



# **The Plastics Industry: A strategic partner for economic recovery and sustainable growth in Europe**

Manifesto on the competitiveness of the plastics industry





# Foreword by the Presidents of EuPC and PlasticsEurope

As Presidents of the European Plastics Converters Association (EuPC) and PlasticsEurope, we are pleased to present this discussion document for policy makers on the potential of the plastics industry to contribute to economic recovery and sustainable growth in Europe.

Our industry is the legacy of brilliant scientists, visionary entrepreneurs and bold inventors. Men such as Alexander Parkes or Leo Baekeland left their footprint in History with the discovery of a material that was to radically change the face of modern industry.

The plastics industry today is a strategic pillar of the manufacturing sector in Europe – one whose competitiveness has a significant knock-on effect on other key areas of the economy.

It is an inherently innovative industry in its own right, as well as an enabler of innovation across different sectors. For example, plastics have a crucial role to play in the delivery of each of the priority areas identified by the EU's Industrial Policy Flagship Initiative: "A stronger European Industry for growth and economic recovery".

The unique characteristics of plastics also allow them to make a strong contribution to a more environmentally sustainable and resource efficient Europe. Lightweight, versatile and durable plastics contribute to energy and resource savings in strategic sectors like retail, construction, healthcare, automotive or renewable energy. Significant advances are also being made in the environmental performance of plastics in their production and end-of-life phases.

These strengths are a huge opportunity for Europe at a critical time. We firmly believe that investment in and promotion of the plastics industry can help stimulate resource efficiency, drive economic growth and create high quality employment opportunities.

However, like other manufacturing sectors, our industry is also facing a number of challenges that threaten to undermine our ability to contribute to these goals. To ensure its future contribution to European economic output, job creation and innovation, the European plastics industry needs a supportive and reliable political and legal framework.

This document – which we are sharing with policy makers at EU and national levels – offers a short overview of the role of the plastics industry in the European economy and outlines what more can be done from a policy perspective to ensure our industry can fulfil its extraordinary potential.



**Michael Kundel**

*President EuPC*



**Patrick Thomas**

*President PlasticsEurope*



# Foreword by Daniel Calleja

Director-General DG Enterprise & Industry

European Commission

Europe needs a strong industry and more investments in manufacturing. The Commission is committed to revitalising European manufacturing industries so that they can contribute to 20% of Europe's GDP up to 2020. Ensuring the competitiveness of energy intensive industries, such as plastics industries, is key and this was clearly expressed in the Communication on a European Industrial Renaissance adopted in January this year. We are very well aware of the difficult situation of energy-intensive industries in Europe, which is the combined effect of high feedstock costs, high energy prices and high regulatory burdens. To address these challenges is a key objective of European industrial policy.

The carbon leakage list 2015-2019 will remain unchanged, allowing for free allowances for carbon leakage exposed sectors. This means that energy-intensive sectors including the plastics industries will remain adequately protected. While Europe was never a cheap energy destination, it is the price gap increase compared to main competitors that necessitates an EU response.

The additional costs of producing renewable energy should be a shared responsibility by society. They costs cannot be put predominantly on the shoulders of the energy intensive industries. Otherwise we risk losing the energy intensive industries in Europe, which would also be detrimental for reducing CO<sub>2</sub> emissions worldwide, taking into account that European energy intensive industries are much more energy efficient than most of our international competitors. Not to mention growth and jobs. We are therefore putting our efforts into the revision of the Environment and Energy State aid guidelines which specify sectors that will be exempted from paying renewables surcharges.

Whilst the plastics industry will remain strongly reliant on petrochemicals-based feedstock in the next decades, there is definitely scope for increased use of renewables as feedstock. Fair and non-discriminatory access to EU generated biomass needs to be ensured by employing the cascading use principle and by facilitating imports of bioethanol, sugar, and starch from third countries at world market prices as well as by removing the still existing barriers for the production of bio-based products in Europe. The production of "green chemicals" creates ten times more employment in different industrial sectors combined than the bioenergy sector alone.

A high level of regulation and administrative burden is a matter of serious concern for the plastics industry. A cumulative cost assessment for the chemicals industry will be launched soon to analyse the direct and indirect costs of relevant EU legislation and a fitness check of the chemicals legislation will be carried out, which will identify overlaps, inconsistencies and unwanted effects. The Commission is strongly committed to cutting red tape and to reducing unnecessary

administrative costs for our industries. In this respect, the downstream implications of chemicals and waste legislation are of particular importance for the recycling of plastics.

The plastics industries also play an important role by increasing the recycling of plastics and making wider use of renewable resources. The recycling of plastics waste has increased substantially in recent years and it has proven to be an important strategy on our path to reducing dependence on fossil resources, avoiding landfill and reducing pollution of marine environments. High recycling rates have already been achieved for mono-plastics material recycling streams such as PE films and PET bottles. However, still 42% of post-consumer plastic waste is landfilled or incinerated without energy recovery and mixed plastics recycling rates are much lower than the mono-plastics streams. Interest is nevertheless rapidly growing to use novel technologies able to deal with mixed plastics recycling.

The on-going pilot project REMIX, which has been supported by the European Commission, aims to identify opportunities to increase the recycling of mixed plastics waste and intends to test at semi-industrial scale the recycling of this type of waste. We expect the REMIX project to publicise such concrete technological results throughout Europe as a model of the renaissance of the plastics industry and as a proof that recycling of mixed wastes is beneficial at the same time to industry and society.

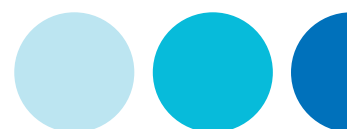


**Daniel Calleja**

*Director-General DG Enterprise & Industry  
European Commission*



*DG ENTR considers the plastics industry as a strategic sector for the creation of jobs and growth in Europe and I am sure this document will show that the plastics industry is a major contributor to Europe's 2020 challenges.*



# Introduction

**Europe is currently at a turning point, facing unprecedented global and regional challenges. The European Union has set itself the ambitious objectives of restoring competitiveness, boosting sustainable growth and innovation, and transitioning towards a low carbon economy.**

Manufacturing industries – in particular sectors relying on fossil raw materials and energy for their production such as the plastics industry – are sometimes depicted as an obstacle to achieving these goals. However, in reality, sectors like the plastics industry are an important part of the solution for both the European economy and for society at large.

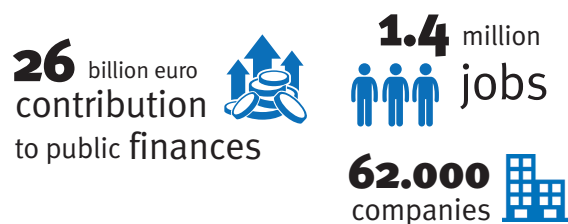




# An important source of growth and jobs

Productivity and unemployment are key challenges for the EU today. In 2013, the EU's productivity performance declined compared to the USA and unemployment continues to be an everyday reality for 11% of Europe's workforce. The extreme high unemployment rate of the younger generation in Europe and the risk of a lost generation in some of the South European countries are a major challenge to overcome. The manufacturing industry has been hit particularly hard, with 3.8 million jobs disappearing in Europe since 2008.

It is in this challenging context that the European Commission has set a target to increase the industrial share of Europe's GDP from 15.3% to 20% by 2020. The aim for a revitalised manufacturing sector is to act as an engine for growth and employment for the future.



The plastics industry is an integral part of the manufacturing sector in Europe.

In 2012, our industry in Europe accounted for:

- 62,000 companies
- 1.4 million jobs
- €26 billion annual contribution to public finances

Strengthening the competitiveness of the European plastics industry can have a significant impact on the recovery of the manufacturing sector in general. The plastics industry is uniquely positioned providing jobs all over Europe and are essential to the supply chains of a wide range of strategic areas of the economy, including health-care, energy generation, aerospace, automotive, maritime, construction, electronics and packaging. Indeed, the added value that plastics bring to other sectors is one of the most remarkable features of our industry (see box 1 below). This 'multiplier effect' demonstrates that the European plastics industry plays a strategically critical role to support a true industrial renaissance in Europe.

## The plastics multiplier effect

A study led in 2013 by leading Italian think tank The European House Ambrosetti reveals that:

- The plastics industry is one of the sectors that provides the greatest contribution to EU manufacturing
- A 10% increase in the value added to the European plastics sector could lead to a 4.4% increase in the value added to the overall EU manufacturing sector
- At a national level, taking the example of Italy:
  - Every job created in the plastics sector leads to the creation of almost 3 additional jobs in the wider economy,
  - A €100 GDP increase in the plastics supply chain generates a €238 GDP increase in the economy.

# A strategic sector for a resource efficient Europe

**“A Resource Efficient Europe” is one of the seven flagship initiatives of the Europe 2020 Strategy. It focuses on achieving sustainable growth through a resource efficient and low carbon economy. Plastic products have a crucial role to play in this regard. The use of plastics materials and products across their life cycle substantially contributes to conserving resources and reducing carbon emissions. Examples exist all around us on how plastics help address major societal challenges in different ways:**

## Tackling food waste



Many items on supermarket shelves are wrapped in plastic. This is not simply for aesthetic reasons. According to the United Nations, in 2011, roughly one-third of the food produced for human consumption was lost or wasted globally. Even a thin plastic film packaging that is only a few microns thick can increase the shelf life of products, reducing food waste and decreasing energy consumption and greenhouse gas emissions at the same time. According to a research dated 2011, the energy resource efficiency of plastic packaging is more than double that of alternative packaging materials. Our industry is committed to developing ever more innovative forms of packaging design to further increase resource efficiency, save food and reduce the amount of plastics used.

## Making buildings more energy efficient



Currently, buildings account for about 40% of the EU's energy consumption and 39% of GHG emissions. Plastics help conserve resources in buildings because they are lightweight and effectively insulate heat and sound. They also make buildings more durable and corrosion free. In an example of a recent innovation, the plastics industry has pioneered the use of a new polymer that increases insulation while using up to 50% less raw material.

## Improving the wellbeing of people



Thanks to plastics people live healthier, longer and more fulfilling lives than at any time in history. Medical breakthroughs considered unthinkable 50 years ago are now a reality. To name but a few examples: disposable syringes, intravenous blood bags and heart valves are all made from plastics. Amazing techniques of non-invasive surgery have been developed thanks to plastics. The increasing number of ageing population is likely to be supported and relieved by intelligent robots with the look and feel of human being skin thanks to plastics. A world of wonder is at our fingertips thanks to the material of the 21<sup>st</sup> century.

## Reducing emissions in the automotive sector



The use of plastics in automotive manufacturing helps save fuel because plastics are lighter than alternative materials. A 5% reduction in the weight of the bodywork of a car translates into an average 3% reduction in fuel consumption. Plastics are also essential for passenger safety. Seat belts, children's car seats and airbags are all made out of plastics. Plastics can also reduce the impact of accidents by increasing the shock absorption of bumpers and suppressing explosion risks in fuel tanks.



## Saving water

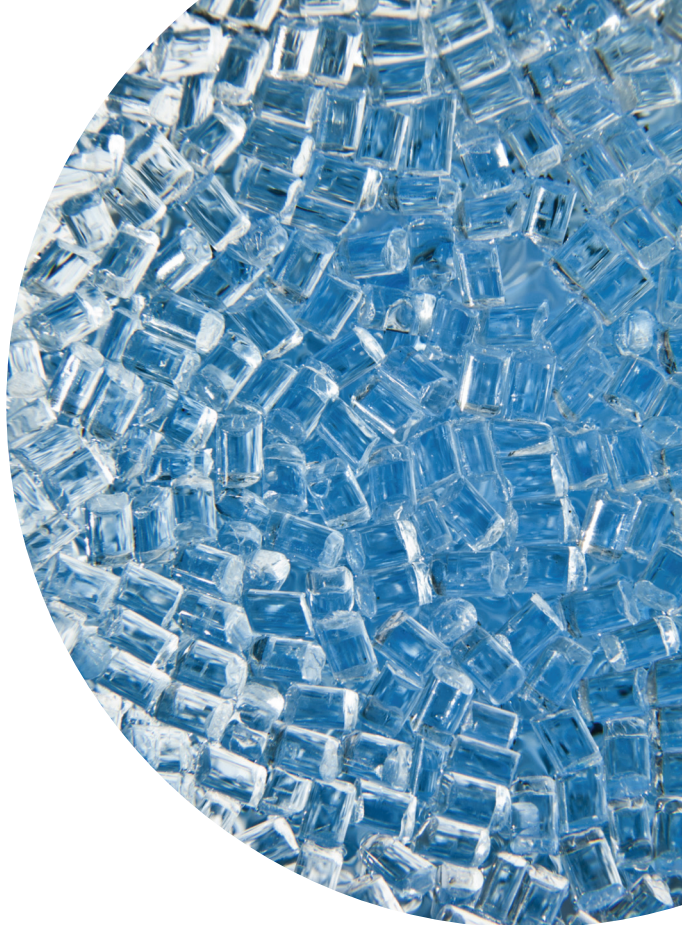


The use of various plastic types in agriculture means that water can be saved and used more efficiently. Plastic irrigation pipes prevent the waste of water and nutrients, and rain water can be retained in reservoirs built using plastic materials. Meanwhile, greenhouses and plastic films enable crops to be kept in closed spaces and reduce the amount of pesticides used.

## Harnessing the power of the elements



Wind and solar power are also made more efficient thanks to plastics. Plastic composites enable engineers to make wind turbines bigger so that fewer turbines are needed to generate the same amount of wind power. This reduces the amount of land required on shore and the number of concrete foundations that have to be installed at sea. Solar cells can also be made more efficient, generating more energy from the same surface area.



## The Plastics Paradox

Like any material, the resources needed to produce plastics have an impact on the environment. However, over their life cycle, most plastics products save considerably more energy than is required to produce them. This is sometimes referred to as “the plastics paradox”.

In 2009, PlasticsEurope commissioned an independent study to consider hypothetical scenario whereby plastics would be replaced by a mix of alternative materials and evaluated the environmental impact in terms of greenhouse gas (GHG) emissions over the complete product life cycle.

The study, carried out by Austrian research institute denkstatt AG, looks at several cases in detail across 80% of the total market for plastics in Europe. The results were remarkable. Using plastics in Europe instead of alternative materials, results in:

- **60% lower in greenhouse gas emissions;**
- **57% lower energy consumption;**
- **Annual energy savings equivalent to the total CO<sub>2</sub> emissions of Belgium;**
- **The EU being able to meet its Kyoto targets.**

# A key enabler of innovation

Ongoing investment in innovation is essential to tackle some of the major challenges/opportunities facing European society today – from an ageing population to climate change. In view of the rise of emerging markets, it is also key to maintain Europe's position in the global economy.

The plastics industry is at the forefront of innovation in Europe and plastics are at the heart of some of the most exciting technological advances in recent years.

Our sector is characterised by a symbiotic network of small, medium and large sized companies with a high rate of investment in research and development – constantly coming out with innovative products and services that address important societal needs. From 2003 to 2012, more than 63,000 patents were submitted in the European Union by large, medium and small plastics companies, i.e. more than 1 in 25 of all patent submissions during this period.

There are also many single industry sectors and business areas in which new polymer technology is playing and will continue to play a key enabling role. From nanocomposite scaffolding

where human stem cells are used to grow replacement body parts, to pull-out flexible display screens for the latest smart phones, plastics are often one of the core materials from which some of today's most amazing transformative innovations are created. Another example of a breakthrough technology made possible thanks to plastics is 3D printing – described by many as the “holy grail” of the new digital manufacturing era. Plastics are at the heart of this revolutionary technology, which is already being used to create medical prosthetics with increased precision and speed. In the future, it will be possible to create human prosthetics or implants with such precision that they can be customised to each individual.

There have also been exciting new developments at the beginning of the life cycle of plastics. Research to capture CO<sub>2</sub> and use it as feedstock for the plastics production process has given very promising results and a first industrial pilot scale will be launched in 2016. Further research and innovation in the field of bioplastics will also look to increase the use of renewable raw materials for the production of plastics.

## Science fiction made reality thanks to plastics

- In March 2014, in the Netherlands, doctors successfully replaced a young woman's skull with a 3D plastic one.
- 3D technology also has the potential to be used to build cars by creating frames out of thin layers of a polymer composite material and then fusing them together into solid structures.
- Thanks to polymeric membranes, desalination process is now possible to transform seawater into drinkable water in areas suffering from long period of droughts and scarcity of water.
- Robot technologies are based on high performance materials including plastics – e.g. the HAL® robot suit, which translates the wearer's nerve signals into movements thus enabling people with reduced mobility to recover use of their limbs.





# Challenges for the plastics industry in Europe

**Despite all these assets, the plastics industry is not the only manufacturing sector to find itself under significant competitive pressure vis-à-vis lower cost economies, and facing critical challenges unique to doing business in Europe.**

Challenge  
**1**

## Energy and raw materials

The plastics industry is highly dependent on competitive energy and raw materials. Anything that increases energy costs and reduces access to competitive raw materials has a major impact on the profitability of the industry. There is no level playing field in Europe regarding energy cost as there is no harmonised European energy market. Furthermore, the rapid exploitation of shale gas in the US has improved its competitive position in plastics production and the availability of low-cost raw materials in the Middle-East caused a serious migration of production from the EU to the Gulf.

Challenge  
**2**

## Skilled Work Force

The ability of the European plastics industry to remain competitive and to innovate depends on their ability to recruit talented, qualified people. The plastics industry can offer people the brightest of all possible futures in manufacturing careers. Companies are dynamic, innovative and have global reach. In return the industry requires people with particular skill sets. However, the number of science graduates and technical apprentices in Europe is declining and high school students do not place much value on science and technology. Career advisors in schools need to be better briefed on the possibilities within the plastics industry. Alone in Germany for instance, current forecast estimates that by 2030 there will be a shortage of one million technical experts in industry and workshops. It is important to keep

existing workforce armed with the latest technologies and fully aware of developments through life-long learning.

Challenge  
**3**

## Future EU investments

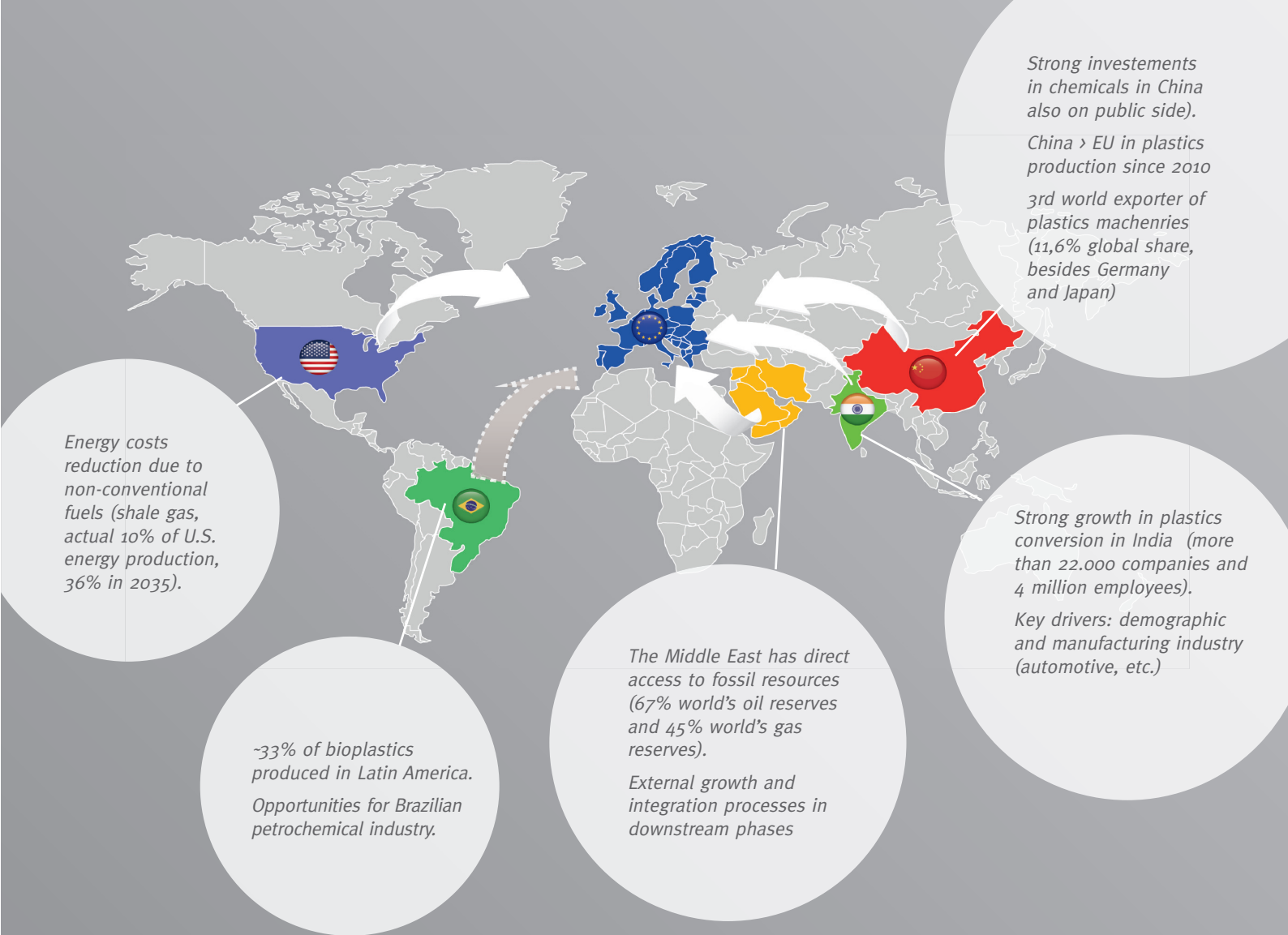
It is essential that Europe maintains investments in its existing infrastructure and in new production facilities to ensure the plastics industry has a viable and vibrant future. European institutions should give more publicity globally to their ambitions for manufacturing growth setting the tone that Europe is a progressive place in which to conduct manufacturing business and encourage investments. Europe has also a challenge in terms of energy efficiency investments, especially in its building stock which accounts for about 40% of Europe's energy consumption.

Challenge  
**4**

## A consistent and complementary regulatory framework

The lack of harmonised chemicals legislation across the single market and the arbitrary use of the precautionary principle create an uncertain climate for investment. It can lead to contradictory legal frameworks from one market to another, placing an unnecessary regulatory burden on our industry. Furthermore, if the EU wants to bring jobs back to Europe, policy makers must define a consistent set of policies aiming at common objectives. Services at the Commission, Parliament and Council are not sufficiently coordinating to reconcile environment, energy and industry policies.





## The global geopolitical scene for plastics and the threats to Europe

Source: The European House – Ambrosetti elaboration based on different sources, 2013

### Challenge 5

#### Waste Management

Currently only 9 European countries recycle or recover over 90% of plastics waste, with 18 countries sending over 40% of it to landfill. In 2012 alone, 9.6 million tonnes of plastic waste were landfilled in Europe, wasting a huge amount

of resources and increasing the risk of litter. The European plastics industry is working with a range of other stakeholders towards the objective of “Zero Plastics to Landfill” in Europe. However, better enforcement of existing legislation is needed to ensure this goal becomes a reality.

# Conclusions and recommendations for policy makers

**A favourable climate for investment in Europe is crucial for the plastics industry to continue to make a meaningful contribution to European economy and society.**

**One of the key challenges lies in creating the right conditions to make the most of our inherent capacity for innovation in Europe.**

This involves not only promoting science education and supporting entrepreneurship. It also implies proper investment to ensure cutting edge inventions or discoveries are translated into genuine innovations that bring benefits to society as a whole.

It also means taking steps to help reduce the costs of production, such as energy and raw materials, even if we will not be able to compete on an entirely level playing field with other parts of the world.

Finally, it requires having in place a consistent and predictable risk-based regulatory environment. In this context, the European plastics industry would welcome the support of European policy makers in the following ways:

## Promoting education and training

- Promote STEM education in Europe and make it more attractive to young generations;
- Integrate plastics manufacturing, converting and recycling into curricula in schools;
- Create a European degree in plastics at superior level (Technician/Engineer);
- Encourage apprenticeships at all levels in the plastics industry.

## Ensuring more competitive costs for energy and raw materials

- Ensure the completion of a single European energy market;
- Enable responsible exploration and production of shale gas in Europe.



### **Stimulating ongoing investment in innovation**

- Provide incentives for energy efficiency in buildings;
- Accelerate the introduction of innovations to market;
- Promote the uptake of new technologies to ensure social acceptance.

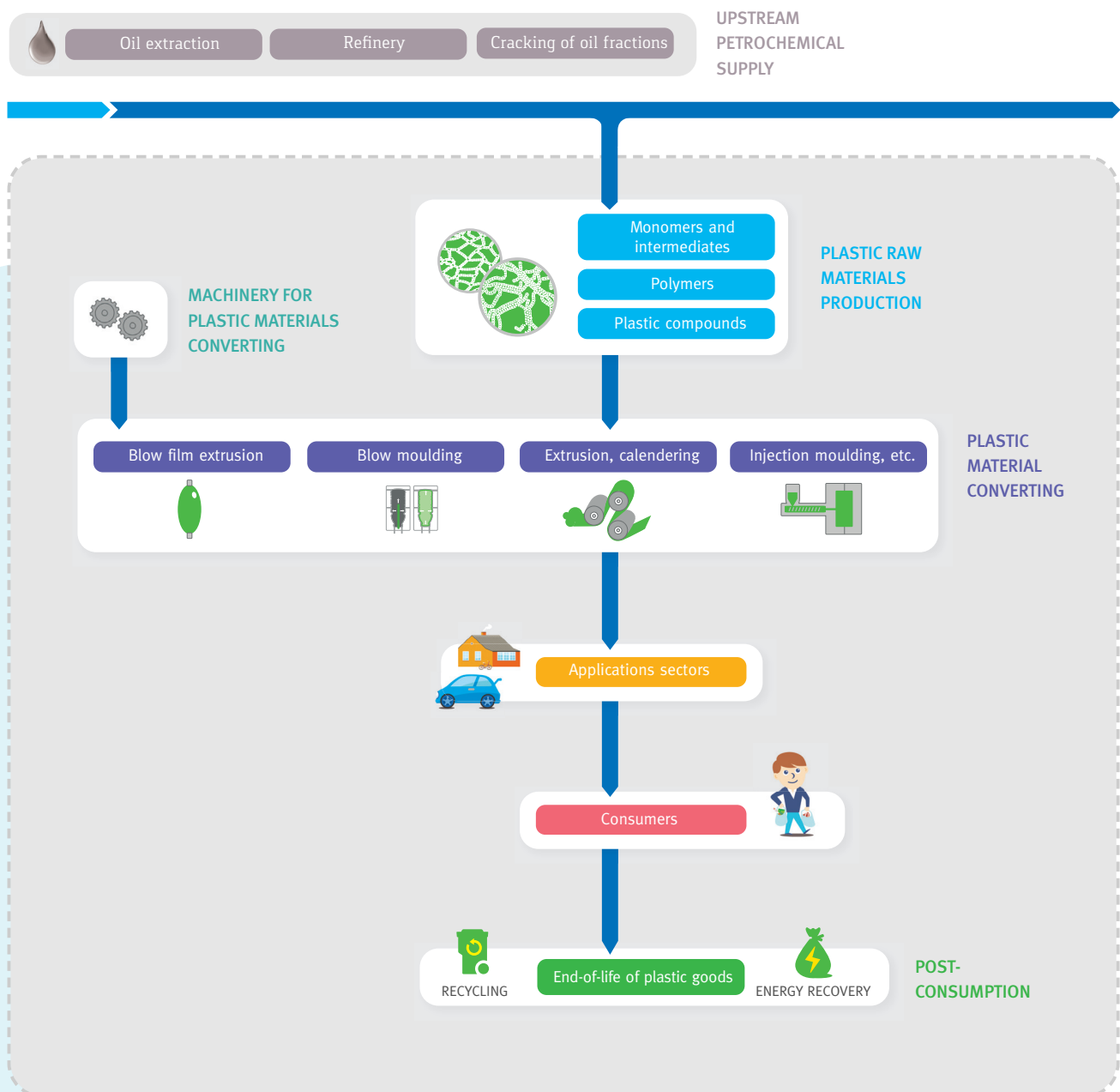
### **Consistent and complementary regulation**

- Encourage a risk-based approach with evidence-based assessment to inform political decisions;
- Strengthen the position of the Chief Scientific Advisor to the President of the European Commission and create a network of equivalent positions all over Europe to advise national governments;
- Harmonise chemicals legislation following a 'one market – one regulation' approach;
- Promote better controls of products entering the EU to ensure compliance with European regulations.

### **Involving the plastics industry in initiatives to promote sustainable growth**

- Include the plastics sector in policies relating to re-industrialisation and initiatives around the circular economy;
- Create a dedicated resource to foster the interests of plastics in the European Commission;
- Enforce a ban or phase out of landfilling of recoverable waste to stimulate resource efficiency, further develop the plastics recycling industry and create more jobs;
- Discourage littering through public awareness campaigns on the value of plastic products.

# Plastics industry — an integrated supply chain



## **PlasticsEurope**

PlasticsEurope is one of the leading European trade associations with centres in Brussels, Frankfurt, London, Madrid, Milan and Paris. We are networking with European and national plastics associations and have more than 100 member companies, producing over 90% of all polymers across the EU28 member states plus Norway, Switzerland and Turkey.

## **European Plastics Converters (EuPC)**

EuPC is the professional representative body of plastics converters in Europe.

Its activities cover all sectors of the plastics converting industry, including recycling.

Its main objective is to defend and promote the European plastics converting industries interests by:

- Voicing industry opinion to European and international institutions, and NGOs
- Maintaining relationships with corresponding European and global organisations
- Conducting surveys, studies and research projects covering all areas





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