

PlasticsEurope views on EU Climate Neutrality

PlasticsEurope acknowledges that climate protection is one of the biggest environmental challenges of our society and considers that reducing GHG emissions of all origins should be one of its key priorities to ensure a sustainable future for the next generations, in addition to ensuring prosperity, jobs and competitiveness of the European economy.

We therefore support the EU's ambition to become climate-neutral by 2050, contributing to global climate objectives of the Paris Agreement. We will work, within our own responsibilities and competencies, towards this common ambition, which will require new technologies and an enabling policy framework. PlasticsEurope members will collaborate with all relevant stakeholders to find and implement adequate solutions aimed at helping the EU reach this objective.

Our journey towards a low carbon economy

The European plastics industry's approach has since long been driven by the objective of reducing its overall environmental impact, including its GHG emissions.

In particular, the industry has continuously strived to "make more with less" namely, turning less raw materials into more products. For example, while the polypropylene production process was generating 16% material losses in 1964, such losses were reduced to only 3% in 1988 and most recently to 0.3%.

PlasticsEurope members have also strived to improve energy efficiency, notably through the increasing use of Combined Heat and Power (CHP) units, providing both electricity and heat to their production processes. One example is the significant improvement achieved by the European PVC industry, in the frame of its VinylPlus voluntary commitment, in reducing energy consumption for the production of PVC and its starting materials (EDC, VCM)¹.

Following these improvements, the GHG impact of European plastics production², from raw material extraction to resin production, can be currently estimated³ at max 140 Mt CO₂ eq., i.e. ca 3% of the total GHG European emissions (EU-27 + UK).

Our industry is taking many more actions

To accelerate the transition to EU's climate neutrality by 2050, next to enhancing energy and resource efficiency, the plastics industry is already stepping up its efforts to further reduce GHG emissions in the production phase.

Increasing the circularity of the plastics value-chain

Recycling plastic waste and using it again for plastics production as an alternative feedstock to conventional fossil resources is a key means to improve the GHG impact of plastics production. The recycling of plastics is also beneficial, in terms of CO₂ impact, compared to other end-of-life waste management options, such as incineration. Our industry is fully engaged in providing recycling solutions to its products and its contribution to the associated CO₂ savings should be acknowledged.

¹ The energy needed to produce one tonne of PVC decreased by an average of 9.5% among ECVM members from the baseline period 2007-2008 to 2015-2016. In addition, the CO₂ emissions for the average PVC production (including VCM), based on the energy demand of the respective processes, has reduced by 14,4% between the baseline period and 2015-2016

² Includes thermoplastics, polyurethanes and other plastics. Excludes elastomers, adhesives, coatings, paints and varnishes, PP-Fibers, PET-fibers, PA-fibers and Polyacryl-fibers.

³ Estimation by PlasticsEurope

Significant progress has already been made to boost the mechanical recycling of plastics, with recycled quantities of plastic waste having doubled in Europe since 2006. In addition, PlasticsEurope members are working on numerous initiatives to unleash the full potential of innovation to develop new recycling technologies (e.g. chemical recycling, dissolution)⁴ which, next to the improvement of current technologies, will further increase after proper scaling, the degree of plastics circularity.

Accelerating the use of renewable resources

The use of renewable raw materials can also be considered with a view to contribute to the realization of a low carbon circular economy, in so far as they are economically available and they are the best solutions in terms of overall positive environmental impact. For example, plastics producers already offer polymers produced from sustainably sourced renewable feedstock⁵.

Increasing the use of renewable energy and electricity

The energy needs for virgin polymer production and plastics recycling will increasingly be met by renewable energy sources, including an expected higher degree of electrification and the use of hydrogen as fuel for high temperature processes. Development of electrification of upstream stages of the polymer production, such as in the crackers, is also an important step to reduce CO₂ emissions.

Developing carbon capture and use technologies

Albeit plastics production generates limited amounts of direct CO₂ exhaust, the plastics manufacturing facilities are often embedded in bigger chemical clusters, with highly integrated energy and process streams. In this case, carbon capture can be a useful means to manage the remaining end-of-pipe CO₂ for storage and possible utilization.

Provided the adoption of an enabling policy framework, and the necessary development steps, CO₂ could also become another feedstock for plastics⁶.

The combination of all these solutions, which individually may have some limitations, alongside other innovative solutions our members are constantly working towards, will be key to successfully achieve the CO₂ emission reduction required to reach EU's climate neutrality.

An enabling framework is needed

Significant technological advances and a comprehensive and well-balanced enabling policy framework will be necessary to ensure that the transformations the industry has already embarked upon become fully effective, at a level that will be a game-changer for achieving the 2050 goal. In addition to ensuring the efficient continuation of the European Emission Trading System (ETS) which may be complemented by appropriate Carbon Border Adjustment Measures in order to avoid carbon leakage while supporting the development of low-carbon technologies, this framework should allow:

- The abundant supply of competitive renewable energy, in particular electricity
- The support to industrial development of currently emerging low-carbon technologies, through the mobilization of EU funds (EU recovery plan, ETS Innovation Fund, Horizon Europe program, etc), the establishment of Important Projects of Common European Interest (IPCEI) on low-CO₂ emissions industries and the development of relevant economic tools (such as Carbon Contract for Difference)

⁴ Industrial projects of chemical recycling of plastic waste by pyrolysis have been launched by BASF, Borealis, Dow, LyondellBasell, Repsol, Sabic, Total and Versalis (Eni). Others are developed for non-mechanical recycling of polystyrene, either through depolymerisation (by Ineos Styrolution and Trinseo) or through dissolution (by Total).

⁵ Polyolefins made from bio-based feedstock can be found in the product portfolio of Borealis, Braskem, Sabic, while bio-based PVC is offered by Inovyn and Vynova

⁶ Covestro has developed a technology enabling the production of a polyol including up to 20% of CO₂ coming from the exhaust gas stream of a chemical plant. This polyol can then be used for the production of polyurethane.

- The safeguarding of European industrial competitiveness, both on the domestic market and in export markets, as long as climate protection measures are taken at different pace across the planet
- The technological neutrality for recycling and recycled content (chemical, biologic, mechanical recycling), as well as incentives for high quality recycled content (e.g. to reduce weight in transport applications)

Use of plastic products is crucial to reduce GHG emissions

In addition to all possible improvements at production stage, PlasticsEurope strongly believes that major progress to reduce our society's GHG emissions can be achieved in the products' use-phase. Plastics, thanks to the combination of their properties (light weight, durability, flexibility, insulation properties, etc.), play indeed a major role in contributing to reducing GHG emissions in a number of highly emitting applications, such as transportation and building & construction⁷. The use of plastics in these sectors will continue to allow the production of buildings or cars with a low CO₂ footprint along their whole life-cycle, which is crucial to achieve climate neutrality. Our industry is thus committed to continuing to offer the best performing products capable of maximizing CO₂ savings during the use phase.

⁷ denkstatt study (2010), investigating the effects of a theoretical substitution of plastic products in all application sectors in Europe, showed substituting plastics would increase energy consumption in total life-cycle by 57 %, and GHG emissions by 61 %.