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NOTE

From:	Trio Presidency
To:	The High Level Working Group on Competitiveness and Growth
Subject:	European industries leading the way towards competitive climate-neutral economy

Delegations will find in Annex a note on European industries leading the way towards competitive climate-neutral economy, in view of the meeting of the High Level Working Group on Competitiveness and Growth on 11 April 2019.

Background information and scope of the paper

1. The aim of the paper is to facilitate the discussion in the **High Level Group on Competitiveness and Growth on 11 April 2019** on the key role of European industries in the transition towards competitive and climate neutral economy. The discussion will feed into the planning of further discussions in the informal competitiveness ministers' meeting in Helsinki on 5 July 2019.
2. Climate-competitiveness nexus has been discussed lately in various fora such as the 2019 Industry Days and 4th Meeting of the Commission High Level Expert Group on Energy Intensive Industries. There is also a process commencing to develop Industrial Transformation Master Plan for climate-neutral industry by 2050.¹
3. **Transition towards climate neutrality means a profound change** in many sectors of the society. This paper aims to raise relevant issues for many industries without exclusion of any sector or value chain. It is clear that there are certain sectors and value chains, such as automotive, transport, construction and energy-intensive industries, where the change might be more profound than in certain others. Some case studies, which are only examples of many, are presented in the annex to ANNEX of this paper. Specific focus on automotive industries will be on the agenda of HLG for competitiveness and growth later in 2019.

¹ Terms of Reference for the Sub-Groups to the Commission High Level Expert Group on Energy-Intensive Industries to develop an Industrial Transformation Master Plan for climate-neutral industry by 2050

Urgency of climate actions and link to competitiveness and growth

4. The message of the recent IPCC report issued in October 2018 was clear. Climate change is a global threat and it is necessary to step up global efforts significantly to avoid severe consequences of climate change.
5. In order to respond to the IPCC report and the request from the European Council in 2017, the Commission published on November 28th, 2018 a Communication on European Strategic Long-term vision for Europe (“LTS”)² including eight scenarios to low-carbon or climate neutral Europe. The Commission suggests that EU should by 2050 be among the first to achieve net-zero greenhouse gas emissions.
6. The European Council convened on 21-22 March 2019. The European Council emphasised the importance of the EU submitting an ambitious long-term strategy by 2020 striving for climate neutrality in line with the Paris Agreement, while taking into account Member States’ specificities and the competitiveness of European industry. The European council also called on the Council to intensify its work on a long-term climate strategy ahead of a further discussion in the European Council in June 2019.
7. The vision is not only about climate; **it is also about competitiveness and growth of Europe**. According to the vision, transition towards carbon neutral Europe is not only doable, it can bring significant economic benefits. This is due to new business opportunities for many industries in terms of technologies, products and services. In practice, Europe needs to find a proper policy mix to be able to significantly reduce emissions, while boosting economic growth and strengthening the competitiveness of the EU economy during the coming decades.

² More information: <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/2050-long-term-strategy>

8. Europe can't mitigate climate change alone. **Global climate action** is crucial not only to climate itself but also when considering competitiveness of Europe. By acting alone Europe might risk its competitiveness especially in certain industrial sectors which produce globally tradeable goods and services. It is important to work closely with other major economies globally to reach the objectives of the Paris Agreement together.

Global and European investments as a business opportunity for the European industries

9. Transition towards climate neutral Europe will impact all value chains and create new business opportunities for European businesses providing low-carbon solutions. Clean energy solution suppliers have business potential in Europe and abroad. According to the Commission scenarios also new bio, circular and digital solutions, among others, are needed to decarbonize the economy.
10. The Commission estimates that investments to energy system alone need to rise to the level of € 520 – 575 billion annually, or 2.8 % of EU GDP, to achieve net-zero greenhouse gas economy. Additional investments compared to the baseline are as large as € 175- 290 billion a year.
11. IPCC special report estimates that between 2016 and 2035 investments are needed in the energy system representing about 2.5% of world GDP. This equals to approximately USD 2.4 trillion. The IEA (WEI 2018) estimates that currently investments to global energy system amount to USD 1.8 trillion annually. The IEA estimated (WEI 2017) that roughly twice as large investments are needed in order to deeply decarbonize the economy until 2050.

12. Europe has a strong industrial base producing high value-added products and services. It is imperative that the transformation towards climate neutral Europe should strengthen the European industries further through providing opportunities for sustainable growth. According to LTS, sectors such as construction and bio-based industries could benefit from the transition. Businesses supplying materials, goods and services to the sectors mentioned could benefit as well.

Low carbon solutions for industrial processes as a prerequisite to decarbonize the economy

13. European industries have an important role to play in reducing the greenhouse gas (GHG) emissions in EU and globally. According to LTS, Industrial processes produce directly 760 Mt CO₂eq³ emissions, close to one fifth of all emissions, from furnaces and processes among others. Share of GHG emissions from industry would be much larger if indirect emissions, caused by e.g. energy demand of the industrial processes, would be included in the industrial sector emissions.
14. The deep decarbonisation of the energy-intensive industries relies also on the successful decarbonisation of the power and gas sectors. Increased electrification in industries leads to deep decarbonisation only when electricity is produced from low carbon sources. Important question is whether the required quantities of such electricity can be produced in reliable and economical way. Lowering the carbon intensity of gas used in industrial processes is also critical. This can be realised e.g. by changing the composition of gas in distribution grid and shifting to a blend of natural gas, hydrogen, biogas and e-gas. Required changes in the power and gas sectors require further technology developments, as well as significant investments including in the necessary infrastructure.

³ Million tons Carbon Dioxide equivalents. Often used as a unit to measure greenhouse gas (GHG) emissions

15. European industries have already contributed to decreasing the GHG emissions in the EU in the past few decades. Transition to climate neutral Europe means, however, that major changes need to be made in the way industries produce goods and consume energy. Commission analysis suggests that current trends (such as energy efficiency measures or structural change), foreseeable technological developments, mega-trends such as digitalisation and automation, as well as existing measures and policies, cannot deliver the desired levels of ambition. In brief, all low-carbon technologies are to be explored, developed and deployed to decarbonise the European industries.

Integrated approach and investments to innovations are critical to transform the industries successfully

16. According to the Commission, **industrial transformation towards climate neutrality will require an integrated and systemic approach.** Relevant aspects include issues such as sustainable raw material supplies; implementing circular economy in different value chains; creation of a European and global market for zero-carbon emissions solutions enabling investments to new technology development and deployment. Intense global competition and the need for significant investments add to the challenge of decarbonizing the industries.
17. Integrated solutions which help zero-carbon emissions solutions to get commercialized market-wide are needed. Costs will head down with increased commercial deployment of low-carbon solutions but deep decarbonisation requires demonstration projects before wide-scale deployment.

18. **Innovation policy is the key policy measure** to promote competitiveness of the European industries. Effective innovation policy measures can help improve competitiveness in two ways: It enables renewal of the European industries leading to the development of new high value products and services. Innovation policy is also crucial in developing better cost-competitiveness of the European industries.
19. A massive and coordinated research and innovation effort would be needed in the EU within the next two decades according to Commission. In this context, a forward-looking research and innovation strategy should be guided by zero-carbon solutions that have the potential to be deployed by 2050. Climate and industrial competitiveness will be at the heart of Horizon Europe, the next EU's research and innovation programme for 2021-2027.
20. European innovation agenda is and should be a joint coordinated effort for the Commission, EU member states, regional governments as well as European industries and research institutions. Besides Horizon Europe, there is also other important EU funding to support low-carbon innovations and deployment such as Innovation Fund⁴. In addition, other funding sources both at national, regional and Union level should be directed to support the development of innovative low-carbon solutions. Furthermore, Important Projects of Common European Interest (IPCEI) may facilitate increased investment activity with impacts on competitiveness and climate.
21. The **Single Market** plays an important role in supporting the transformation of European industries e.g. through well-functioning internal market for different value chains from primary and secondary raw materials to intermediate and end products. Public procurement, standard-setting and product-labelling are examples of relevant policy measures.

⁴ The EU Emissions Trading System, based on the ETS directive, is providing the revenues for the Innovation Fund. The Fund may amount to about €10 billion, depending on the carbon price. On 26 February 2019 the Commission adopted the delegated regulation on the Innovation Fund. More information: https://ec.europa.eu/clima/policies/innovation-fund_

Summary

22. **There is a clear need for an ambitious and sustainable growth and decarbonisation agenda for European industries.** Clear vision on climate targets and actions can provide certainty regarding the pathway of Europe and the world. Necessary policy framework (e.g. climate, energy, industry, research and innovation, competition, trade, environment) needs to be put in place in order to facilitate required investments, support innovation and incentivize all the necessary changes while ensuring the global competitiveness of the European industries.

Questions for discussion

- 1) *How can European industries take advantage of the transition towards climate neutrality in the global context?*
- 2) *What kind of policy measures are needed to enable sufficient investments to technology development and deployment to decarbonize the European industries?*

**Real-life business examples to enhance competitiveness and reduce emissions
of the European businesses**

1. In order to further facilitate our discussions we provide some more detailed examples from industries. These cases are based on improving competitiveness of European companies and reducing greenhouse gas emissions at the same time. We welcome your input and suggestions for other topics for more in-depth discussions.

Decarbonising industrial processes			
Case	Challenge of an European company	Solution	Economic and climate benefits
1	An industrial company had a competitiveness challenge due to high waste and energy costs	An investment to flexible waste to energy production unit	95 % of waste is recovered and the company is now independent of natural gas networks which means costs savings and less emissions.
2	An industrial company needed to improve production planning to enhance competitiveness	An investment to energy management system producing information on deviation between optimal and real operations.	Reduced purchasing needs and operating costs, increased operating efficiency of the plant
3	An industrial company had challenges in cleaning certain emissions as well as in resource efficiency	An investment to flue gas cleaning unit including energy recovery	Reduced purchasing needs and operating costs, increased operating efficiency of the plant
4	An industrial company needed to switch old energy production units using coal (fossil fuel)	An investment to multi-fuel boiler enabling use of biomass, solid recovered fuel and industrial side streams	Use of fossil fuel (coal) reduced by around 2/3. Majority of the fuels used are now renewable.

2. Other examples of zero-carbon emissions solutions currently proposed by European manufacturing industries:

- Production of lignin that can be used as raw material for bio products and chemicals or fuels
 - Production of sulfuric acid from odorous gases
 - Production and deployment of new types of wind turbines to reduce the cost of renewable energy
 - Production of new types of steel and aluminium to reduce the weight of vehicles and their energy consumption
 - Production of new types of glass and insulation materials for the renovation of buildings
 - Production of new types of tires to reduce energy-consumption with the possibility to lease them in order to ease the energy and maintenance management of the fleet of their road transport customers
 - Production of new energy-efficient engines for aircrafts
 - Recycling of electronic and electric waste to supply critical raw materials for batteries
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