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Analysis of the EU H2 strategy, of the EU energy integration strategy and of the clean hydrogen alliance launch

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On 8th July 2020, the European Commission unveiled a 3-phases plan for Hydrogen. This is a landmark announcement for European industry with a common industrial project that could face up Asian leadership ambitions. The 3 phases consist in: (1) Enabling framework conditions for large 100 MW-range electrolyzers, and wind and solar plants dedicated to GW-scale RE H2 production before 2030, (2) Negotiations for ETS phase 4 to target renewable H2 becoming cost-competitive, to fossil fuel sector, (3) Renewable electricity production needs to massively increase as about a quarter of renewable electricity might be used for renewable hydrogen production by 2050.

The Commission had jointly launched the EU energy integration strategy, with the objective is to cut 1/3 inland consumption of energy while supporting 2/3 GDP growth for 2050 through (1) a more 'circular' energy system, with energy efficiency at its core: industrial ecology and use of fatal heat, (2) a greater direct electrification of end-use sectors: low-temperature industries, EVs, electric furnaces, (3) the use of renewable and low-carbon fuels, including hydrogen, for end-use applications where direct heating or electrification are not feasible.

The clean hydrogen alliance launched by the industry shows the institutional recognition by the EC of Hydrogen Europe, the lobby that had contributed blueprint papers having served as the core of the Hydrogen Plan. While the Plan was unveiled on the 8th July morning, the Alliance was symbolically launched with official EC support on the afternoon the same day.

KEY POINTS

- ▶ The European Clean Hydrogen Alliance endeavours to facilitate and implement the investments of the Hydrogen Strategy. The alliance's task is to provide for a pipeline of viable investment projects. The Commission will also coordinate the Alliance proposition with IPCEI projects and they encourage the stakeholders to articulate projects to this existing instrument. Other funds will come from InvestEU, new investment window dedicated to post-CoVid recovery.
- ▶ Regarding Member States coordination, the Commission will synthesize recovery plans under the Recovery and Resilience Facility and its H2 window is Hydrogen Europe Network (HyNet). FEDER and REACT-EU, the Just Transition Mechanism (as for France, announcements are due late August)
- ▶ Electricity demand is projected to increase significantly on a pathway towards climate neutrality, with the share of electricity in final energy consumption growing from 23% today to around 30% in 2030, and towards 50% by 2050. In comparison, that share has only increased by 5 percentage points over the last thirty years. This growing electricity demand will have to be largely based on renewable energy.
- ▶ By 2030, the share of renewable energy in the electricity mix should double to 55-60%, and projections show a share of around 84% by 2050. The remaining gap should be covered by other low-carbon options. H2 is a solution for renewable intermittency but the remaining gap is the major inconsistency in this strategy.

ANALYSIS OF THE EU HYDROGEN STRATEGY

Plan & Phases

The European Commission unveiled a 3-phases plan for H2. This is a landmark announcement for European industry with a common industrial project which could face up Asian leadership ambitions. The 3 phases consist in:

Phase 1: Enabling framework conditions for large 100 MW-range electrolyzers, and wind and solar plants dedicated to GW-scale RE H2 production before 2030.

Phase 2: Negotiations for ETS phase 4 to target renewable H2 becoming cost-competitive, to fossil fuel sector.

Phase 3: Renewable electricity production needs to massively increase as about a quarter of renewable electricity might be used for renewable hydrogen production by 2050.

Investment & Agenda

- Electrolyzers investment could range from 24-42 bn€ for 2024 and 2030
- Connecting 80-120 GW of wind and solar to electrolyzer requires an investment up to 220-340 bn€
- Retrofitting H2 plant with CCS will require 11bn€
- H2 transport, distribution, storage and stations will cost 65bn€.

A plan coordinated with the industry

The European Clean Hydrogen Alliance to facilitate and implement the investments. The alliance's task is to provide for a pipeline of viable investment projects. The Commission will also coordinate the Alliance proposition with IPCEI projects and they encourage the stakeholders to articulate projects to this existing instrument. Other funds will come from InvestEU, new investment window dedicated to post-CoVid recovery.

- Regarding Member States coordination, the Commission will synthesize recovery plans under the Recovery and Resilience Facility and its H2 window is Hydrogen Europe Network (HyNet), FEDER and REACT-EU, the Just Transition Mechanism (as for France, announcements are due late August)

Mobility – further details by 2020 end: The use of H2 in mobility will be addressed in the Sustainable and Smart Mobility Strategy, announced in the European Green Deal by the end of 2020. The EU considers quotas of renewable H2 in specific sectors (chemistry first). The reform of the ETS (phase4) should support the development of green H2. Carbon Contract for Difference, hence contract where public sector pays private sector for climate

choice in case of international competition sectors (aviation).

Economic perspective

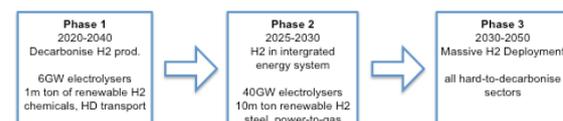
Cumulative investments in renewable hydrogen in Europe could be up to EUR 180-470 billion by 2050, and in the range of €3-18 billion for low-carbon fossil-based hydrogen. Combined with EU's leadership in renewables technologies, the emergence of a hydrogen value chain serving a multitude of industrial sectors and other end uses could employ up to 1 million people, directly or indirectly. Clean hydrogen could meet 24% of energy world demand by 2050, with annual sales in the range of €630 billion.

EC Objectives & Roadmap

EC noted that EU's industry has developed an ambitious plan to reach 2x40 GW of electrolyzers by 2030, recognising that "In order to implement the ambition of the European Green Deal and building on the Commission's New Industrial Strategy for Europe and its recovery plan". EC wishes to "turn clean hydrogen into a viable solution to decarbonise different sectors over time, installing at least 6 GW of renewable hydrogen electrolyzers in the EU by 2024 and 40 GW of renewable hydrogen electrolyzers by 2030".

This strategic roadmap provides a concrete policy framework within which the European Clean Hydrogen Alliance - building on the success of the European Battery Alliance - a collaboration between public authorities, industry and civil society, formally launched today, will develop an investment agenda and a pipeline of concrete projects. It includes a stream towards some taxonomy.

Details on the 3 Phases



Phase 1: Enabling framework conditions for large 100 MW-range electrolyzers, and wind and solar plants dedicated to GW-scale RE H2 production before 2030.

Manufacturing 100MW-range electrolyzers next to demand centers (refineries, steel plants, chemical) will be the focal point. Local renewables should power them and additionally, H2 stations could cater for pilot buses and trucks needs. Existing H2 stations will be retrofitted with CCS technologies.

The policy focus will be on:

- laying down the regulatory framework for a H2 market and on incentivising both supply and demand in lead markets,
- bridging the cost gap between conventional solutions, RE & low-carbon H2 through appropriate State aid rules

Infrastructure needs for transporting H2 will remain limited as demand will be met initially by production close or on site and in certain areas blending with natural gas.

Phase 2: Negotiations for ETS phase 4 to target renewable H2 becoming cost-competitive, to fossils

Renewable hydrogen is expected to gradually become cost-competitive with other forms of hydrogen production, but dedicated demand side policies will be needed for industrial demand to gradually include new applications, including steel-making, trucks, rail and some maritime transport applications, and other transport modes. Renewable hydrogen will start playing the flexibility factor role in renewable electricity-based system. Hydrogen will be used for daily or seasonal storage, as a backup and provide buffering functions, enhancing security of supply in the medium term.

The main hypothesis is that renewable H2 will indeed become cost-competitive, which will depend on fossil fuel sector dynamics and negotiations for ETS phase 4.

Local hydrogen clusters, so-called "Hydrogen Valleys", will develop, relying on local production of hydrogen based on decentralised renewable energy production and local demand, transported over short distances. The infrastructure would then be multi-uses. The back-bone of a pan-European grid will need to be planned and a network of hydrogen refuelling stations to be established. The existing gas grid could be partially repurposed for the transport of renewable hydrogen over longer distances and the development of larger-scale hydrogen storage facilities would become necessary. Regional governments are pushing this vision in the Netherlands and in France, some main success like Dunkerque are driving this movements but the replicability is not granted so far.

Phase 3: Renewable electricity production needs to massively increase as about a quarter of renewable electricity might be used for renewable hydrogen production by 2050.

In particular, hydrogen and hydrogen-derived synthetic fuels, based on carbon neutral CO2, could penetrate more largely across a wider range of sectors of the economy, from aviation and shipping to hard-to-decarbonise industrial and commercial buildings. Sustainable biogas may also have a role in replacing natural gas in hydrogen production facilities with carbon capture and storage to create negative

emissions, at the condition that biomethane leakage is avoided and only in line with the biodiversity objectives and the principles stated in the EU2030 Biodiversity Strategy. Phase 3 is still a long way to go but this vision could have great opportunities for European industry.

Details on key actions

An investment agenda for the EU

- Through the European Clean Hydrogen Alliance, develop an investment agenda to stimulate the roll out of production and use of hydrogen and build a concrete pipeline of projects (by end of 2020).
- Support strategic investments in clean hydrogen in the context of the Commission's recovery plan, in particular through the Strategic European Investment Window of InvestEU (from 2021).

Boosting demand for and scaling up production

- Propose measures to facilitate the use of hydrogen and its derivatives in the transport sector in the Commission's upcoming Sustainable and Smart Mobility Strategy, and in related policy initiatives (2020).
- Explore additional support measures, including demand-side policies in end-use sectors, for renewable hydrogen building on the existing provisions of Renewable Energy Directive (by June 2021).
- Work to introduce a common low-carbon threshold/standard for the promotion of hydrogen production installations based on their full life-cycle GHG performance (by June 2021).
- Work to introduce a comprehensive terminology and European-wide criteria for the certification of renewable and low-carbon hydrogen (by June 2021).
- Develop a pilot scheme – preferably at EU level – for a Carbon Contracts for Difference programme, in particular to support the production of low carbon and circular steel, and basic chemicals.

Designing an enabling and supportive framework: support schemes, market rules and infrastructure

- Start the planning of hydrogen infrastructure, including in the Trans-European Networks for Energy and Transport and the Ten-Year Network Development Plans (TYNDPs) (2021) taking into account also the planning of a network of fuelling stations.
- Accelerate the deployment of different refuelling infrastructure in the revision of the Alternative Fuels Infrastructure Directive and the revision of the Regulation on the Trans-European Transport Network (2021).

- Design enabling market rules to the deployment of hydrogen, including removing barriers for efficient hydrogen infrastructure development (e.g. via repurposing) and ensure access to liquid markets for hydrogen producers and customers and the integrity of the internal gas market, through the upcoming legislative reviews (e.g. review of the gas legislation for competitive decarbonised gas markets (2021).

Promoting research and innovation in hydrogen technologies

- Launch a 100 MW electrolyser and a Green Airports and Ports call for proposals as part of the European Green Deal call under Horizon 2020 (Q3 2020).
- Establish the proposed Clean Hydrogen Partnership, focusing on renewable hydrogen production, storage, transport, distribution and key components for priority end-uses of clean hydrogen at a competitive price (2021).
- Steer the development of key pilot projects that support Hydrogen value chains, in coordination with the SET Plan (from 2020 onwards).
- Facilitate the demonstration of innovative hydrogen-based technologies through the launch of calls for proposals under the EIS Innovation Fund (first call launched in July 2020).
- Launch a call for pilot action on interregional innovation under cohesion policy on Hydrogen Technologies in carbon-intensive regions (2020).

The international dimension

- Strengthen EU leadership in international fora for technical standards, regulations and definitions on hydrogen.
- Develop the hydrogen mission within the next mandate of Mission Innovation (MI2).
- Promote cooperation with Southern and Eastern Neighbourhood partners and Energy Community countries, notably Ukraine on renewable electricity and hydrogen.
- Set out a cooperation process on renewable hydrogen with the African Union in the framework of the Africa-Europe Green Energy Initiative.
- Develop a benchmark for euro denominated transactions by 2021.

LAUNCH OF THE CLEAN HYDROGEN ALLIANCE

The clean hydrogen alliance is the institutional recognition by the EC of the Hydrogen Europe industrial lobby, that had contributed blueprint papers having served as the core of the Hydrogen Plan. While the Plan was unveiled on the 8th July morning, the Alliance was

symbolically launched with official EC support on the afternoon the same day.

More than 1300 listeners from the policy and industry circles attended to the conference, with Main Speakers: Frans Timmermans, VP of the Commission, Thierry Breton, Commissioner for domestic market, Peter Altmaier, federal minister for economy, energy and finance, Germany, Joao Galamba, minister for energy, Portugal, Bruno Le Marie, minister for economy, finance and recovery, France.

Verbatim extracts

Vice-president of the European Commission Frans Timmermans: "H2 rocks!"

The EU wants to reach carbon neutrality and renewable energy is of prime importance for this achievement. In terms of final consumption, electrification will be pushed but some uses cannot be electrified.

There should be a multiplication by 3 of the outreach of electricity by 2040. H2 can support electrification for: green steel, green ammonia, Success is a quick finance for 6GW in 4 years and 40 GW in 2040. We want member states and member of the alliance to channel to the strategy.

Commissioner to domestic market Thierry Breton:

H2 is essential to our 2050 commitment and ambition. It can help decarbonize industry in energy-intensive sector (steel, chemicals and mobility). Thus H2 should not be considered only as a vehicle fuel. We can ensure our international leadership to contribute to resilient industries. At the beginning of March, the alliance was announced in the industrial strategy and the CoVid crisis and strengthen the Commission ambition for a green, digital and resilient industrial strategy. "We need to act now in the global competition around the technology". Inclusiveness in the alliance is key. Local authorities, NGOS, trade unions should have a voice and they were represented in the kick-off. There will be an investment agenda and targets are clear: producing 6GW by 2024 and 40GW electrolyser capacity in 2040. By 2050 there could be 140-340bn€ invested in H2 infrastructure creating up to 1 million job in Europe. "We want to hear concrete propositions now!"

Energy Commissioner :

H2 is a young industry but can grow up as quickly as possible. In sum, 10million ton of green H2 have been produced in a decade and the objective is that around 40% of total H2 production is to be clean H2 by 2040.

The Commission strategy boils down to 3 phases:

- 1. scale-up supply (electrolyzers, 1MW call, 1 R&D project) and demand for H2.



- 2. Open and competitive market and transportation for H2 where it is needed. Stranded assets must be avoided.
- 3. Europe margins (namely Morocco and Ukraine) There is an international moment for green H2. Operation will be key with our neighbors and global rule space-making. We can write a success story. We want to develop a pipeline of projects.

Ministers from Germany and France

- Peter Altmaier : Germany will give full support to the H2 strategy.
- Le Maire : the Commission launched a joint battery strategy. We have to provide guidance and instruments to achieve our targets. H2 is the missing link in order to achieve carbon neutrality. The green revolution will never be successful without H2. We have to accelerate the transition in the field of the business sector and Germany will welcome these projects. New infrastructure for production and distribution and for practical use is needed. It will create a lot of added value, based on IPCEIs on H2. Le Maire made the link between the green deal, the H2 strategy and border adjustment mechanisms : What we have done it in the past for semiconductors we are doing it on batteries. With 5G technologies and H2 are the momentum for today with the business and member states coming closer. Germany will co-ordinate the efforts of many to make it a fair success. When clean steel will become real, when clean aviation... we will still have to compete with brown steel and we will need to protect our green technologies to compete on a global scale.

Northern Netherlands region president :

- Netherlands+Auvergne-Rhône-Alpes+Normandy alliances will stimulate investment for distribution for H2. The launch of the H2 alliance can be considered as a step forward. We are the first "H2 valley." Then can make uses and fuels deployment. The new technology : H2 valleys partnership. Connecting the values. Boats, ports, trains, transports to remote areas.
- The biggest project developed is Nord-H2 : a mega wind farm expanded to 10GW with integrated H2 electrolyzing capabilities. "Civil society, industries and European institutions with a strong regional governments coordination can make green H2 economy come true."

Industry representatives

- SNAM - Italy : SNAM is the largest Europe distribution and transport of gas company. Future backbone for : 1.5bn€ in own capital, refueling stations for train and ships. For 4 years, we've launched the first congress last year with 70 companies. Italy will export to central and northern Europe electricity and H2 from solar.

- SNAM was the 1st in the world to test 10% H2 blend in natural gas for low and high pressure. Plants can accept it and we have a new procurement strategy with only H2 ready equipment. Hub and a marketplace and standards and certificate...

- We need visible, credible targets with and ambition. Green H2 at 2\$/kg can be one. The amount from public money should be less. There has been very significant business cases so there is an appetite for investment.

- Florent Amenigo - CEO Michelin : with Iveco and Yourway, Michelin signed a joint declaration. Electrification of the vehicles park is the solution but sometimes, H2 can be complementary. Transport should be an essential part of the green deal. We are building strong actors : Michelin JV with Faurecia (Symbio). FC system to be 1st world payer in FC. Iveco and Michelin entered in partnership with Nikola. This is a race and we need to go fast. IPCEI is an excellent mechanism to boost European competitiveness.

- Blackhorse IPCEI : 70 refueling stations, 10k H2 truck by 2030 up-gradable for all H2 FC vehicles. Pan European infrastructure : strategically positioned infrastructure for transportation, ensure unified network in Europe. 1000 stations for trucks and 700000 for cars (?). Target should be a TCO close to diesel cost. Ecosystems and corridors are key success factor : need to promote H2 valleys with regional and Auvergne-Rhône-Alpes. To favor the creation of H2 transport corridors : coordinated approach for all actors. Major steps. For all of us, our role is to educate citizens of the economic efficiency for H2.

- M. Denner - Bosch : Gas-fired boilers will have to be. 10% share H2 in the natural gas network. Portfolio have 100% renewable statements. By 2030, market volume 20bn€ for H2 economy.

ANALYSIS OF THE EU ENERGY INTEGRATION STRATEGY

The objective is to cut 1/3 inland consumption of energy while supporting 2/3 GDP growth for 2050 through:

1. a more 'circular' energy system, with energy efficiency at its core : industrial ecology and use of fatal heat
2. a greater direct electrification of end-use sectors : low-temperature industries, EVs, electric furnaces
3. the use of renewable and low-carbon fuels, including hydrogen, for end-use applications where direct heating or electrification are not feasible.

Electricity demand is projected to increase significantly on a pathway towards climate neutrality, with the share of electricity in final

energy consumption growing from 23% today to around 30% in 2030, and towards 50% by 2050. In comparison, that share has only increased by 5 percentage points over the last thirty years. This growing electricity demand will have to be largely based on renewable energy.

By 2030, the share of renewable energy in the electricity mix should double to 55-60%, and projections show a share of around 84% by 2050. The remaining gap should be covered by other low-carbon options. H2 is a solution for renewable intermittency but the remaining gap is the major inconsistency in this strategy.

Generic aspects

- In buildings, electrification is scalable through heat pumps for space heating and cooling. In the residential sector, the share of electricity in heating demand should grow to 40% by 2030 and to 50-70% by 2050; in the services sector, these shares are expected to be around 65% by 2030 and 80% by 2050. Current financing schemes are still non-operative.

- In industry, heat represents more than 60% of energy use. Industrial heat pumps can help decarbonise the low temperature heat supply within industries, and can be coupled with waste heat recovery. Other technologies are being developed for higher temperature heating or through electrochemistry.

- In transport, the Sustainable and Smart Mobility Strategy is foreseen for later this year, and will set out how our transport system needs to decarbonise and modernise to reduce its emissions by 90% in 2050²⁹. Electric mobility is key, and will accelerate decarbonisation and reduce pollution, especially in our cities, and new mobility services will increase the efficiency of the transport system and reduce congestion. Cross-border interconnexion of electric system will be crucial negotiation point between Member States. Ensuring non-energy price components contribute to decarbonisation across energy carriers

Key actions - selection

To better apply the energy-efficiency-first principle:

- Issue guidance to Member States on how to make the energy-efficiency-first principle operational across the energy system when implementing EU and national legislation (by 2021).

- Further promote the energy-efficiency-first principle in all upcoming relevant methodologies (e.g. in the context of the European resource adequacy assessment) and legislative revisions (e.g. of the TEN-E Regulation²⁰).

- Review the Primary Energy Factor, in order to fully recognise energy efficiency savings via renewable electricity and heat, as part of the review of the Energy Efficiency Directive (June 2021).

To build a more circular energy system:

- Facilitate the reuse of waste heat from industrial sites and data centres, as part of the revision of the Renewable Energy Directive and of the Energy Efficiency Directive (June 2021).

- Mobilisation of biological waste, residues from agriculture, food & forestry, support capacity-building for rural circular energy through new Common Agriculture Policy, Structural Funds, LIFE programme (2021 onwards).

To ensure continued growth in the supply of renewable electricity:

- Through Offshore Renewable Strategy, ensure cost-effective offshore renewable electricity, taking into account the potential for on-site/nearby H2 production, strengthen EU's industrial leadership in offshore technologies (2020).

- Establishing minimum mandatory green public procurement (GPP) in relation to renewable electricity, as part of the revision of the Renewable Energy Directive (June 2021); capacity building financing under the LIFE programme.

- Tackle remaining barriers to a high level of renewable electricity supply that matches the expected growth in demand in end-use sectors, including through the review of the Renewable Energy Directive (June 2021).

To further accelerate the electrification of energy consumption:

- Renovation Wave: promote electrification of buildings' heating, deployment of on-buildings renewable energy, roll-out of electric vehicle charging points (from 2020 onwards), using EU funding, including the Cohesion Fund and InvestEU.

- Develop specific measures for the use of renewable electricity in transport and heating and cooling in buildings and industry, in particular through the revision of the Renewable Energy Directive (June 2021).

- Finance pilot projects for the electrification of low-temperature process heat in industrial sectors through Horizon Europe and the Innovation Fund (by 2021).

- Assess options to support the further decarbonisation of industrial processes, including through electrification and energy efficiency, in the revision of the Industrial Emissions Directive (2021).

- Revise CO2 emission standards for cars & vans for a clear pathway zero-emission mobility from 2025 (June 2021).



To accelerate the roll-out of electric vehicle infrastructure and ensure the integration of new loads:

- Support the roll-out of 1 million charging points by 2025, using available EU funding, including the Cohesion Fund, InvestEU and Connecting Europe Facility funding, and communicate regularly on the funding opportunities and regulatory environment to roll out a charging infrastructure network (from 2020 onwards).
- Revision of the Alternative Fuels Infrastructure Directive to accelerate the roll-out of the alternative fuels infrastructure, including for EVs, strengthen interoperability requirements, ensure cross-border usability of charging infrastructure, and the efficient integration of electric vehicles in the electricity system (by 2021).
- Requirements for charging and refuelling infrastructure in the revision of the Regulation for the Trans-European Transport network (TEN-T) (by 2021), explore synergies through revision of the TEN-E Regulation for possible energy network related support for cross border high capacity recharging and possibly H2 refuelling infrastructure (by 2020).
- Develop a Network Code on Demand Side Flexibility³⁵ to unlock the potential of electric vehicles, heat pumps and other electricity consumption to contribute to the flexibility of the energy system (starting end-2021).
- Propose a comprehensive terminology for all renewable and low-carbon fuels and a European system of certification of such fuels, based notably on full life cycle greenhouse gas emission savings and sustainability criteria, building on existing provisions including in the Renewable Energy Directive (June 2021).
- Consider additional measures to support renewable and low-carbon fuels, through minimum shares or quotas in specific end-use sectors (incl. aviation, maritime), through revision of the Renewable Energy Directive and building (June 2021), complemented by additional measures assessed under the REFUEL Aviation and FUEL Maritime initiatives (2020). The support regime for H2 will be more targeted, allowing shares or quota only for renewable H2.
- Promote the financing of flagship projects of integrated, carbon-neutral industrial clusters producing and consuming renewable and low-carbon fuels, through Horizon Europe, InvestEU and LIFE programmes and the European Regional Development Fund (from 2021).
- Stimulate first-of-a-kind production of fertilisers from renewable hydrogen through Horizon Europe (from 2021).
- Demonstrate, scale-up capture of carbon in production of synthetic fuels, in link with Innovation Fund (from 2021).

- Develop a regulatory framework for the certification of carbon removals based on robust and transparent carbon accounting to monitor and verify the authenticity of carbon removals (by 2023).

To promote a level-playing field across all energy carriers:

- Issue guidance to Member States to address the high charges and levies borne by electricity and to ensure the consistency of non-energy price components across energy carriers (by 2021).
- Align taxation of energy products and electricity with EU environment and climate policies, ensure harmonised taxation of both storage and H2 production, avoiding double taxation: revision of the Energy Taxation Directive.
- Provide more consistent carbon price signals across energy sectors and Member States, including through a possible proposal for the extension of the ETS to new sectors (by June 2021).
- Further work towards the phasing out of direct fossil fuel subsidies, including in the context of review of the State aid framework and the revision of the Energy Taxation Directive (from 2021 onwards).
- Ensure that the revision of the State aid framework supports cost-effective decarbonisation of the economy where public support remains necessary (by 2021).

To adapt the gas regulatory framework:

- Review the legislative framework to design a competitive decarbonised gas market, fit for renewable gases, including to empower gas customers with enhanced information and rights (by 2021).

To improve energy infrastructure

- Ensure that the revisions of the TEN-E and TEN-T regulations (in 2020 and 2021, respectively) fully support a more integrated energy system, including through greater synergies between the energy and transport infrastructure, as well as the need to achieve the 15% electricity interconnection target for 2030.
- Review the scope and governance of the TYNDP to ensure full consistency with the EU's decarbonisation objectives and cross-sectoral infrastructure planning as part of the revision of the TEN-E Regulation (2020) and other relevant legislation (2021).
- Accelerate investment in smart, highly-efficient, renewables-based district heating and cooling networks, if appropriate by proposing stronger obligations through the revision of the Renewable Energy Directive and the Energy Efficiency Directive (June 2021), and the financing of flagship projects.

CONCLUSION

Policy making seldom shows such a great coordination across different geographical scales (there the Union, the member states and the regions), across different policies and between policy makers and the industry. The 8th of July of 2020 was such a rare moment.

This calls for drawing several lessons on the role of energy in the current EU's renaissance.

First of all, energy, a versatile issue that connects finance, industry, society and the environment, is currently seen as a potential nexus for political bargains.

Second, the magnitude of ambitions led the EU to consider that energy transitions can no longer consist in adding layers of reforms: new energies now imply rethinking the whole system.

Last but not least, while some observers of energy profess that, in the long course of its many revolutions, the current one is the first to be driven by policy makers, should pay attention to the fact that the industry remain a central player. In fact, in the current series of



announcement, not only the industry was there to support, but it is striking to see that the Commission has strongly adhered to the earlier recommendation the industrial association Hydrogen Europe had made earlier in spring. Indeed, on the top 10 recommendations given by the industry lobby to the EC, most of them have been taken up either in the hydrogen Plan (recommendations 1, 2, 3, 7, 9), or put under further regulatory agenda by the Energy System integration (4, 5, 6, 8). The official launch of the Hydrogen alliance itself is an achievement by Hydrogen Europe (recommendation 10).

In our perspective, in a competing world, this rather demonstrates the cohesive strength of the European construction around its economy and industry. Should hydrogen deliver its technological and economic promises, the next frontier is now of course that the energy transition is just, inclusive, and participative in process.