Response to the consultation on

"Future climate and energy policy a Strategy for long-term EU greenhouse gas emissions reduction"

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Glass for Europe is a registered organization on the European Commission's register of interest representatives under the ID number 15997912445-80.

Glass for Europe *is the trade association for Europe's flat glass sector. Flat glass is the material that goes into a variety of end products, primarily in windows and facades for buildings, windscreens and windows for automotive and transport as well as solar energy equipment, furniture and appliances.*

Glass for Europe brings together multinational firms and thousands of SMEs across Europe, to represent the entire building glass value-chain. It is composed of flat glass manufacturers, AGC Glass Europe, Guardian, NSG-Group, Saint-Gobain Glass Industry and Sisecam-Trakya Cam, and works in association with national partners gathering thousands of building glass processors and transformers all over Europe.

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Long term greenhouse gas emissions reductions

To achieve its temperature objectives, the Paris Agreement also includes a long term ambition to achieve a balance between emissions and removals of greenhouse gases by human activities in the second half of this century.

In your opinion, what are the biggest opportunities and challenges

The EU needs to make what is necessary to comply with the Paris agreement and any other future commitment that would require to further adapt its emissions. Beyond, the objective, it is the approach the EU will take which will define if the transition to a low-carbon economy benefits the environment, the society and its economy.

To our views, the future long-term strategy must be based on a holistic approach to find the equilibrium in policies

The building and the automotive sectors are driving sectors of the economy and present the highest GHG reduction potential. They provide markets for low-carbon products, jobs, etc. and should therefore be clearly prioritised by defining for them highly ambitious targets.

The challenges ahead are multiple and include (non-exhaustively) adapting the infrastructure and the regulatory framework, and how to make climate investments attractive at all levels (from the manufacturing of low-CO2 goods to their affordability for the consumers).

Employment and a socially fair transition

In the coming decades, the transition to a low carbon economy will impact even more how we work and how we produce goods and services. Which statements below correspond in your opinion to the impact of climate change and the low carbon transition in your working environment?

Do you expect your company to create or reduce jobs due to the low-carbon transition?

Create

What could affect your job most in the future?

The low carbon transition

Do you think you or the sector you are active in would benefit from training of staff in the context of the energy and low carbon economy transformation?

Yes

The impact of the low carbon transition on your sector

Do you consider the low carbon transition as an opportunity or as a challenge for your sector?

Both

Indicate by how much your sector could reduce greenhouse gas emissions by 2050 compared to today?

No opinion / I do not know

What would be the preferred route to reduce these emissions in your sector

Other

These technologies (in addition to CCU/CCS) require massive R&D efforts thus our industry cannot predict if and when they will be available for deployment, nor the one that will prevail (if any)

Will you (or your sector) invest in new low-carbon technologies?

Yes, as a priority

Do you think your sector could be further integrated with others so as to decrease emissions while increasing overall efficiency?

Yes

Do you think the low carbon transition will lead the EU economy to:

No opinion / I do not know

Do you think the low carbon transition can help the EU industry modernise and grow?

Yes

How can opportunities and challenges (in particular related to carbon intensive sectors or regions) be addressed? What key economic transformations should the EU pursue to achieve a low carbon and resilient economy?

The EU flat glass industry is illustrative of the challenges ahead while defining the long-term strategy.

On the one hand, the sector is an energy intensive industry emitting below 0.5% of the total industry GHG. On the other hand, savings made possible by flat glass products in the building and automotive sectors largely outweigh the emissions generated for their production. It is therefore critical to maintain production in Europe to make the transition possible.

Regulatory instruments are essential for the development and marketing of more efficient products, and for their uptake by the consumers (e.g. by way of requirements/standards and financial incentives).

To reduce manufacturing emissions, the industry needs a supportive and stable regulatory framework which includes (non-exhaustively) tools to support the development and deployment of low-CO2 technologies, the deployment of adequate (electricity) infrastructures, and ways to address the CAPEX and OPEX challenges..

Energy

The energy system today is responsible for ca. 75% of the EU's greenhouse gases emissions and undergoes a rapid transition due to e.g. cost reduction of renewables, improvements of energy-efficiency and rapid development of new technologies (e.g. batteries) driven i.a. by policies put forward by the EU and its Member States. Accelerating this change will play a central role in the transition of our economy towards a carbon-neutral economy.

In the following table listing different energy technologies, please rank each option in the table below from 1 (important) to 5 (not important) on what role you think they will play in the clean energy transition (not all options need to be ranked)?

Energy efficiency reducing the need to produce energy	1	2	3	4	**5**

What are the biggest opportunities, including for the wider economy? What are the biggest challenges, including as regards public acceptance or the availability of land and natural resources, related to these future developments?

Leaving the debate on energy sources and storage capacity aside, it stands clear that the future long-term strategy must fully integrate the energy efficiency first principle. If the EU does not moderate its energy demand, the adaptations to the infrastructures will be too important to deliver the commitment made in Paris and/or will make the energy price unbearable for the citizens and the business community.

To Glass for Europe's views, one of the main challenges related to the energy efficiency and the long-term strategy is to secure that the energy efficient products made in the European Union are affordable for the consumers. Otherwise, the risk exists that their uptake will be prevented and energy poverty increased, market and jobs will be lost for products made outside Europe, and the public will not embrace the transition.

To address this risk, the EU needs to make its low-carbon transition attractive economically:

1. *for investments in the development and manufacturing of energy efficient products (by addressing the CAPEX and OPEX challenges the strategy could cause)*
2. *for the uptake of the energy efficient/low-carbon products (by providing/allowing financial incentives, guiding consumers, phasing out inefficient products, etc.)*

Education, research and innovation

Considering the long time frame of the strategy, and the inherent magnitude of the decarbonisation transition, the central role of accelerating research and innovation for facilitating this transition will be crucial.

On which sectors should R&D efforts focus primarily in the coming decade to best support the low carbon transition?

Energy

Industrial processes

Transport

On which cross-sectoral domains should R&D efforts focus in the coming decades? Is there a particular need for large scale deployment of certain innovative technologies? Is there a different role for authorities and private sector in support R&D and Innovation?

To Glass for Europe's views, both public and private efforts are needed in the coming decades on four concrete cross-sectoral innovative technologies:

1) *The electrification of largest-size furnaces with melting temperature above 1000°C*
2) *R&D in process emissions which account for approximately 20% of our total emission and cannot be reduced by an energy switch solely*
3) *R&D in heat transfer for large-size furnaces and for alternative low-carbon fuels*
4) *R&D to make carbon capture and storage (CCS), and carbon and capture utilization (CCU) attractive*

Beyond the research and development efforts for these innovative technologies, it should be noted that their deployment would require to adapt the existing regulatory framework and substantial public

investments in the infrastructures to secure: 1°) Access to competitively priced, abundant and reliable low-CO2 energy sources; 2°) The necessary infrastructures for hydrogen and CCS/CCU.

Financing

In many cases, the low carbon economy and energy transition needs high upfront investments with subsequent reductions in operating and fuel costs. In addition, this transition as well as climate change itself will most likely affect the value of existing investments and assets of companies. Finally, to achieve the transition efficiently, the viability and profitability of investments need to be ensured on the long-term. Most of these investments will have to be funded via private finance.

Will the sector that you are active in require significant additional investment in the context of a transition to a low carbon economy?

Yes

For the sector that you are active in, is there a financing gap for making the transition to a low carbon economy?

Yes

Should public sector be more involved in ensuring adequate financing for the low carbon transition?

Yes, through measures ensuring more low cost finance for sustainable investments

Would you consider that, in your sector, companies are sufficiently transparent about the financial risks they face due to climate change and the low carbon economy and energy transition?

Yes

Meta trends

Do you think the following trends are important to reduce greenhouse gas emissions.

Economic transition towards a more circular economy?

Positive

Actors

Local authorities such as cities and local communities, as well as other actors such as civil society and the private sector, can play an important role in achieving the energy transformation, reducing greenhouse gas emissions and adapting to climate change. Indeed thousands of cities, companies and citizens' organisations are implementing the low carbon economy and energy transition through projects covering energy, transport, food and waste management, often achieving important local co-benefits related to economic development, health and wellbeing.

Which of these non-state actors do you think will impact most your or your sector's contribution to delivering the EU's ambition to become a low carbon economy?

Towns and cities

Do you have an example that you think is of particular importance to underline the role of such local and private sector actors in supporting the low carbon economy and energy transition?

Towns and cities are responsible for a number of policies that can help reduce the sector's manufacturing processes emissions, and contribute to the uptake of energy efficient building products.

Regarding the manufacturing side, the use of recycled building glass (cullet) in the furnace results in an energy savings of 2 to 3% in the melting process and 1 tonne of cullet replaces approximately 1.2 tonnes of raw materials. To make more cullet available, towns and cities can take concrete actions such as providing free access to container parks to window installers for depositing end-of-life building glass equipped with specific containers.

Regarding the products side, building codes should promote minimum glazing area in new constructions to maximise solar energy gains and make the building stock more energy efficient. Another example of direct public action is the energy efficient renovation programmes for public housings and public buildings which should aim at promoting NZEB.

Reducing industrial greenhouse emissions

Industry has a diverse set of greenhouse gas emissions sources, the majority are linked to energy consumption but also a significant amount of emissions comes from chemical processes, for instance in the steel, cement and chemical sectors.

Industry has a number of mitigation options to reduce its greenhouse gas emissions. These typically involve improved efficiency (e.g. using more efficient products and technologies, reusing waste heat, etc.) and fuel substitution (e.g. electrification of its processes). But it also includes feedstock substitution, be it with bio-material or by employing Carbon Capture and Utilisation (CCU) technologies that see CO2 emissions being re-used in other production processes. These technologies also often benefit from further integration of energy and industrial sectors.

Please indicate for which sector you see any of the above or other mitigation options of particular importance. Please indicate what your view is in terms of mitigation potential, economic potential and technology readiness. Assess each option as High, Medium, Low or Zero for each criterion and indicate in which year you think the technology would be ready for large scale deployment.

	Industrial Sector	Technology option	Mitigation potential	Economic viability	Technology readiness	Year of large scale deployment
1	Float glass	Electric melting	high	Low	medium	
2	Float glass	Recycled glass	low	Medium	high	Ongoing
3	Float glass	Batch pelletising	low	low	high	
4	Float glass	Pre-heating	medium	Medium	high	
5	Float glass	Bio-gas	High	Low	medium	
6	Float glass	CCS/CCU	high	low	low	

Role of CO2 removal

The objectives of the Paris Agreement are challenging and many scientists consider that it will be necessary at a certain point to remove a significant amount of CO2 from the atmosphere in order to stay below 2°C and certainly in case the temperature increase should be limited to 1.5°C. There are a limited number of options to remove CO2 from the atmosphere.

The removal of CO2 can be accomplished by 1) capturing CO2 via natural photosynthesis or artificial chemical processes, and then 2) storing CO2 in long term geological sites or within biomass and (bio)materials.

Rank from 1 (important) to 5 (not important) on what role you think this removal and storage options can have in the EU to deliver negative emissions taking into account issues such as economic and technical feasibility, storage potential, environmental integrity and social acceptance.

What main barriers do you see currently preventing the large scale deployment of CCS, including on how to use it to generate negative emissions? What are the particular challenges related to biomass CCS? What type of CCU (Carbon Capture and Utilization) would lend itself to create long term storage? Are there other technologies that should also be considered? What policies do you think the EU should pursue to better help development and deployment?

Without entering into the different options for CO2 removal, one important barrier that can be identified is regulatory. Under the current EU ETS Directive and the revised Directive that will apply for the IV Period, CCU is not sufficiently incentivised. For instance, an operator capturing CO2 for its later utilisation, i.e. CCU, cannot deduct the captured CO2 from its total emissions in the EU ETS system. Although the revised ETS directive includes a positive declaration of intention on CCU in its recital 14, more elaborated rules remain to be established. To Glass for Europe's views, it would be a missed opportunity not to make use of the ETS system to increase the attractiveness of CCU solutions or their development.

Additional Comments

If you wish to add further information, comments or suggestions - within the scope of this questionnaire - please feel free to do so here:

The flat glass industry is making products available which, throughout their lifetime, contribute to saving more CO2 in buildings and automotive than is emitted for their manufacturing. Yet, the sector takes it as its duty to reduce emissions from its manufacturing.

The flat glass sector requires the highest melting temperature and levels of quality, which renders electrification and use of recycled glass challenging. At the same time, incremental improvements to glass furnace technologies alone will not generate massive emission reductions. Our industry is able to identify the cross-sectoral technologies that could possibly generate bigger emission reduction (see ad-hoc section). These technologies require massive R&D efforts thus our industry cannot predict if and when they will be available for deployment, nor the one that will eventually prevail (if any). Before any consideration on economic viability, the gap is technological and public support to R&D is needed.

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