

【欧州】【Common】

Common - Environmental issues: European Commission proposes new European Partnerships for transport-related investments into green and digital transition

Andrea Antolini Former Researcher JTTRI

【概要 : Summary】

The EU and its Member States has committed to the Paris Agreement' s target to keep global warming below the 2 degrees Celsius increase compared to preindustrial levels and to limit the temperature increase even further to 1.5 degrees Celsius. Furthermore, under the European Green Deal, the EU intends to reach net zero carbon emissions by 2050. Therefore, the EU is introducing measures to achieve an energy transition to decarbonise its industry and economy, including the transport sector. In order to achieve this transition, a change toward carbon-free power generation, increased energy efficiency, and the decarbonization of transport, buildings, and industry is required.

Most recently, the European Commission has proposed European Partnerships, bringing together the Commission and private and/or public partners to address some of the challenges for achieving the carbon neutrality through joint research and innovation initiatives. These European Partnerships are a key implementation tool of the Horizon Europe research and innovation programme and have concrete objectives and targets with a set of Key Performance Indicators to monitor the achievement of objectives. They are open to a

wide range of public and private partners and by bringing private and public partners together, the European Partnerships will help to avoid the duplication of investments and they could reduce the fragmentation regarding the research and innovation initiatives in the EU.

On 23 February 2021, the European Commission proposed 10 new European Partnerships between the EU, the Member States and/or the industry with funding of nearly EUR 10 billion into projects related to the green and digital transition. The European Partnerships are expected to contribute to the objectives of the European Green Deal and to strengthen the European Research Area.

The European Partnerships for Clean Aviation and for Clean Hydrogen are explained more in detail, as they represent measures to reduce the transport sector' s CO2 emissions, which currently amount to 27% of the EU' s total GHG emissions.

The development and deployment of innovative technologies under the 10 new European Partnerships are expected to be of importance for reaching the net zero GHG emission target of the European Green Deal in 2050 and to reach the EU' s commitments under the Paris Agreement.

【記事 : Article】

1. The European Partnership approach under the Horizon Europe programme

The European Partnerships are provided by the EU's new Horizon Europe research and innovation programme (2021-2027). Bringing together the European Commission and private and/or public partners, the European Partnerships are a key implementation tool of the EU's Horizon Europe research and innovation programme. The European Partnerships with the EU Member States and associated countries, the private sector, foundations and other stakeholders aim at delivering on global challenges like the climate change. The aim is to mobilise public and private resources to improve and accelerate the development and uptake of new innovative solutions across different sectors. The European Commission's investment is expected to raise a similar financial contribution from the private sector by setting up these Partnerships. Furthermore, by setting up the joined European Partnerships, it is expected to help avoiding the duplication of investments and they are expected to reduce the fragmentation of the research and innovation landscape in the EU.

Basically, there are 3 types of partnerships including Co-programmed European Partnerships, Co-funded European Partnerships using a programme co-fund action and Institutionalised European Partnerships. The Co-programmed European Partnerships are based on a cooperation between the Commission and private and/or public partners. They are based on memoranda of understanding and/or contractual arrangements. The Co-funded European Partnerships using a programme co-fund action are Partnerships involving EU Member States, with research funders and other public authorities at the core of the consortium.

The institutionalised European Partnerships are partnerships in the field of research and innovation between the EU, EU Member States and/or the industry. These Partnerships require

legislative proposals from the European Commission and are based on a Council Regulation or a Decision by the European Parliament and Council. Institutionalised Partnerships will only be implemented where other parts of the Horizon Europe programme, including other types of Partnerships, would not achieve the desired objectives or expected impacts.

2. The Commission Proposal for ten new Institutionalised European Partnerships

In order to achieve the European Green Deal's and the Paris Agreement's targets, the EU needs to develop technologies for introducing zero-emission vessels and aircraft to the market. The EU also needs to develop and deploy cooperative, connected and automated mobility, as well as a more efficient and modern traffic management.

On 23 February 2021, the European Commission proposed the set-up of 10 new European Partnerships between the EU, Member States and/or the industry to invest nearly EUR 10 billion for the green and digital transition. The EU intends to provide this funding provided that the partners will match it with at least an equivalent amount of investment. This combined contribution is expected to mobilise additional investments in support of the transitions, and create long-term positive impacts on employment, the environment and society. The Partnerships are open to a wide range of public and private partners, including industry, universities, research organisations, bodies with a public service mission at local, regional, national or international level, and civil society organisations, including foundations and NGOs. According to the European Commission's proposal, the ten Institutionalised European Partnerships cover many initiatives related to the digital transformation and the targets of the European Green Deal. This includes the development of efficient low-carbon aircraft for clean aviation, the support the use of renewable biological raw materials in energy

production, and the development of clean hydrogen, among others. According to the EU Commissioner for transport Adina Vălean, the EU Partnerships will have a central role to achieve the green and digital transition for the transport sector.

According to the European Commission's proposal of 23 February 2021, the ten Institutionalised European Partnerships include the following initiatives:

1. The Global Health EDCTP3 Partnership aims at delivering new solutions for reducing the burden of infectious diseases in sub-Saharan Africa, among others.

2. Innovative Health Initiative will help create an EU-wide health research and innovation ecosystem towards a translation of scientific knowledge into tangible innovations.

3. The Key Digital Technologies Partnership encompasses electronic components and aims at supporting the digital transformation and the European Green Deal.

4. The Circular Bio-based Europe Partnership will contribute significantly to the 2030 and 2050 climate targets and will increase the sustainability and circularity of production and consumption systems, in line with the European Green Deal.

5. The Clean Hydrogen Partnership will accelerate the development and deployment of a European value chain for clean hydrogen technologies towards a climate-neutral Europe.

6. The Clean Aviation Partnership aims at developing the next generation of ultra-efficient low-carbon aircraft.

7. The Europe's Rail Partnership will speed up the development and deployment of innovative technologies, transforming the rail system and deliver on the European Green Deal objectives.

8. The Single European Sky ATM Research 3 initiative aims at accelerating the technological transformation of air traffic management in Europe and to support the recovery of Europe's aviation sector following the COVID-19 pandemic.

9. The Smart Networks and Services Partnership will support technological sovereignty for smart networks and services in line with the new industrial strategy for Europe, the new EU Cybersecurity Strategy and the 5G Toolbox.

10. The Metrology Partnership aims to accelerate Europe's global lead in metrology research, establishing self-sustaining European metrology networks.

The goal of the ten Institutionalised European Partnerships is to speed up the transition towards a green, climate neutral and digital Europe, and to make European industry more resilient and competitive. Some of the proposed Institutionalised Partnerships are building on existing joint undertakings, which aim to develop efficient low-carbon aircraft for clean aviation and support the use clean hydrogen in the EU, among others. Under the Clean Aviation Partnership, the EU intends to finance the development of new aircraft powered by clean fuel sources, in a bid to cut aviation emissions by 2050. The aspects related to implementation, programme design, monitoring and the evaluation system will be streamlined and harmonised at a later stage across the initiatives. This is aimed to ensure compliance with the implementation criteria, comparability across initiatives and to simplify the realisation of the initiatives.

3. The European Partnership for Clean Aviation

The Single European Sky (SES) initiative has been developed since over a decade, in order to consolidate national air traffic control systems, as planes are often forced to fly indirect routes to avoid crossing virtual borders set by states. However, the implementation of the SES is difficult, as the EU Member States' governments are reluctant to cede control over their airspace. In this context and as part of the European Commission's proposal of 23 February 2021 for setting-up 10 new European Institutional

Partnerships, the European Commission also announced it would finance the research and development of new aircraft powered by clean fuel sources. This is of great importance since the aviation sector is facing the difficult task to develop and introduce safe, reliable, and affordable low to zero emission air transport in order to meet the European Green Deal's climate neutrality objective. Therefore, the Clean Aviation Partnership aims to put aviation on route towards climate neutrality by accelerating the development, integration, and validation of low to zero emissions solutions. Accordingly, the Commission pointed out it would fund "disruptive research and innovation solutions" under the new Clean Aviation Partnership in order to develop "the next generation of ultra-efficient low-carbon aircraft". This could be achieved by developing novel power sources, engines, and systems, which could emerge from the research and demonstration phase at a high technology readiness level (TRL). It will also support aviation research and innovation that benefits the aviation sector's competitiveness and employment, which is especially important in the post-COVID-19 pandemic era. The Partnership will build on the work of the "Clean Sky" Joint Undertaking (CSJU), a public-private partnership between the European Commission and the aeronautics industry running since 2008. The CSJU's 2nd phase, Clean Sky 2, will build on the results of the CSJU public-private partnership and continue to integrate breakthrough technologies in aircraft demonstrating innovative configurations in aircraft, enabling changes in environmental and economic performance.

The Clean Aviation Partnership will focus on two pivotal aircraft demonstration efforts for the validation of selected technologies. These are an ultra-efficient short-medium range aircraft coupled with the use of sustainable aviation fuels, and a hybrid electric regional aircraft together with optimised green trajectories and

operations. This bundle of efforts will help to develop the next generation of ultra-efficient low-carbon aircraft and will accelerate the transition toward novel power sources, engines, and systems to utilise the full potential of low or zero carbon fuels low or zero carbon fuels and to deliver on reaching climate-neutrality by 2050. It will also investigate potential pathways towards the use of breakthrough options such as hydrogen. The Clean Aviation Partnership is expected to develop solutions that will allow fuel efficiency gains of one-third to one-half in 2050, compared to the current fleet.

The aim is to introduce a new generation of regional, short and medium haul aircraft that should be ready for the entry into the market by 2030 and for an entry into service by 2035.

4. The Clean Hydrogen partnership

The European transport sector is responsible for approximately 27% of the EU's total GHG emissions, and alongside electricity, hydrogen represents one of the main alternative fuels for the transport sector and energies and for decarbonising industrial processes and economic sectors. Hydrogen does not emit CO₂ when used and it causes almost no air pollution when used. Currently, hydrogen only represents a small fraction in the EU's energy mix, and it is still largely produced from fossil fuels like natural gas or from coal. However, hydrogen could contribute to the climate neutrality envisaged for 2050, if it is produced by using renewable energies and achieves a far larger scale of utilisation, mainly in the transport sector.

In fact, although the market-deployed hydrogen possibilities in the transport sector are still limited, hydrogen is the most promising decarbonisation option for aviation, ships, trains, trucks, buses, large cars, and commercial vehicles. Hydrogen has a strong potential not only for replacing fossil fuels in the transport sector. It is also considered being a vector for

renewable energy storage, alongside batteries, ensuring back up for seasonal variations and connecting production locations to more distant demand centres. Therefore, hydrogen can power sectors that are not suitable for electrification and provide storage to balance variable renewable energy flows. However, this can only be achieved with coordinated action between the public and private sector, and at EU level.

In September 2018, the European Energy Ministers signed the Hydrogen Declaration, committing themselves “to maximise the great potentials of sustainable hydrogen technology for the decarbonisation of multiple sectors, the energy system and for the long-term energy security of the EU” .

The EU Hydrogen Strategy addresses how to transform the hydrogen’ s potential into reality, through investments, regulation, market creation and research and innovation.

The priority is to develop renewable, green hydrogen, produced by using renewable energies, mainly wind and solar energy. However, in the short- and medium-term other forms of low-carbon hydrogen are needed to rapidly reduce GHG emissions and support the development of a viable market.

The EU Member States also rely on hydrogen technologies to achieve their national energy and climate plans (NECPs) by using hydrogen in transport, among others. 15 EU Member States explicitly mentioned the importance to continue and step-up research and innovation in hydrogen technologies.

At EU level, the EU Council called on the European Commission to explore initiatives for efficient integration and deployment of technologies and energy carriers for the production of hydrogen. In autumn 2019, the Commission services asked potential partners to elaborating proposals for the that time candidate European Partnerships under the further strategic planning of Horizon Europe.

Since the large-scale deployment of clean hydrogen is key for the EU to achieve its higher climate ambition target of reducing GHG emissions by minimum 50% and towards 55% by 2030 in a cost-effective way, the investment into hydrogen solutions will have to be stepped up.

The new Clean Hydrogen Partnership as one of the ten new European Partnerships proposed by the European Commission on 23 February 2021 is an important step to support a large-scale deployment of hydrogen in order to achieve the EU’ s climate ambition targets.

This Partnership will be organized in three pillars, including the hydrogen production, hydrogen distribution and hydrogen usage in transport, industry, and other sectors. Clean Hydrogen for Europe aims to accelerate the development and deployment of European clean hydrogen technologies, in order to contribute to a sustainable, decarbonised and fully integrated energy system. As a sign of the growing interest in hydrogen, six other sectoral partnerships will also support hydrogen technologies, including road transport, train, maritime, aviation, clean steel and clean process industries. The Partnership will include R&D but also large-scale demonstration and some early deployment in flagship projects. It will focus on the production, distribution and storage of clean hydrogen to supply hard to decarbonise sectors such as heavy industries and heavy-duty transport applications.

5. Conclusion

Considering the European Green Deal and the Paris Agreement’ s targets, the EU needs to develop viable solutions to decarbonise different sectors including the transport sector over time. In a next step, the European Commission ‘s proposal on ten Institutionalised European Partnerships covering many initiatives related to the targets of the European Green Deal will be adopted by the Council of the European Union, following

consultations with the European Parliament and the Economic and Social Committee. The proposals on nine European Partnerships will be adopted for a Regulation based on Article 187 of the Treaty on the Functioning of the European Union (TFEU). The separate proposal for the Metrology Partnership based on Article 185 TFEU will be adopted by a decision of the European Parliament and the Council, following a consultation with the Economic and Social Committee.

References

Draft proposal for a European Partnership under Horizon Europe Clean Aviation. Version 25 June 2020. In:

https://ec.europa.eu/info/sites/info/files/research_and_innovation/funding/documents/ec_rtd_he-partnerships-clean-aviation.pdf, 25 June 2020, retrieved 4 March 2021

Draft proposal for a European Partnership under Horizon Europe Clean Hydrogen for Europe. Version 15 June 2020. In:

https://ec.europa.eu/info/sites/info/files/research_and_innovation/funding/documents/ec_rtd_he-partnerships-clean-hydrogen.pdf, 15 June 2020, retrieved 5 March 2021

European Commission: Details of candidates for European Partnerships under Horizon Europe. Partnership proposals, contact details, details of partners. In:

https://ec.europa.eu/info/horizon-europe/european-partnerships-horizon-europe/candidates-climate-energy-and-mobility_en, retrieved 5 March 2021

European Commission: Candidates for European Partnerships in climate, energy and mobility. In:

https://ec.europa.eu/info/horizon-europe/european-partnerships-horizon-europe/candidates-climate-energy-and-mobility_en, retrieved 5 March 2021

European Commission: COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS A hydrogen strategy for a climate-neutral Europe COM(2020) 301 final. In:

https://ec.europa.eu/energy/sites/ener/files/hydrogen_strategy.pdf, Brussels, 8.7.2020, retrieved 4 March 2021

European Commission: European Partnerships in Horizon Europe. Types of partnerships, how partnerships are being identified, candidates for partnerships, contact details, impact assessments. In:

https://ec.europa.eu/info/horizon-europe/european-partnerships-horizon-europe_en, retrieved 5 March 2021

European Commission: EU to set up new European Partnerships and invest nearly €10 billion for the green and digital transition. In:

https://ec.europa.eu/commission/presscorner/detail/en/ip_21_702, 23 February 2021, retrieved 5 March 2021

European Partnership for Clean Aviation. In:

https://ec.europa.eu/info/files/european-partnership-clean-aviation_en, retrieved 4 March 2021

European Commission: Powering a climate-neutral economy: Commission sets out plans for the energy system of the future and clean hydrogen. In:

https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1259, 8 July 2020, retrieved 5 March 2021

European Parliament, Committee on Transport and Tourism: OPINION of the Committee on Transport and Tourism for the Committee on Industry, Research and Energy on a European Strategy for Hydrogen(2020/2242(INI)). Rapporteur for opinion: Georg Mayer. 2020/2242(INI) 25.2.2021. In:

https://www.europarl.europa.eu/doceo/document/TRAN-AD-660164_EN.pdf, retrieved 4 March 2021