calls on the Commission and the Member States to consider incentives for the creation of local and regional hydrogen clusters in the relevant programmes;
29. Calls for transparency and inclusion of the civil and scientific society in all coordination and planning bodies, especially the European Clean Hydrogen Alliance.

INFORMATION ON ADOPTION IN COMMITTEE ASKED FOR OPINION

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| Date adopted | 27.1.2021 |
| Result of final vote | +: 60 -: 16 0: 3 |
| Members present for the final vote | Nikos Androulakis, Bartosz Arłukowicz, Margrete Auken, Simona Baldassarre, Marek Paweł Balt, Traian Băsescu, Aurelia Beigneux, Monika Beňová, Sergio Berlato, Malin Björk, Simona Bonafè, Delara Burkhardt, Pascal Canfin, Sara Cerdas, Mohammed Chahim, Tudor Ciuhodaru, Nathalie Colin-Oesterlé, Esther de Lange, Christian Doleschal, Marco Dreosto, Bas Eickhout, Cyrus Engerer, Eleonora Evi, Agnès Evren, Pietro Fiocchi, Andreas Glück, Catherine Griset, Jytte Guteland, Teuvo Hakkarainen, Martin Hojsík, Pär Holmgren, Jan Huitema, Yannick Jadot, Adam Jarubas, Karin Karlsbro, Petros Kokkalis, Ewa Kopacz, Joanna Kopcińska, Peter Liese, Sylvia Limmer, Javi López, César Luena, Fulvio Martusciello, Liudas Mažylis, Joëlle Mélin, Tilly Metz, Silvia Modig, Dolors Montserrat, Alessandra Moretti, Dan-Ștefan Motreanu, Ville Niinistö, Ljudmila Novak, Grace O’Sullivan, Jutta Paulus, Stanislav Polčák, Jessica Polfjård, Luisa Regimenti, Frédérique Ries, María Soraya Rodríguez Ramos, Sándor Rónai, Rob Rooker, Silvia Sardone, Christine Schneider, Günther Sidl, Linea Søgaard-Lidell, Nicolae Ștefănuță, Nils Torvalds, Edina Tóth, Véronique Trillet-Lenoir, Petar Vitanov, Alexandr Vondra, Mick Wallace, Pernille Weiss, Michal Wiezik, Tiemo Wölken, Anna Zalewska |
| Substitutes present for the final vote | Hildegard Bentele, Manuel Bompard |
| Substitutes under Rule 209(7) present for the final vote | Veronika Vrecionová |

FINAL VOTE BY ROLL CALL IN COMMITTEE ASKED FOR OPINION

| 60 | + |
|----------------|--|
| EPP | Bartosz Arłukowicz, Traian Băsescu, Hildegard Bentele, Nathalie Colin-Oesterlé, Christian Doleschal, Agnès Evren, Adam Jarubas, Ewa Kopacz, Esther de Lange, Peter Liese, Fulvio Martusciello, Liudas Mažylis, Dolores Montserrat, Dan-Ștefan Motreanu, Ljudmila Novak, Stanislav Polčák, Jessica Polfjård, Christine Schneider, Edina Tóth, Pernille Weiss, Michal Wiezik |
| S&D | Nikos Androulakis, Marek Paweł Balt, Monika Beňová, Simona Bonafè, Delara Burkhardt, Sara Cerdas, Mohammed Chahim, Tudor Ciuhodaru, Cyrus Engerer, Jytte Guteland, Javi López, César Luena, Alessandra Moretti, Sándor Rónai, Günther Sidl, Petar Vitanov, Tiemo Wölken |
| Renew | Andreas Glück, Jan Huitema, Karin Karlsbro, Frédérique Ries, María Soraya Rodríguez Ramos, Nicolae Ștefănuță, Linea Søgaard-Lidell, Nils Torvalds, Véronique Trillet-Lenoir |
| ID | Simona Baldassarre, Aurelia Beigneux, Marco Dreosto, Catherine Griset, Joëlle Mélin, Luisa Regimenti, Silvia Sardone |
| ECR | Sergio Berlato, Pietro Fiocchi, Joanna Kopcińska, Alexandr Vondra, Veronika Vrecionová, Anna Zalewska |

| 16 | - |
|-------------------|---|
| ID | Teuvo Hakkarainen, Sylvia Limmer |
| Greens/EFA | Margrete Auken, Bas Eickhout, Eleonora Evi, Pär Holmgren, Yannick Jadot, Tilly Metz, Ville Niinistö, Grace O'Sullivan, Jutta Paulus |
| ECR | Rob Rooker |
| The Left | Manuel Bompard, Petros Kokkalis, Silvia Modig, Mick Wallace |

| 3 | 0 |
|-----------------|------------------------------|
| Renew | Pascal Canfin, Martin Hojsík |
| The Left | Malin Björk |

Key to symbols:

+ : in favour

- : against

0 : abstention