

***ERCST's rationale accompanying the  
submission to the Public Consultation for  
the EU climate target for 2040.***

- **Chapeau**

The European Roundtable on Climate Change and Sustainable Transition (ERCST) welcomes the opportunity to participate in the European Commission's public consultation for the EU climate target for 2040.

ERCST's response to the Public Consultation builds on the work that it has done previously, and a long-term interest and examination of issues related to addressing EU climate policy and competitiveness.

The questionnaire does not allow room for nuanced answers, which are necessary in order to provide a realistic position which takes into account the realities in which 2040 targets will need to be set in. ERCST feels that it is necessary to provide a rationale accompanying each of the relevant answers. EU Climate Policy is not operating in isolation and needs to be considered under a holistic approach, both through its interlink with other EU Climate Policies and in perspective with international climate developments taken by non-EU jurisdictions.

Some of the terms used in the questionnaire are not defined and can be used for purposes other than what the respondent has in mind. Some questions provide examples which significantly broaden the scope of the questions and can lead to misinterpretation.

## ERCST's Rationale for answers

### 1. Emissions reduction ambition for 2030-2040

Considering the objective of achieving climate neutrality by 2050 and the current energy crisis, how should the EU pursue the climate transition up to 2040?

- a) The EU should accelerate the transition to climate neutrality.
- b) The transition to climate neutrality should continue at the current pace.**
- c) The transition should be slower than the current pace.
- d) The EU's ambition should depend on other countries' climate ambition.**
- e) I don't know.

**Choice: d) and b).**

Policy makers have recently adopted the Fit for 55 and Net Zero objective. To ensure stability, predictability and long-term signal, the transition to climate neutrality should continue at the current pace (b). However, even this decision cannot be taken in isolation, and other countries' ambition should be also taken into account (d) as EU is not operating in a vacuum and cut off from the rest of the world. When setting the 2040 target, EU policy makers should consider the necessary investments as well as other enabling conditions.

### 2. EU emission reduction target for 2040

The EU has committed to reduce its net GHG emissions by 55% compared to 1990 levels by 2030 and aims to achieve climate neutrality by 2050 (-100%). In your opinion, what should be the net emission reduction target for 2040 to put the EU on track to meet the 2050 climate neutrality target?

- a) up to -65% emission reduction (a very low ambition, barely increased compared to the target for 2030).
- b) between -65% and -75% emission reduction.**
- c) between -75% and -80% emission reduction (following the average trajectory between 2030 and climate neutrality in 2050).
- d) between -80% and -90% emission reduction.

- e) more than -90% emission reduction (a very high ambition, close to reaching climate neutrality already in 2040).
- f) I don't know.

**Choice: b).**

In line with our previous reply, the transition to climate neutrality should continue at the current pace. Moreover, the terminology used in question 1 and 2 can lead to misinterpretation. Climate neutrality and emission reduction are two different concepts which should not be mixed. The objective of climate neutrality by 2050 also present in the Paris Agreement, does not imply a specific emission reduction target.

From a technology maturity perspective, the cost competitiveness of several decarbonisation tools (such as CCS and electrolyzers) will be significantly higher in the 2040s compared to the 2030s. This suggests that a linear decarbonisation trajectory could result in costly and inefficient efforts in the first decade and in sub-optimal ways thereafter. It would then be sensible to pursue an ambitious yet technically efficient path up to 2040 and increase the rate of decarbonisation in the 2040-2050 period.

### **3. Role of carbon removals in the 2040 climate target**

The EU's 2030 climate target is expressed in 'net' emissions, which is the sum of GHG emissions and carbon removals. In your opinion, how should carbon removals be considered so that the EU achieves its 2040 climate target?

- a) Carbon removals should be considered together with actual GHG emissions. Hence, it is enough to have only a single 'net' emissions target for 2040 to set the GHG trajectory towards climate neutrality by 2050 in a cost-effective way.
- b) It is better to set a separate target for reducing GHG emissions and another target for carbon removals.
- c) It is better to have one target for reducing GHG emissions, a target for nature-based carbon removals and a target for industrial removals with permanent storage.**
- d) No opinion / I don't have enough information to make a judgment.

**Choice: c).**

The on-going Carbon Removal Certification Mechanism differentiates between nature-based, and technology (industrial) removals. The LULUCF regulation includes a target of removing 310 Mt of CO<sub>2</sub> by 2030 from the land use, land-use change and forestry sector. It will be adequate to follow a similar approach when setting an EU removal target.

A separated target can also contribute to focus the attention on carbon removals and the funding required for its deployment. The lack of right incentives and uncertainty of the current removals scope also justifies setting a separate target for removals that does not jeopardize emission reductions.

As the ERCST 2023 State of the EU ETS Report<sup>1</sup> shows, respondents (74.23%) supported that early integration of removals in EU regulation, including in the EU ETS, is critical to reach EU climate objectives. By 31 July 2026, the European Commission should report how negative emissions could be covered by emission trading.

<sup>1</sup> ERCST (2023) State of the EU ETS Report, ERCST. Accessible at: <https://ercst.org/2023-state-of-the-eu-ets-report/#:~:text=Caneill%2C%20Stefan%20Schleicher,-April%2026%2C%202023,is%20%E2%80%9Cfit%20for%20purpose%E2%80%9D> (Accessed on 22 June 2023).

## 4. Opportunities associated with higher climate ambition.

What are the benefits of an ambitious climate target by 2040? Which opportunities would you consider as most relevant when implementing an ambitious climate target by 2040? [Multiple answers possible]

- a) It will give a clear signal that the EU economy will embrace sustainable production and consumption models (e.g. circular and sharing economy approach).
- b) It will create green and high added-value jobs, including those that are difficult to outsource outside the EU (e.g. maintenance of renewable energy installations, construction and renovation, bioeconomy).
- c) It will help mitigate costs to societies who are likely to suffer from climate change (e.g. from extreme weather events, droughts or loss of ecosystems).
- d) It will help individuals and businesses lower their energy and climate bills.
- e) It will reinforce EU leadership and inspire action to combat climate change globally.
- f) It will simultaneously address the climate and the biodiversity crises.
- g) It will improve the competitiveness of the European economy and give EU industry a first-mover advantage on global markets.
- h) It will ensure that we do our part in protecting the planet and fulfilling our duty towards future generations.
- i) It will improve our well-being (by lowering pollution, improving health and creating more liveable cities) and help protect the planet's ecosystems.
- j) It will improve energy security, reduce the EU's dependency on imported fossil fuels and reduce exposure to volatility in fossil fuel prices.

**Choice: a), b) e), h), i), j).**

This question is highly subjective, and the choice is subject to interpretation. Our selection is based on concrete opportunities of implementing a 2040 target rather than desirable outcomes:

- 1) Credibility [(a), (e)]: Becoming the 1<sup>st</sup> economy to decarbonise and "leading by example", EU gives a credible message for other economies to follow a similar decarbonisation path.
- 2) Competitiveness [(j)]:
  - Being the 1<sup>st</sup> economy to decarbonise, 2040 target will make the EU the 1<sup>st</sup> economy worldwide benefitting from the development of low and zero carbon technologies. The EU can become an exporter of clean technology and a leader in international markets.
  - A higher penetration of renewables "made in Europe" will also reduce energy dependency and energy cost. This must be considered cautiously; the EU could also become a net importer of carbon free energy to satisfy its energy demand.
- 3) Climate achievement [(b), (e), (h), (i)]: As a consequence of the EU climate action, the EU will set the conditions for a clean planet for future generations.

## 5. Challenges and enabling actions for the EU climate ambition to 2040 and beyond.

How important do you consider the different challenges and associated enabling factors listed below for the EU to reach its climate ambition? Please rate them from 1 = very unimportant to 5 = very important.

|    |                                                                                                                                                                                           | 1 (very unimportant)  | 2                     | 3                     | 4                                | 5 (very important)               | I don't know          |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|----------------------------------|-----------------------|
| a) | Capturing CO <sub>2</sub> from the atmosphere and storing through nature-based and industry-based solutions is vital for the EU's climate neutrality. It should be financially supported. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/> |
| b) | Monitoring and reporting on the evolution of GHG emissions and climate impacts is crucial. EU space data and services should be further used to do this.                                  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/> |

|    |                                                                                                                                                                                                                                                                                |                       |                                  |                                  |                                  |                                  |                                  |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| c) | New technologies and solutions need to emerge and be deployed (e.g. clean fuels), which will require more research, development and innovation.                                                                                                                                | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            |
| d) | Further improvements in energy efficiency are necessary. The EU should promote the smarter and more efficient use of energy and resources.                                                                                                                                     | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            |
| e) | Public support is critical for climate ambition, which will require behavioural and societal changes. This needs to be reflected in policies, for instance on reusing and recycling and a fair transition.                                                                     | <input type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| f) | There is a risk of new dependencies on resources and raw materials. Action should be taken to secure supply and ensure sustainable use of these resources.                                                                                                                     | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            |
| g) | A faster expansion of renewable energies is needed. This will be supported by more ambitious EU and Member State legislation to further cut GHG emissions.                                                                                                                     | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| h) | Small and medium enterprises will need support to develop and adapt as part of the transition.                                                                                                                                                                                 | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| i) | The climate transition will require a shift in investment flows. It is very important to promote green financing to ensure that resources are appropriately allocated to climate-friendly economic activities.                                                                 | <input type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| j) | Vulnerable households (such as single parents) may struggle with increasing energy prices and face an unequal burden of climate change. A socially just transition is key and should be ensured through mechanisms to support middle- and lower-income households financially. | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| k) | Older infrastructure may lock people into carbon-intensive consumption patterns. Promoting and deploying digital solutions such as smart meters or digital-enabled mobility solutions on a large scale can help reduce GHG emissions.                                          | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> |

## Potential choice (see table)

- CCS should be financially supported as they are a fundamental technology for decarbonise carbon-intensive industries and also in the view of creating the infrastructure and the right set of skills among the labour force for generating negative removals in the future.
- MRV is important to measure the effectiveness of climate policy and to see if we are on the right track.
- The deployment of low carbon technologies is incipient. More R+D is necessary to support front-runners.
- Access to affordable energy, and an efficient use of scarce energy is key to enable green transition.
- Public Support is important but radical changes in lifestyles should be enforced.
- Facility to access raw materials in international and domestic markets is important, notably considering the EU's dependency on imported critical raw materials. Raw materials are crucial to Europe's economy to form a strong industrial base.

- g. Whether there is no doubt that EU needs a higher penetration of renewables in the energy mix, a higher ambition goal that what it is feasible to assimilate by EU industry may undermine stability and climate adaptation.
- h. Small and medium enterprises will need support to adapt, but also big enterprises.
- i. Green financing is important, but criteria may oversimplify investment judgments and business decisions. Priority now should be to support organisations in their implementation efforts,
- j. Socially fair just transition is required but not sure that direct payments will contribute to this goal. Other policies (i.e., competitive business environment) could be more effective.
- k. It is unclear to ERCST what is meant by “digital-enabled mobility solutions”.

## 6. Scope and role of EU-wide carbon pricing instruments

|    |                                                                                                                                                                                                                                                                                                                                                                                                                  | 1 (totally disagree)  | 2                     | 3                                | 4                                | 5 (totally agree)                | I don't know          |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|----------------------------------|----------------------------------|----------------------------------|-----------------------|
| a) | EU emissions trading should also cover GHG emissions from other sectors (e.g. extractive industries or the land sector).                                                                                                                                                                                                                                                                                         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/> |
| b) | Options to link the EU ETS with other compliance carbon markets should be pursued, provided that the environmental integrity, potential cost-efficiency gains and more options for emissions abatement are carefully assessed.                                                                                                                                                                                   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/> |
| c) | EU emissions trading should also cover all non-CO <sub>2</sub> GHG emissions from the use of fossil fuels and industrial processes, not only CO <sub>2</sub> emissions.                                                                                                                                                                                                                                          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/> |
| d) | EU emissions trading maintains the obligation to surrender allowances for emissions that are captured and utilised (Carbon Capture Utilisation, 'CCU') in non-permanent products. This aspect of emissions trading should be adapted for sectors with hard to abate, residual emissions and for sectors that require a carbon feedstock (e.g. chemicals, pulp and paper) in order to promote carbon circularity. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/> |
| e) | EU emissions trading should cover all fossil fuel uses, including those that are so far not or not entirely covered, e.g. in the non-road transport sector.                                                                                                                                                                                                                                                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/> |

### Potential choice (see table)

- a. While agriculture is responsible for 13% of EU's GHG<sup>2</sup>, emissions have not decreased since 2010. Following the example of the EU ETS, emission trading to agriculture could provide the right incentives to decarbonise.
- b. The EU should look for international linkage to promote its climate policy. EU ETS link with Swiss ETS in 2020 provides a good example to start with. Any extension of the EU ETS should be done cautiously and with a good, based knowledge avoiding negative and unexpected consequences for the EU.
- c. Currently the EU ETS not only covers CO<sub>2</sub> emissions, but also nitrous oxide (N<sub>2</sub>O) and perfluorocarbons (PFCs).
- d. The certification of removals needs to be reliable, affordable, easily accessible and consistent to prevent the EU ETS being jeopardised. Also, accountability, transparency and

<sup>2</sup> ECA (2021). Common Agricultural Policy and climate. Special Report. Pp.6. Available at: [https://op.europa.eu/webpub/eca/special-reports/cap-and-climate-16-2021/en/#:~:text=The%20CAP%20mostly%20finances%20measures,\(20%20%25%20of%20emissions\).](https://op.europa.eu/webpub/eca/special-reports/cap-and-climate-16-2021/en/#:~:text=The%20CAP%20mostly%20finances%20measures,(20%20%25%20of%20emissions).) (Accessed on 19 June 2023).

environmental integrity across the whole value chain are key.

- e. ETS has been demonstrated to be the most effective tool to decarbonise GHGs, notwithstanding, data accounting is an issue and coverage should be done in a progressive way.

## 7. Future role of the carbon border adjustment mechanism (CBAM)

|    |                                                                                                                                             | 1 (totally disagree)  | 2                                | 3                     | 4                                | 5 (totally agree)     | I don't know                     |
|----|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------|-----------------------|----------------------------------|-----------------------|----------------------------------|
| a) | Any extension of CBAM to all ETS products, which will replace free allocation, should be done progressively and prioritise certain sectors. | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/> | <input checked="" type="radio"/> |
| b) | Priority should be given to sectors where absolute emissions are the highest.                                                               | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/>            |
| c) | Priority should be given to sectors where the emission reduction efforts are the lowest.                                                    | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/> | <input type="radio"/>            |

### Potential choice (see table)

- a. CBAM is a new instrument and has not been tested yet. In addition, this question is misleading/wrong as not all products covered by the EU ETS are covered by the carbon leakage list, thus not all ETS products are entitled to receive free allocation.
- b. and c. Priority should be given to those sectors which are at most risk of carbon leakage but (b) is a more logical choice than (c).

## 8. The role of carbon pricing and non-carbon pricing instruments for agricultural emissions and land-based removals

|    |                                                                                                                                                                                                                                            | 1 (totally disagree)  | 2                     | 3                     | 4                     | 5 (totally agree)                | I don't know          |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------------------|-----------------------|
| a) | Non-regulatory approaches such as better information on the climate impact of food and support to innovation, combined with consumers' higher demand for climate action, will be enough to drive the transformation of the farming sector. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/> |
| b) | A carbon price on agricultural emissions, coupled with payments for carbon removals, will provide farm-level incentives to move to sustainable farming practices.                                                                          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| c) | Unsustainable farming practices should be ruled out by ambitious sectoral standards that make sustainable farming practices the new standard.                                                                                              | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/> |
| d) | Emission reductions and carbon removals in the agricultural sector should be covered by national targets and achieved through, inter alia, the EU common agricultural policy (CAP).                                                        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/> |

### Potential choice (see table)

- a. non-regulatory approaches could not be enough to incentivise climate action.
- b. While Common Agricultural Policy (CAP) and LULUCF are not delivering emissions reductions, emissions in the EU could fall by 21 % if roughly half of direct payments under CAP were paid to farmers in return for GHGs emission reductions<sup>3</sup>. Currently, the "polluter pays" principle does not apply to emissions from agriculture. The EU should at least assess the potential to apply emission trading to emissions from agricultural activities, and reward farmers for long-term carbon removals.

<sup>3</sup> Himics, M. et al. (2020): Setting Climate Action as the Priority for the Common Agricultural Policy: A Simulation Experiment, pp. 58-60.

- c. Agriculture is a sector exposed to public opinion with a potential impact on vulnerable households and final consumers. Sectoral standards and enforcement practices could be perceived as an additional burden to farmers rather than setting the right incentives.
- d. Neither the CPA nor the Effort Sharing Regulation (ESR) – national targets – have contributed to reduce emissions in the agricultural sector.

## 9. Barriers to carbon capture and storage technologies.

|    |                                             | 1 (minor)             | 2                     | 3                     | 4                     | 5 (major)                        | I don't know          |
|----|---------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------------------|-----------------------|
| a) | Public acceptance                           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| b) | Regulatory framework                        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| c) | Technology maturity                         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| d) | Cost of CO <sub>2</sub> capture technology  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| e) | CO <sub>2</sub> storage availability        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| f) | Economic signals (e.g. the price of carbon) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

### Potential choice (see table)

5 (Major) - We cannot achieve climate neutrality without considering all options in the table, including CCS. Today, all of them are major barriers to the deployment of CCS.

The lack of uptake of CCS, if compounded with lack of dedicated energy infrastructure (availability) and markets (cost), negatively affect the pathway to climate neutrality, especially for these sectors with a limited number of decarbonisation options available.

## 10. Carbon capture and use or storage.

|    |                                                                                                                                                                  | 1 (lower priority)    | 2                     | 3                     | 4                     | 5 (higher priority)              | I don't know                     |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------------------|----------------------------------|
| a) | Capture of CO <sub>2</sub> from the combustion of fossil-fuel.                                                                                                   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            |
| b) | Capture of CO <sub>2</sub> from non-energy related industrial processes CO <sub>2</sub> emissions.                                                               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            |
| c) | Capture of CO <sub>2</sub> from the combustion of biomass.                                                                                                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            |
| d) | Capture of CO <sub>2</sub> directly from the air (direct air capture).                                                                                           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            |
| e) | Permanent storage of captured CO <sub>2</sub> in underground geological formations to avoid emissions (fossil CCS) or generate negative emissions (BECCS/DACCS). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            |
| f) | The use of captured CO <sub>2</sub> in fuels and products to replace virgin fossil carbon.                                                                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            |
| g) | The co-production of clean gas and biochar through the treatment of biomass in an approach combining the use and storage of biogenic carbon.                     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> |

### Potential choice (see table)

- a. In the short- and medium-run, fossil fuel will still play a key role for retrofitting existing plant since complete phase out of fossil fuel is not possible in such a timeframe for many reasons, *inter alia*, lack of alternative technologies and resources and for energy security reasons. To achieve net zero, CCS becomes key.
- b. Carbon capture and storage is an option to reduce emissions of industries which have high process-related GHG emissions<sup>4</sup>. This is especially relevant for unavoidable process emissions.

<sup>4</sup> European Commission SWD (2020) 176 final. Pp. 213.

- c. CO<sub>2</sub> from biomass is not fossil fuel based, with a warming potential to accomplish carbon neutrality. CO<sub>2</sub> from biomass should be captured to enhance EU climate ambitions.
- d. BECCS and DACS are expensive and not deployed on a large scale, but with a large development potential, while the risk of re-emissions of carbon are low<sup>5</sup>. EU should provide a higher priority for its development and simply access to finance.
- e. Same as d.
- f. Ideally, in the long term CCU in non-permanent products, including the use of capture CO<sub>2</sub> in fuels and products, should be covered in EU climate regulation. Beforehand, the certification of removals needs to be reliable, affordable, easily accessible and consistent with other measures that are already in place. Accountability of CO<sub>2</sub>, transparency and environmental integrity across the whole value chain are key.
- g. Biochar is still important as a carbon sequestration method, but it poses several potential hazards<sup>6</sup>, such as contamination of soil and water, which require further studies.

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<sup>5</sup> European Commission SWD (2022) 378 final. Pp. 9.

<sup>6</sup> Xiang, Ling, Shaoheng Liu, Shujing Ye, Hailan Yang, Biao Song, Fanzhi Qin, Maocai Shen, Chang Tan, Guangming Zeng, and Xiaofei Tan. "Potential hazards of biochar: The negative environmental impacts of biochar applications." *Journal of Hazardous Materials* 420 (2021): 126611.