

European Electrolyser Summit

Brussels, 5 May 2022

Joint Declaration

1. Context

Meeting the EU climate objectives and strengthening Europe's resilience requires a significant contribution from clean hydrogen. Russia's unprovoked invasion of Ukraine has strengthened the case for the green transition to reduce Europe's dependency on Russian fossil fuels.

The European Commission's RepowerEU Communication proposed a Hydrogen Accelerator, setting out a strategy to double the previous EU renewable hydrogen target to 10 million tons of annual domestic production, plus an additional 10 million tons of annual hydrogen imports.

Meeting these targets requires the EU to significantly upscale its manufacturing capacities for innovative zero and low-carbon equipment such as electrolysers. According to industry estimates, producing 10m tons of renewable hydrogen in the EU would require an installed electrolyser capacity of 90 - 100 GW_{LHV}¹, depending on utilization factors and efficiency rates.

2. Objective

The current capacity of electrolyser manufacturers in Europe is estimated at 1.75 GW_{LHV} per year². This electrolyser manufacturing capacity must be scaled-up significantly to meet the expected European demand for renewable hydrogen. This is both an unprecedented challenge and a significant industrial opportunity. Manufacturers of electrolysers and their components in

¹ Measured in terms of hydrogen output ; up to 140 GW if measured in terms of electricity input.-This assuming an average electrolyser utilisation factor of 43% and electrolyser efficiency of 70% (this is just for indicative purposes and not a commitment or reference to any specific technology or business case).

² Measured in terms of hydrogen output ; 2.5 GW if measured in terms of electricity input and assuming an electrolyser efficiency of 70%

the EU are among the global technology leaders in this field. The ambition is to transform this technological leadership into global commercial leadership.

Manufacturers of electrolysers and their components in Europe are ready to expand their manufacturing capacities and to support the expected exponential market growth driven by the Fitfor55 and RePowerEU policies and targets. It is the objective of electrolyser manufacturers in Europe to have in place by 2025 a combined annual electrolyser manufacturing capacity in Europe of 17.5 GW³, and to further increase that capacity by 2030 in line with projected demand for renewable and low-carbon hydrogen.

3. Meeting the Objectives

Electrolyser manufacturers in Europe are already undertaking a series of projects that will increase their current electrolyser manufacturing capacities in Europe to serve the expected market demand. According to electrolyser manufacturers in Europe, three main bottlenecks prevent the rapid increase of electrolyser manufacturing capacities in the EU. Firstly, an incomplete regulatory framework supportive of the large-scale deployment of renewable and low-carbon hydrogen. Secondly, large investments required in the absence of certainty on the future market demand for electrolysers. Thirdly, challenges related to building up integrated supply chains and the availability of components and raw materials at the required scale.

Regulatory framework

The European market for clean hydrogen is currently developing. Hydrogen targets set in EU or Member State legislation can address uncertainties relating to the future size and nature of the clean hydrogen market, especially if of a legally-binding nature. The European Commission has proposed ambitious targets for Renewable Fuels of Non-Biological Origin quotas in its legislative proposal for a revised Renewable Energy Directive and for the building up of a hydrogen infrastructure in its proposal for Trans-European Energy Networks and the Alternative Fuels Infrastructure Regulation.

- The European Commission is committed to defending ambitious proposals during ongoing discussions with the co-legislators, including ambitious targets.

The cost of renewable hydrogen is highly dependent on the availability of cheap renewable power as well as increasing the economies of scale for electrolyser manufacturing. Regulation should support and accelerate the availability of renewable electricity to renewable hydrogen production projects, to enable the scale-up of hydrogen projects to gigawatt-scale, whilst ensuring that only hydrogen produced from renewable sources qualifies as renewable hydrogen. The implementation of this principle must be justified and proportionate to ensure these

³ Measured in terms of hydrogen output ; 25 GW if measured in terms of electricity input and assuming an electrolyser efficiency of 70%.

objectives. As already announced, the Commission will also put forward a methodology for the definition of low carbon hydrogen as soon as the legal basis is established.

- The European Commission will ensure that regulation governing the production of renewable hydrogen, including on the availability of renewable electricity to renewable hydrogen production projects, will be justified and proportionate and will support a fast and affordable ramp-up of the market for renewable hydrogen and its production in Europe.

Producing 10m tons of renewable hydrogen by 2030 will require approximately 500 TWh of renewable electricity, adding to already high demand resulting from electrification and the decarbonisation of electricity generation. Delivering large quantities of hydrogen from production sites to consumers will require important infrastructure upgrades for the transmission, distribution and storage of hydrogen. Hydrogen demand and supply fluctuations will need to be balanced with long-term storage.

The simplification and shortening of permitting procedures for renewable energy projects is therefore of paramount importance. Overly complex and lengthy permitting procedures for the manufacturing and installation of electrolysers constitute a challenge as well. The European Commission already called on Member States to ensure that the planning, construction, and operation of plants for the production of energy from renewable sources, including renewable hydrogen, are considered as being in the overriding public interest and in the interest of public safety and should thus qualify for the most favourable procedure available.

- The European Commission will in addition shortly adopt a recommendation and a legislative proposal on accelerated permitting for renewable energy projects, including renewable hydrogen.

Access to finance

The European Commission is making available a multitude of EU programmes and funds to support the deployment of hydrogen technologies and applications. The Commission has prepared a Hydrogen Public Funding Compass to guide stakeholders to the most appropriate programme or fund for their projects.

The EU Innovation Fund is designed to support highly innovative low-carbon technology projects, including the manufacturing of innovative zero and low-carbon equipment such as electrolysers.

- To support the ramp-up of European electrolyser manufacturing capacities, the European Commission will seek to support clean tech manufacturing, including electrolyser manufacturing projects in its third large-scale project call under the EU Innovation Fund, planned for the second half of 2022.
- Electrolyser manufacturers in Europe commit to apply only with high quality project proposals that are fully aligned with the climate targets and RePowerEU ambition,

providing sufficient financial and technology related information to accelerate the selection process and fundings awards under the EU Innovation Fund.

The absence of a developed European market for clean hydrogen and parallel requirement to upscale electrolyser manufacturing capacities to the required scale mean that many European electrolyser manufacturers are seeking state aid to reduce the investment risk.

A multitude of state aid instruments are in place for the Commission to approve financial aid for hydrogen projects, including the scaling up of electrolyser technologies towards manufacturing. These include the Important Projects of Common European Interest (IPCEI) instrument under which research and development and first industrial deployment or important open infrastructure projects can obtain state aid and the Climate, Environmental protection and Energy Aid Guidelines (CEAAG) under which aid may be granted for renewable energy production projects. In addition, the General Block Exemption Regulation (GBER) under which no notification is required, inter alia allows aid for the development and/or deployment of electrolysers and their components.

- The European Commission will assess State aid notification for hydrogen projects as a matter of priority. It commits to complete the assessment of the first Important Projects of Common European Interest on hydrogen within 6 weeks from the submission by the participating Member States of a complete notification. The shared aim should be to enable the assessment to be completed by summer.
- Electrolyser manufacturers in Europe strive to ensure that any projects requesting state aid are designed in line with EU energy and climate targets and the applicable criteria as well as of a high quality to facilitate their speedy assessment by the European Commission. They will make best use of the European Clean Hydrogen Alliance match-making platform to ensure faster project maturity.

The initial development of a market for renewable hydrogen, the large-scale deployment of clean hydrogen technologies and applications, and the creation of hydrogen value chains would be further incentivised if Carbon Contracts for Difference type schemes were put into place for industrial renewable hydrogen-based decarbonisation pathways. Several Member States are preparing such schemes and the Commission already granted State aid approval to first such schemes.

- The European Commission will seek the speedy adoption by the European Parliament and the Council of its legislative proposal for an amendment to the ETS Directive for the Innovation Fund that could serve as a legal basis for a CCfD scheme.
- The Commission will explore the option of a CCfD pilot scheme of renewable hydrogen-based industrial decarbonisation pathways.

To meet the objectives of the Paris Agreement by 2030, the EIB stands ready to support hydrogen project promoters in their preparation toward potential financing. In recent years, the Bank has financed €550 million in hydrogen projects. The Bank is also evaluating over €1 billion worth of

hydrogen within its pipeline. Through its Advisory Services, the Bank has also developed collaborations with key sector associations and stakeholders. The Bank together with the European Clean Hydrogen Alliance earlier this year organised a call for electrolyser manufacturing and deployment projects from Alliance members for possible EIB financing and advisory services.

- The Commission will continue to work with the EIB to facilitate the financing of electrolyser manufacturing and deployment projects.

Supply chain integration

An integrated European electrolyser supply chain is only emerging. The successful upscaling of electrolyser manufacturing in Europe will depend on an upscaling of supply chains and the availability of required components and materials. The European Clean Hydrogen Alliance is facilitating the emergence of integrated European value chains. It is well placed to promote integrated and coordinated electrolyser value chains.

- The European Clean Hydrogen Alliance will set up an 'Electrolyser Partnership' that will bring together electrolyser manufacturers and suppliers of components and materials within the existing structures of the Alliance. Financial institutions such as the EIB will be invited to participate in the Partnership.

The availability of affordable raw materials constitutes a challenge for upscaling the production of electrolysers in Europe. In many cases, electrolysers require raw materials that are also required by other zero or low-carbon technologies. Many of these raw materials have been subject to significant price increases in recent months. The EU has a strategic dependency on several of the critical raw materials needed to produce electrolysers and other components of the hydrogen value chain.

- The Commission is committed to concluding further raw material partnerships with third countries, including countries that supply raw materials required for electrolysers.
- The Commission is committed to work with key stakeholders on raw materials dependency issues, such as strategic sourcing, processing, recycling and possible substitution.
- Electrolyser manufacturers in Europe commit to work with the European Commission to integrate the value chain, diversify and tackle dependency of key raw materials and chemicals within the framework of the EU industrial strategy.
- Electrolyser manufacturers in Europe are committed to further research into reducing the raw materials required in electrolysers and implement appropriate recycling systems.

Electrolyser development is subject to constant research, development and innovation. The current significant upscaling and the first industrial deployments of large-scale electrolysers entail further challenges.

- Electrolyser manufacturers in Europe commit to devote significant amounts into R&D&I, both privately and jointly with other companies and academia under research-oriented programs such as the Horizon Europe Clean Hydrogen Partnership.
- The Commission is committed to supporting this research, notably through the Horizon Europe Clean Hydrogen Partnership. It will in particular support the demonstration of larger scale electrolysers and electrolyser efficiency improvements, and stands ready to explore further research priorities with industry.




European Commission

European Commission, Thierry Breton, Commissioner for the Internal Market




Hydrogen Europe

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Green Hydrogen Systems, Sebastian Koks Andreassen, CEO



Helbio, Melissa Verykios, President Metacon Group



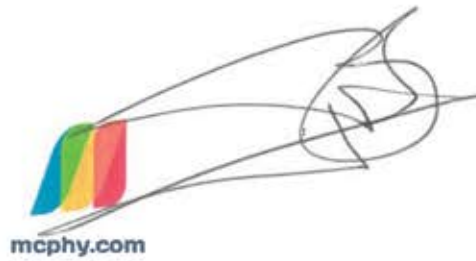
H2B2, Africa Castro, Founder and member of the board



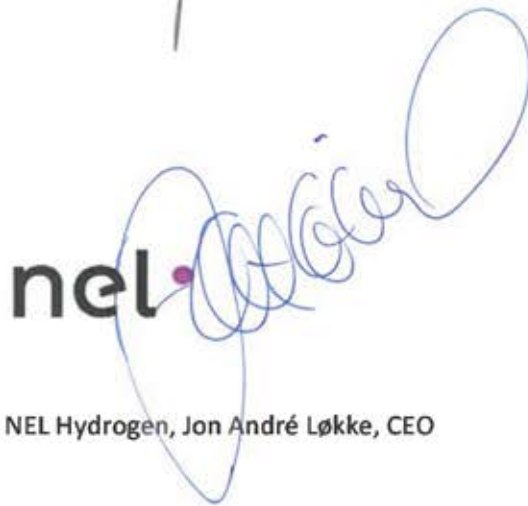
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John Cockerill, Jean-Luc Maurange, CEO



McPhy, Jean Baptiste Lucas, CEO



NEL Hydrogen, Jon André Løkke, CEO



Siemens Energy, Stefano Innocenzi, Senior Vice President, New Energy Business



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Sunfire, Christopher Frey, Senior Manager Public Affairs



Thyssenkrupp nucera, Denis Krude, CEO



Topsoe, Roeland Baan, CEO