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FT HYDROGEN SUMMIT

OPENING KEYNOTE ADDRESS: EUROPE: A HYDROGEN CHAMPION

26 APRIL 2021, 10.00 – 10.35 CET

SCENE SETTER

You will provide the opening speech for the inaugural Financial Times Hydrogen Summit titled "**Europe: A Hydrogen Champion"**

Following a 10 minute opening speech, you will be interviewed through a prepared set of questions by [redacted] Some additional questions might be taken from the audience.

The FT Hydrogen Summit is mostly a corporate event, and many participants in the audience will be potential investors or project promoters.

Following your opening session, there are several deep dive discussions on the production of renewable hydrogen, electrolysers and CCS, hydrogen infrastructure, and the use of hydrogen in steel-making, transport and aviation.

Other speakers include C-level executive of large companies (Iberdrola, Siemens Gamesa, Oersted, Uniper, Shell, BP, ArcelorMittal, AirBus, etc) as well as Anne-Marie Trevelyan, Minister of Business, Energy and Clean Growth for the UK government.

Time	**Topic**
09.55 – 10.00	Opening remarks by [redacted]
10.00 – 10.35	Opening Keynote Address and Q&A: Commissioner Kadri Simson
10.35 – 11.20	Powering a Green Hydrogen Future
11.55 – 12.40	Building a Hydrogen Backbone
12.40 – 13.15	Project Humer Zero (CCS project in north of UK)
13.15 – 14.00	Decarbonising Steel-Making
14.00 – 14.45	The Economics of Electrolysers
14.45 – 15.30	The New Energy Majors
16.05 – 16.45	Aviation: Ready to Fly?
16.45 – 17.30	Financing the Project Pipeline
17.30 – 18.15	Keep on Trucking

SPEAKING POINTS

[Europe as the hydrogen champion]

- In my opinion, Europe is not a hydrogen champion, but the hydrogen champion
    - Europe has set an objective to be climate neutral by 2050, thus providing a clear pathways for the future need of hydrogen
    - Europe's electricity has the highest shares of solar and wind globally, creating an enabling environment for the production of hydrogen.
    - Europe is also a world leader in the development of electrolysers, and other technologies across the hydrogen supply chain.
    - Europe has both industrial consumers as well as a truck, shipping and airplane manufacturer demand for climate-neutral solutions.

- Last July we put forward a Strategy for Energy System Integration, that outlines a vision to create a smarter, more integrated and more optimised energy system, in which all sectors can fully contribute to decarbonisation.

- The same day we also published our European hydrogen Strategy, which includes the first to set concrete and measurable objectives for the production of renewable hydrogen in the EU:

    - 6 GW of renewable hydrogen electrolysers by the end of 2024, and 40 GW by 2030.
    - Last summer, these targets were often referred to as "overly ambitious".
    - Today, we are meeting project developers on a weekly basis and the project pipeline continues to grow.
    - And these targets are being reflected in ambitious national goals by many EU Member States.

[Importance of implementation]

- It is not sufficient to publish a strategy, you need to follow up with concrete action.
- We are working on comprehensive package called 'Fit for 55' to put this vision into concrete policy and legislative proposals, to be published this summer
- Important, we are ensuring coherence and synergies across energy and climate policy, across industrial policy, across our research and innovation efforts, and our financing schemes.
- We are also focusing on the creation of a full clean hydrogen ecosystem:
    - Support for the production of hydrogen, including need for competitive and abundant renewable electricity;
    - Support for creation and repurposing of infrastructure to transport and storage hydrogen;
    - Setting up new hydrogen market rules to create competitive market with clear rules for access to and ownership of infrastructure;

- Certification schemes to inform the end-consumer about the hydrogen they are using;
- Support schemes to promote the use of hydrogen, especially in those hard-to-decarbonise sectors where it is clear that hydrogen is the only cost-effective solution.

[Creating a project pipeline]

- To remain a hydrogen champion, it is important to get the first large-scale projects on the ground.
- To this effect, we launched two calls for large-scale demonstration projects last year. One of these calls included two 100-MW electrolysers projects running on renewable electricity. We will be announcing the project winners shortly
- Furthermore, we opened the first ETS Innovation Fund call and one third of the 331 projects were hydrogen-related. 70 of these projects are now in the 2nd phase of the selection process, and new calls will be launched later this year.
- We have also entered the next phase of the European Clean Hydrogen Alliance. With more than 1000 stakeholders, the Alliance is now collecting information on potential hydrogen projects and stakeholders have until early May to submit their first set of projects.
- With this information, we expect to create clear visibility of the project pipeline in Europe, and the associated investment needs.
- Furthermore, several Member States are working on a list of potential hydrogen projects that they want to submit under the IPCEI process, a tool to fast track support for hydrogen projects

that have a clear cross-border benefit for the European hydrogen ecosystem.

- I believe that with both the progress on the regulatory front and the activities on the ground, we are able to create a European market for clean hydrogen that will benefit our economy and enable a global energy transition.

[Scaling up investments]

- Clear that hydrogen strategy is an investment agenda. At EU level, we are expecting investments in range of EUR 320 – 460 billion.
- This includes investments in range of EUR 220-340 billion in additional renewable electricity production, EUR 24-42 billion for electrolysers, and in range of EUR 65 billion in hydrogen transport, distribution, storage, and refuelling stations.
- Furthermore, we are currently in the process of finalising our proposal on TEN-E, which is the EU-financing mechanism to support energy infrastructure. In our proposal, we have included the creation of a dedicated hydrogen category through which projects with a cross-border impact can be financed.

- We are also putting in place an enabling environment for investments at Member State level.
- Indeed, the EU’s recovery instrument NextGenerationEU, alongside the EU’s Multiannual Financial Framework has made available an unprecedented volume of resources that can be also used for energy transition. 30% of the EU’s EUR 1.8 trillion budget are available.
- In particular, the Resilience and Recovery Fund has also been put in place, and we are eagerly awaiting plans of Member States under Recovery and Resilience Fund, of which 37% of budget will need to be spend on green transition.
- To guide MS, Commission has published flagship Power Up to guide investments towards renewables and renewable hydrogen.
- Furthermore, we are also revising state aid guidelines as part of “Fit for 55” to help scale up funding to bring these new technologies to the market, to push deployment, and ultimately drive down the costs and make it competitive with fossil-based alternatives
- Other relevant initiatives relevant for hydrogen support concern taxation and our proposal for a taxonomy for sustainable investments.

[R&D support]

- On top of this, we need continued investments in R&D to support research, development and demonstration of hydrogen technologies to bring them to market readiness and lower costs.

- Besides the calls and the Innovation Fund mentioned earlier, we have proposed the establishment of an EU Clean H2 Partnership, as a follow up of the FCH JU that will have approx. EUR 1 billion to support R&D projects on H2 for the period 2021-2027.

[International cooperation]

- On **international cooperation** with our third country partners, the EU has a strategic interest developing a global market. We are engaged in <u>**structured energy dialogue**</u> with several countries, including the **US, Japan, North Africa (Morocco, Egypt etc.), South Korea, India, etc…**
- The EU is also highly involved in international forums.
  - DG ENER co-leading with US and FR in the **International Partnership for a Hydrogen Economy** (IPHE), on the Task Force on H2 analysis production, to define emission criteria associated with H2 production.
  - We are also working in the **Clean Energy Ministerial Hydrogen** initiative, together with JP, Canada, NL and the US (and IEA). Among others, we are developing the Global Ports Coalition to be launched at the next CEM12 at the beginning of June.
  - Under the Mission Innovation, in December the FCH JU has launched the **Hydrogen Valley Platform**, a global info-sharing platform with its objective is to promote the emergence and implementation of hydrogen flagship projects ("hydrogen valleys") and raise awareness among policy makers, thus advancing the clean energy transition.

[Next steps]

- The question may arise whether I am too optimistic? What if the hydrogen strategy fails to materialise?
- My answer is that the hydrogen strategy should not be considered in isolation.
- The hydrogen strategy is part of a larger strategy to create an integrated energy system across the EU:
    - We have simultaneously launched a strategy to scale up offshore renewables, and create the necessary sources for producing hydrogen.
    - We have launched a strategy for smart and sustainable mobility, directing hydrogen to those transport sectors that are most difficult to decarbonise.
    - We have launched a renovation strategy, ensuring that any energy demand for the buildings sector is reduced
    - And we will publish an updated industrial strategy soon, to further support the EU green and digital transition.
- I do not know of any other regions where such a comprehensive plan for the green transition is being developed.
- Clean hydrogen is a crucial, but not the only element, of our European Green Deal.
- With all of these different elements coming together, I do believe that we are creating the right enabling environment for energy transition towards carbon neutrality.

Q&A W

The Commission's H2 strategy is ambitious but could the Commissioner explain the concrete steps to put it in practice? How does the Commission support projects, what can the entrepreneurs expect in terms of support? What are the different options – carbon contracts for difference, feed-in tariffs?

- The strategy included 20 proposals for actions. Several of these actions have already been implemented, such as the first calls for upscaling electrolysers and the Innovation Fund.
- Furthermore, we have already published our proposal to support a European energy infrastructure, which is being discussed with the European Parliament and Member States at the moment.
- The other actions will be part of the "Fit for 55" package, and the most significant parts will already be released this summer.
- This includes both measures to support the production of renewable hydrogen, as well as measures to support demand.

- Support for upscaling hydrogen production is already in place, in particular through the Joint Undertaking on Fuel Cells and Hydrogen, the EU Innovation Fund and our proposed Clean Hydrogen Partnership.

- At the same time, several regions are already receiving support to scale up and commercialise hydrogen technologies and create Hydrogen Valleys.

- On the support side, an important element is the revision of the state aid guidelines for energy and environmental aid (EEAG) that will determine what support schemes will become available. Already, the Netherlands has approved such a support scheme under the existing rules.

- On the demand side, the revision of the renewable energy directive is considering certification and possible obligations and quotas for the use of hydrogen in end-use sectors. Already a number of Member States (BE, DE, DK, HU, IT, SK) are mentioning quotas for renewable hydrogen in their transport sector.

In which sectors is hydrogen going to be used, where is it most effective? In chemicals? Hard-to-abate sectors (steel and cement)? Is there a role foreseen for hydrogen in the transport sector? Is it realistic? (passenger cars are likely going to be electric rather than use hydrogen)

- The hydrogen strategy has been very clear. It has identified three important end-use sectors for the use of hydrogen:
    - Replacement of existing fossil-based hydrogen demand in industry, as well as the uptake of renewable and low-carbon hydrogen in the steel sector.
    - Heavy-duty and long-distance transport modes, such as heavy-duty trucks, long-distance ships and aviation.

    - Support a renewables-based electricity system by providing storage and buffering services.

Is Commission's approach/understanding largely that hydrogen comes in where it is not possible to electrify?

- The hydrogen strategy has been published alongside the energy system integration strategy. This strategy foresees three pillars for the decarbonisation of the energy system: energy efficiency and the better use of energy waste, electrification, and renewable and low-carbon fuels.
- Hydrogen fits within the third category, and is indeed considered specifically for hard-to-decarbonise sectors.
- Electrification is indeed in most cases the most efficient way to decarbonise end-use sectors. However, there will be instances where there is limited access to electricity, or where getting electricity to the end-consumer is too costly due to infrastructure constraints.

- Our modelling suggests that about 50% of our future energy demand can be electrified. This leaves a significant part of our future energy system that needs to be serviced by other means than electrons, including through the direct use of renewables as well as renewable and low-carbon fuels.

How is the Commission going to support a more wide-spread use of renewables to facilitate the production of hydrogen? How are you going to support the building of electrolysers?

- The Hydrogen Strategy identifies the need for at least 80-120 GW of additional renewable power generation capacity to provide the necessary electricity for our hydrogen targets.
- This comes on top of the additional need for renewable electricity through the electrification of industry, transport and buildings.
- Renewables are becoming increasingly cost-competitive, and even within the COVID-period the industry has remained very resilient.

- We have an ambitious target of at least 32% renewables by 2030 in place, but we are currently reconsidering this target.
- Our initial assessments suggest that we need the share of renewables to be increased to 38 to 40% by 2030.

- Already, we are supporting the scale up of electrolysers to 100 MW through our existing innovation funds.
- At the same time, we have included support for electrolysers in our revision of the energy infrastructure regulation, which would make funds available for large-scale electrolysers.
- We are also working closely together with Member States to ensure that the resilience and recovery funds are used to help accelerate the green transition, including through upscaling renewables and electrolysers.

What is the role of blue hydrogen in your strategy/on the road towards climate neutrality? Are the blue hydrogen/CCS projects

actually going to happen, in shorter or longer term? Is there any funding foreseen for this?

- We expect that both renewable hydrogen and low-carbon hydrogen produced from fossil fuels with CCS will be entering the market.

- 96% of hydrogen in the EU is produced from natural gas today, contributing to 70-100 Mt of CO2 emissions per year. The strategy supports the replacement of existing hydrogen production with renewable hydrogen or by fitting existing hydrogen production facilities with carbon capture and storage.

- To immediately reduce GHG emissions of existing hydrogen production facilities, CCS can be used. The strategy thus recognises the role of low-carbon hydrogen, including fossil-based hydrogen production with carbon capture and storage, **in a transitional period**, **whilst renewable hydrogen is scaling up**.

- The strategy also clearly identifies the need for a significant GHG emission reductions for any low-carbon hydrogen production that would be supported.

- The commission has been supporting CCS in the past. We still believe that CCS will be necessary to decarbonise hard-to-abate sectors, such as cement, chemicals and steel, so that they can have a place in a climate neutral European economy. In the long-term we may also need captured CO2 as a feedstock for some industrial processes or to produce synfuels for specific transport modes such as long haul aviation.

- In the longer run, we may also need CCS to help create negative emissions to reach carbon neutrality, making CCS an important tool for climate neutrality. This assessment is also shared by the IPCC.

- The climate benefit of carbon capture and use (CCU) needs to be clearly assessed on a case-by-case basis. This is why the Energy System Integration strategy is proposing to create a clear certification system for carbon removals.

Does the export of green hydrogen make sense? How are you going to ensure that it is in fact green, what rules will you put in place? Should countries like Morocco and Ukraine not use their renewable

electricity for decarbonising their own energy systems, rather than using it for producing green hydrogen for Europe?

- The hydrogen strategy foresees international cooperation as a crucial part of a European strategy, irrespectively of whether this will lead to future exports to or imports from third countries.

- There is indeed an industry initiative to develop 40 GW of electrolysers in Ukraine and Morocco, including an 88 GW of renewable power generation capacity to power these electrolysers. These renewable power generation targets are higher than currently in the pipeline by Ukraine and Morocco.

- Irrespectively of whether these imports materialises, we are proposing to close collaborate with the European neighbourhood to discuss how hydrogen can play a role within their energy transition, and how to create an enabling environment that is comparable across the region.

- We are also working at a bilateral and multilateral basis with third countries to discuss and exchange best practices on policies, standards and certification.

CV - [redacted]

[redacted]