

# Glass – Doing more with less

## Authors

First Name: Graham  
Last Name: Coult  
Organization: Eckersley O'Callaghan  
Country: UK  
Email: [graham@eocengineers.com](mailto:graham@eocengineers.com)

First Name: Stéphanie  
Last Name: Le Rhun  
Organization: Eckersley O'Callaghan  
Country: France  
Email: [stephany@eocengineers.com](mailto:stephany@eocengineers.com)

First Name: Rebecca  
Last Name: Hartwell  
Organization: Eckersley O'Callaghan  
Country: UK  
Email: [Rebecca.hartwell@eocengineers.com](mailto:Rebecca.hartwell@eocengineers.com)

## Extended abstract

Consultants have been able to signal their support for the Climate Emergency through institutional bodies such as the Institute of Structural Engineers and collectives such as Architects Declare. With over 1500 signatory companies there is a groundswell of support and willingness to adapt and change. On a national and international scale, the transition to net-zero requires a fundamental shift of energy generation and this will take time to develop and deploy. There are more pragmatic steps that we can individually take as well as actions we can make together. It is well understood that end-of-life (EOL) soda lime glass can be returned to the furnace to reduce emissions from the production of new material, yet so little of this is happening from the demolition and renovation of buildings. We need to take responsibility for changing within our sphere of influence, but also to effect larger change, and collaborate to help the wider glass industry change for the greater benefit of all. Collaboration needs to take place both horizontally and vertically in the supply chain.

Previous research (Coult, G., & Hartwell, R. (2022). Achieving a virtuous circle: Driving circularity in the glass industry. Intelligent Glass Solutions ) has explored the structure of the soda lime glass market in detail, and it showed that it is complex and entwined with other industries.

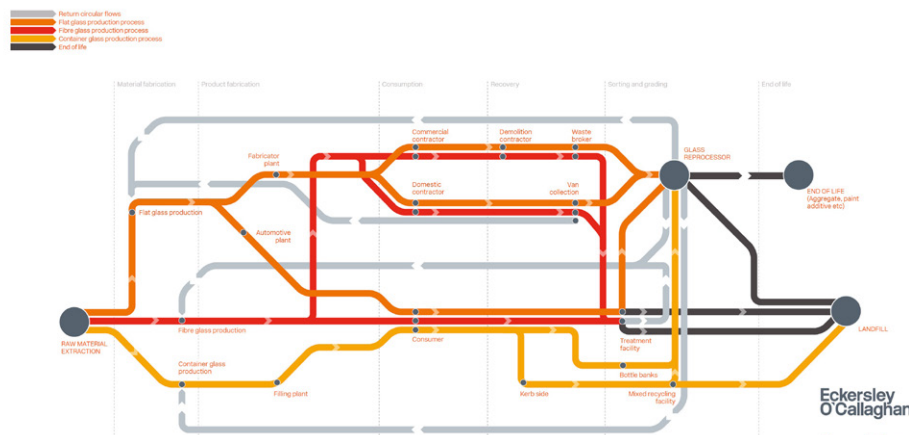


Figure 1 - Sodalime glass market in UK - Coult, G., & Hartwell, R. (2022). Achieving a virtuous circle: Driving circularity in the glass industry. Intelligent Glass Solutions.

This has given cause for concern that a great effort from the Architectural flat glass sector may not necessarily directly benefit cullet supply. The twin aims of maintaining the quality of the glass for as long as possible and to realise the maximum carbon savings will at times be in conflict. To help illustrate this, it is important to understand that the demand for flat glass cullet extends beyond Flat Glass manufacturers, and this is particularly competitive in the UK where the demand in the container glass market is larger. Some countries have made great developments in architectural glass recovery, such as the Netherlands but in the UK the development needs considerable impetus and, no doubt, investment. This is not uncommon and while this article is focused largely on the UK it is believed that the problems, analysis, and actions described within will be applicable in one form or another to national markets worldwide.

Options will be considered to increase the performance of the glass related to embodied carbon, to achieve more with less. If a product can be used for longer, then the embodied carbon is maintained in the operational lifecycle, but as some point its reduction in performance will warrant its reconditioning or recycling into a new product. It is important to acknowledge that embodied carbon is only one measure of sustainability, the production cycle includes emissions of gasses and water. However, that is beyond the scope of this paper. A review of glass cullet recovery and other sustainability actions across Europe will provide exemplar success stories and what can be learned from them. This will be summarised by actions that can be used to focus future research and focus energy into particular actions. It is very much the intention that collaboration is a key message. No individual, business or sector can bring about the change that

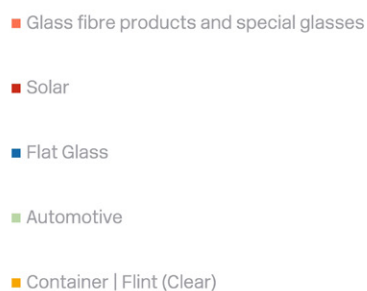


Figure 2 - Annual production of soda-lime 'clear glass' in UK.

is needed, but everyone stands to gain from moving towards sustainable practices. There is a sector of business that can grow to support the aims.

To conclude, a proposed set of actions are presented for the industry to tackle. The actions may fall on a particular sector in the supply chain, but more consistently they will require collaboration.

### Keywords

Glass, sustainability, circular economy, carbon emissions, carbon reduction,

## Sphere of Influence

Urgency and Practicality  
of working bottom-up

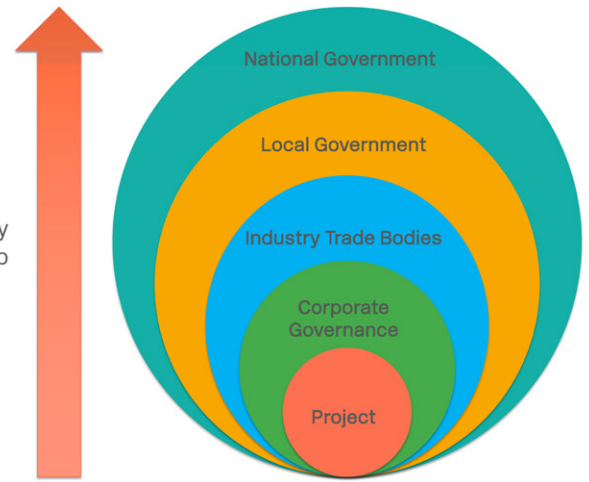


Figure 3 - Sphere of Influence.