

Sustainability in the flat glass sector

Eco-design for Sustainable Product Regulation (ESPR) and flat glass products

The Eco-design for Sustainable Products Regulation (ESPR)¹ has been conceived by the European Commission as an instrument to support Europe's move towards carbon-neutrality by 2050. It proposes to regulate product design, manufacturing, and recycling to reduce products' environmental impacts.

The flat glass sector is committed to maximising its contributions to the EU's climate neutrality objective as laid out in the Glass for Europe 2050 vision². Seeking constant improvements to the sustainability of flat glass products is an essential element of the sector's present and future development efforts.

In this paper Glass for Europe would like to share some reflections on the proposed ESPR and the prioritization of product categories for the development of first eco-design measures.

Sustainability and eco-design considerations in the flat glass industry

Across all the sectors it serves, be it glass incorporated in buildings, vehicles, photovoltaic systems, electronics and appliances, furniture, etc. – **flat glass products are constantly developed with eco-design considerations in mind to deliver on all aspects of sustainability**. For instance:

- Building glass and automotive glass are optimized to deliver maximum energy-efficiency to buildings and cars throughout their lifetimes and thus to minimize related CO₂ emissions from buildings and road transport³. These energy-saving characteristics of flat glass products are key market differentiation factors, hence constant developments, and improvements.
- Guaranteeing high levels of safety, security, and durability of products is of paramount importance in the same two sectors. In road transport, numerous international standards apply to glass products to ensure road safety. In the building sector, where glazing stays on average for over 50 years in a building, durability is a key characteristic of glazing and safety is regulated at national level.
- Maximizing green electricity generation and durability are key drivers in the photovoltaic industry and glass plays a key role in fulfilling these two functions.
- Most flat glass products are already 'designed for dismantling' to facilitate their removal from building and collection at the end of life. The proper collection and sorting of glass at time of retrofitting of buildings remains an issue today for high-quality glass cullet to be diverted to a recycling stream⁴.
- Sustainability considerations are equally predominant in flat glass manufacturing. For instance, the industry has already succeeded in cutting its CO₂ emissions per tonne of melted glass by 43% since 1990. The sector is actively working on decreasing emissions further, notably by switching to renewable energy sources and by increasing the use of more recycled content instead of virgin raw materials⁵. The use of recycled glass and non-carbonated raw materials helps save CO₂ emissions as well as reduce the consumption of virgin raw materials. The industrial high-purity sand needed in

¹ Proposal for a Regulation establishing a framework for ESPR – COM (2022) 142 final – March 2022 – [Hyperlink](#).

² Glass for Europe - '2050 | Flat glass in a climate neutral economy' – 2020 – [Hyperlink](#).

³ Glass for Europe – 'Glazing Potential | Energy savings & CO₂ emission reduction' – 2019 – [Hyperlink](#).

⁴ Glass for Europe – 'Recycling of end-of-life building glass' – 2013 – [Hyperlink](#).

⁵ Glass for Europe - '2050 | Flat glass in a climate neutral economy' – 2020 – [Hyperlink](#).



glass manufacturing is mostly extracted in Europe in regulated quarries. It is not the same type of sand as the one whose illegal and unsustainable extraction is witnessed in Asia and Africa⁶.

A sector already highly regulated, from manufacturing, product design to end-of-life

The drive for constantly improved product design to enhance sustainability is already paramount in the flat glass sector. In addition, **a wealth of regulations already covers nearly all relevant sustainability aspects of flat glass products**. It is therefore hard to foresee which added value could bring potential additional ESPR measures.

For instance, glass manufacturing is covered by the EU ETS, the Industrial Emissions Directive, the Energy Efficiency Directive, and REACH, among other legislations. At their end-of-life, products are regulated by the Waste Framework Directive and the End-of-Life of Vehicles Directive. Besides, building glass is subjected to the Construction Products Regulation which will contain sustainability provisions in its next iteration. The Energy Performance of Buildings Directive also imposes minimum energy performance requirements and incentivizes the use of efficient glazing. The EU Taxonomy framework also incentivizes sustainability practices with existing and future criteria on the manufacture of components for energy efficient windows and on energy performance and circularity in building construction, renovation, and demolition. Beyond EU regulation, building glass is ruled by CEN and ISO standards which address quality, safety, and sustainability-related aspects, while UNECE regulations apply to automotive glazing safety.

Identifying and targeting ESPR measures adequately

As of today, ESPR-related works have approached glass as a unique “intermediate product”, i.e. all types of glass from fibers to containers, glazing, etc.⁷ serving different sectors. **Such a wide product group is not targeted enough** to identify consistent gaps across the group that eco-design measures could adequately address.

An end-product specific approach was already investigated by way of an eco-design preparatory study on windows⁸ - *to which building glass is the main component* – in 2015. It concluded that **eco-design requirements for this product group were ‘not recommended’**, be it generic measures or measures on energy-performance or resource efficiency.

There may be sustainability practices and products, which in the absence of specific regulatory interventions, are not picked up by markets. For instance, the use of advanced solar control glazing in the automotive sector is poor despite its proven environmental benefits⁹. Whether or not this can be addressed by eco-design requirements at vehicle level could be assessed.

In conclusion, Glass for Europe supports the objective of the proposed Eco-Design for Sustainable Product Regulation, yet our sector does not identify any sustainability-related market failure nor regulatory gap, to be addressed by generic ESPR measures. In any case, ESPR measures should not be defined for the intermediary product group ‘glass’, which is too broad to be meaningful.

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.

⁶ Glass for Europe – ‘From sand to flat glass Sustainable sourcing of high-quality sand for industrial use’ – 2020 – [Hyperlink](#).

⁷ Joint Research Centre – ‘ESPR preliminary study on new product group categories’ – 2023 – [Hyperlink](#).

⁸ VHK & Ift Rosenheim – ‘Lot 32 Eco-design of window products preparatory study’ – 2015 – [Hyperlink](#).

⁹ Glass for Europe – ‘Advanced glazing systems to curb air-conditioning energy consumption’ - 2023 – [Hyperlink](#).

