Plastics – the Facts 2014/2015

An analysis of European plastics production, demand and waste data

PlasticsEurope
Association of Plastics Manufacturers

Plastics – the Facts is an analysis of the data related to the production, demand and waste management of plastics materials. It provides the latest business information on production and demand, trade, recovery as well as employment and turnover in the plastics industry. In short, this report gives an insight into the industry's contribution to European economic growth and prosperity throughout the life cycle of the material.

The data presented in this report was collected by PlasticsEurope (the Association of Plastics Manufacturers in Europe) and EPRO (the European Association of Plastics Recycling and Recovery Organisations). PlasticsEurope's Market Research and Statistics Group (PEMRG) provided input on the production of and demand for plastics raw materials. Consultic Marketing & Industrieberatung GmbH helped assess waste generation and recovery data. Official statistics from European or national authorities and waste management organisations have been used for recovery and trade data, where available. Research or expertise from consultants completed gaps.

Figures cannot always be directly compared with those of previous years due to changes in estimates. Some estimates from previous years have been revised in order to track progress, e.g. for use and recovery of plastics across Europe over the past decade.

All figures and graphs in this report show data for EU-27 plus Norway and Switzerland, which is referred to as Europe for the purposes of abbreviation – other country groups are explicitly listed.

Plastics – the material for the 21st century

For the last 150 years, plastics materials have been key enablers for innovation and have contributed to the development and progress of society.

Discover how plastics have changed the world.

www.plasticseurope.org

Key figures of the European plastics industry

The European plastics industry includes plastics raw material producers, plastics converters and plastics machinery manufacturers in the EU27 member States.

Jobs

The plastics industry gives direct employment to over **1.45** million people in Europe

Companies

An industry in which more than **60.000** companies operate, most of them SME's

Turnover

The European plastics industry had a turnover of **320** billion euro in 2013

Multiplier effect

The European plastics industry has a multiplier effect of 2.4 in GDP and almost 3 in jobs*

Innovation

The plastics sector is part of the **top 5** most innovative sector in the EU representing 1 in 25 patents submitted by the industry between 2003 and 2012

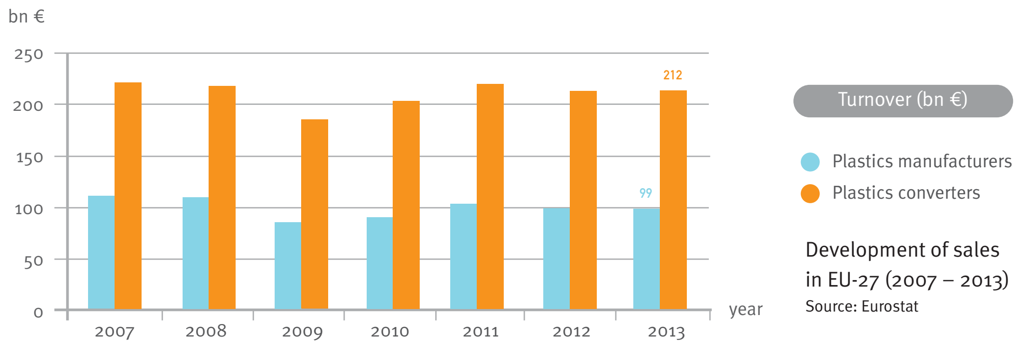
Recycling

More than **6.6** million tonnes of plastics waste recycled in 2012

* 2013, The European House Ambrosetti study, data for Italy, 2013

Plastics: jobs, growth and competitiveness

The European plastics industry: a pillar of economics and society

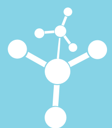


Development of sales
in EU-27 (2007 – 2013)
Source: Eurostat

Plastics manufacturers

134.000

employees [1]



Plastics converters

1.267.000

employees [1]

Number of employees in 2013

Contribution to EU society

Estimated data
for EU-27 (excl. NO/CH), 2013

Tax and social security costs

Corporate tax

An industry generating about 26.3 billion euro for public finance and welfare.

Source: 1. Eurostat.

Plastics are a source of jobs, growth, innovation and sustainability

The growth of the plastics industry has a multiplier effect on numerous important sectors of the European economy. The plastics industry is a key enabler of innovation of many products and technologies in other sectors of the economy like healthcare, energy generation, aerospace, automotive, maritime, construction, electronics, packaging or textile.

None of these sector would innovate and grow as much as they do without plastic materials and solutions. Innovation and growth in Europe depend on manufacturing, in particular the plastics industry. A study led in 2013 by leading Italian think tank "The European House Ambrosetti" reveals the "multiplier effect" of the plastics industry:

- It is in one of the sectors that provides the greatest contribution to EU manufacturing
- A 10% increase in the value added of the European plastics sector could lead to a 4.4% increase in the value added to the overall EU manufacturing sector.

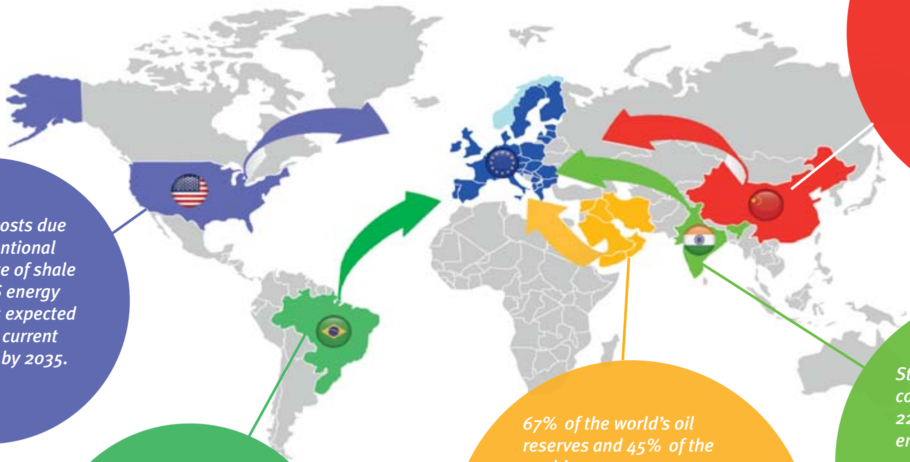
And at national level for Italy:

- For every job created in the plastics sector, almost 3 jobs are created in the wider economy
- A 100€ increase in GDP in the national plastics supply chain generates 238€ of GDP in the national economy

Moreover, 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 energies. In addition, significant advances are also being made in the environmental performance of plastics in their production and end-of-life phases, hence contributing to the sustainability of European indsutries and societies.

THE MULTIPLIER EFFECT OF PLASTICS FOR SOCIETY AND THE ECONOMY

Global competitiveness challenges of the European plastics industry



China is the world leader in plastics production and conversion. Low production costs in plastics' conversion have triggered investments in the plastics industry, including the plastics machinery manufacturing.

Low energy costs due to non-conventional fuels. The rate of shale gas in the US energy production is expected to grow from current 10% to 36% by 2035.

One-third of the bio-plastics are produced in Latin America. Access to bio based feedstock provides opportunities for the Brazilian bio-plastics industry.

67% of the world's oil reserves and 45% of the world gas reserves are located in the Middle East.

Feedstock provides opportunities for the plastics industry there.

Forward integration of plastics processing industry. is on-going.

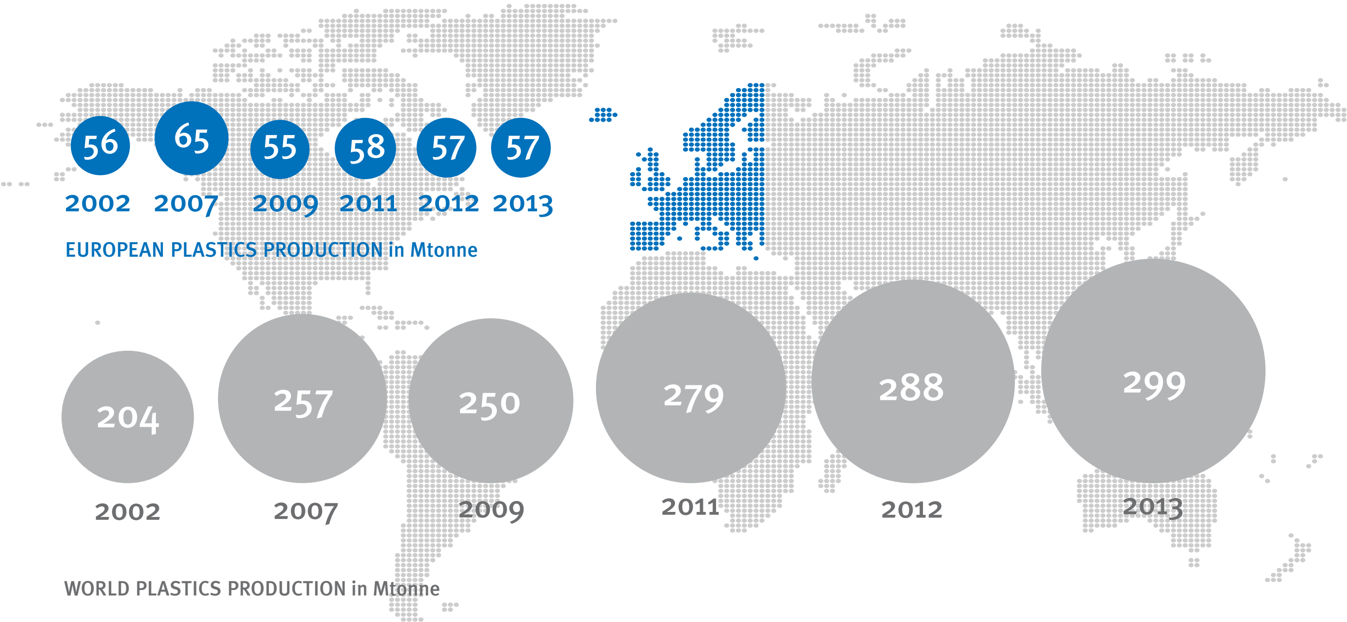
Strong growth in plastics conversion sector (more than 22.000 companies and 4 million employees).

Key drivers are the growing population and the growth of manufacturing sectors such as the automotive sector.

Source: based on The European House Ambrosetti study, 2013

Plastics market data

Plastics production grows globally and is stable in Europe



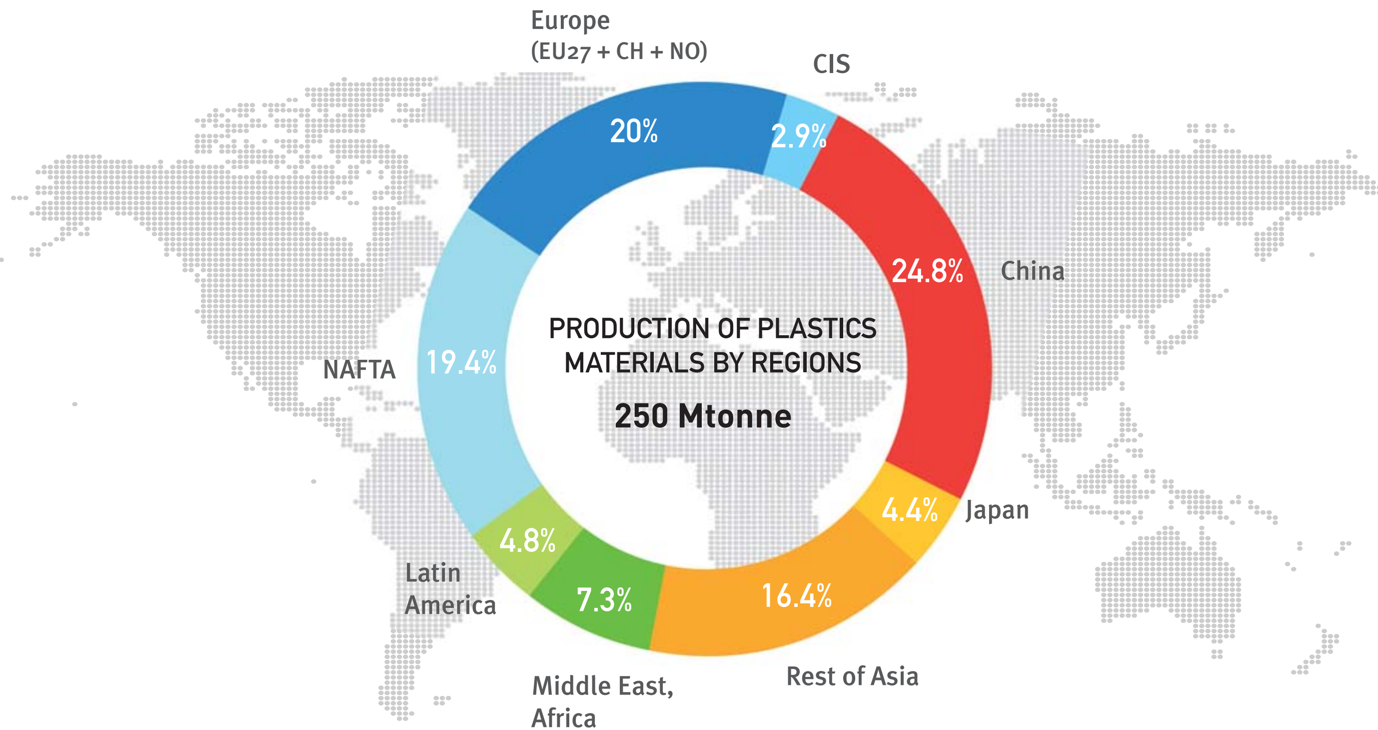
World and European plastics production 2002-2013
Includes Plastics materials (thermoplastics and polyurethanes), other plastics (thermosets, adhesives, coatings and sealants) and PP-fibers.

Source: PlasticsEurope (PEMRG) / Consultic

With continuous growth for more than 50 years, global production in 2013 rose to 299 million tonnes, meaning a 3.9% increase compared to 2012.

In Europe, the plastic production stabilised in 2013 after the 2009 turn-down. Actual levels are similar to those in 2002.

Europe ranks second in the global plastics materials production

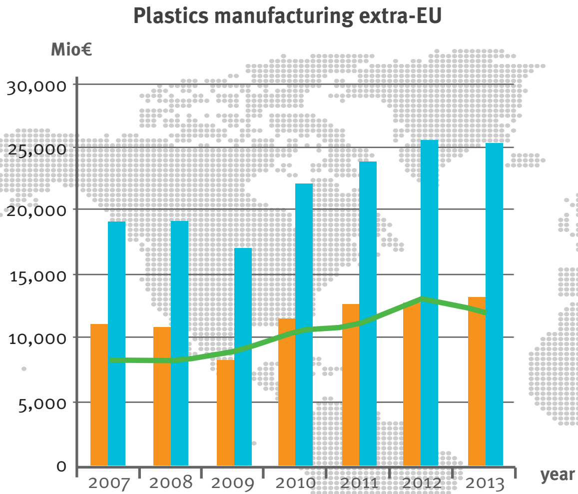


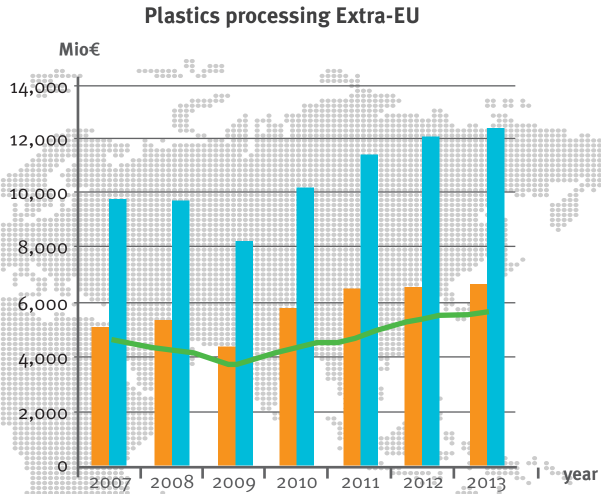
2013 World production of plastics materials (thermoplastics and polyurethanes)

Does not include other plastics (thermosets, adhesives, coatings and sealants) nor PP-fibers.

Source: PlasticsEurope (PEMRG) / Consultic

A positive trade balance of 18 billion euros





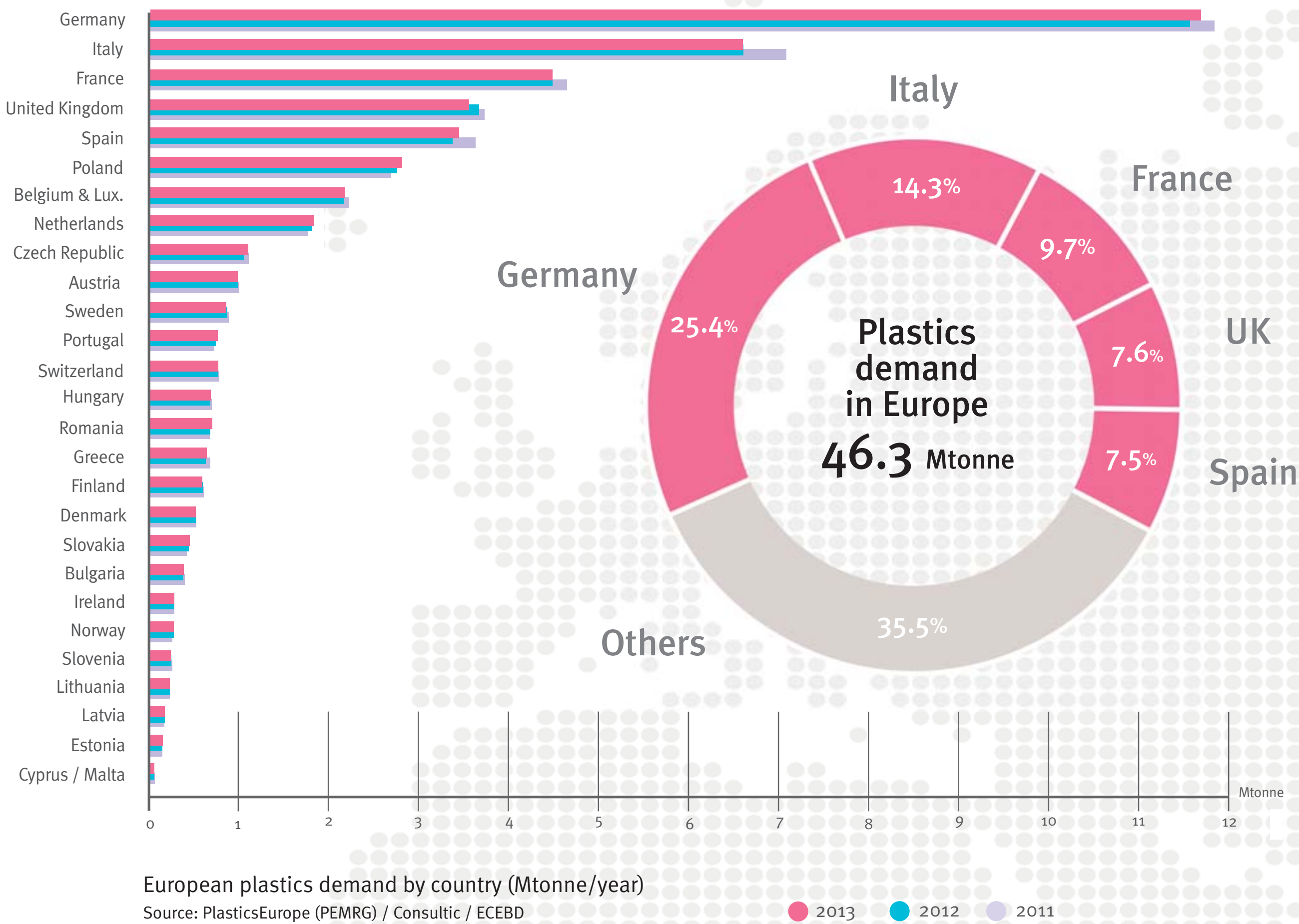
Extra-EU27 Imports
Extra-EU27 Exports
Trade balance

EU-27 plastics industry: trade balance with non-EU member countries (Extra-EU)
Source: Eurostat

	Plastics manufacturing	Plastics processing
Exports Extra EU27	1. Turkey (14.3%)	1. USA (12.6%)
	2. China (11.8%)	2. Russia (11.4%)
	3. USA (10.3%)	3. Switzerland (11.3%)
	4. Russia (8.5%)	4. China (7.7%)
	5. Switzerland (6.3%)	5. Turkey (5.7%)
Imports Extra EU27	1. USA (23.9%)	1. USA (21.7%)
	2. Saudi Arabia (15.8%)	2. Switzerland (15.5%)
	3. South Korea (10.4%)	3. China (12.8%)
	4. Switzerland (6.7%)	4. Turkey (10.7%)
	5. Japan (5.7%)	5. Japan (6.6%)

2013 top trade partners
Source: Eurostat

Two thirds of plastics demand in Europe is concentrated in five countries



European plastics demand by country (Mtonne/year)

Source: PlasticsEurope (PEMRG) / Consultic / ECEBD

Plastics provide for a wide variety of markets

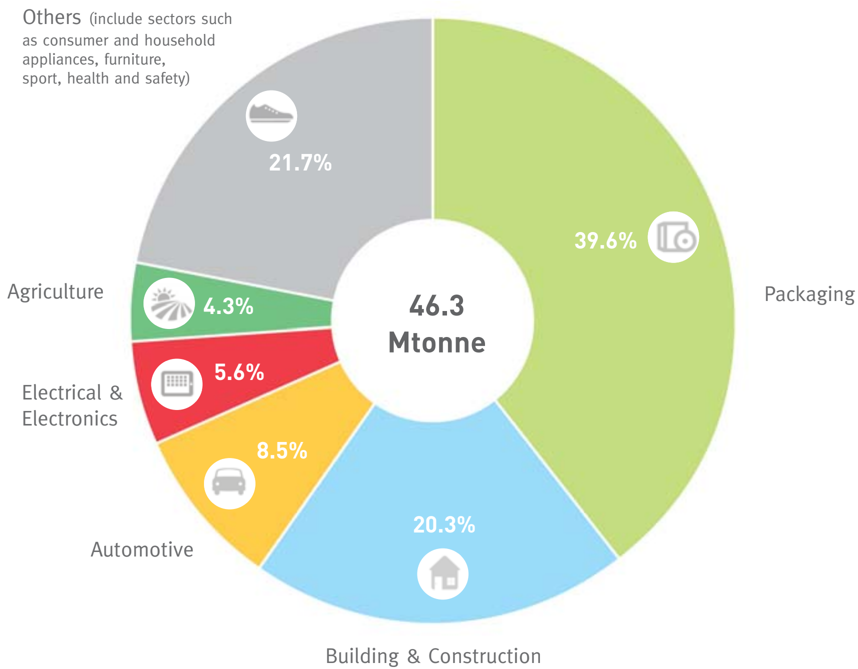
In Europe, packaging applications are the largest application sector for the plastics industry and represent 39.6% of the total plastics demand.

Building and construction is the second largest application sector with 20.3% of the total European demand.

Automotive is the third sector with a share of 8.5% of the total demand.

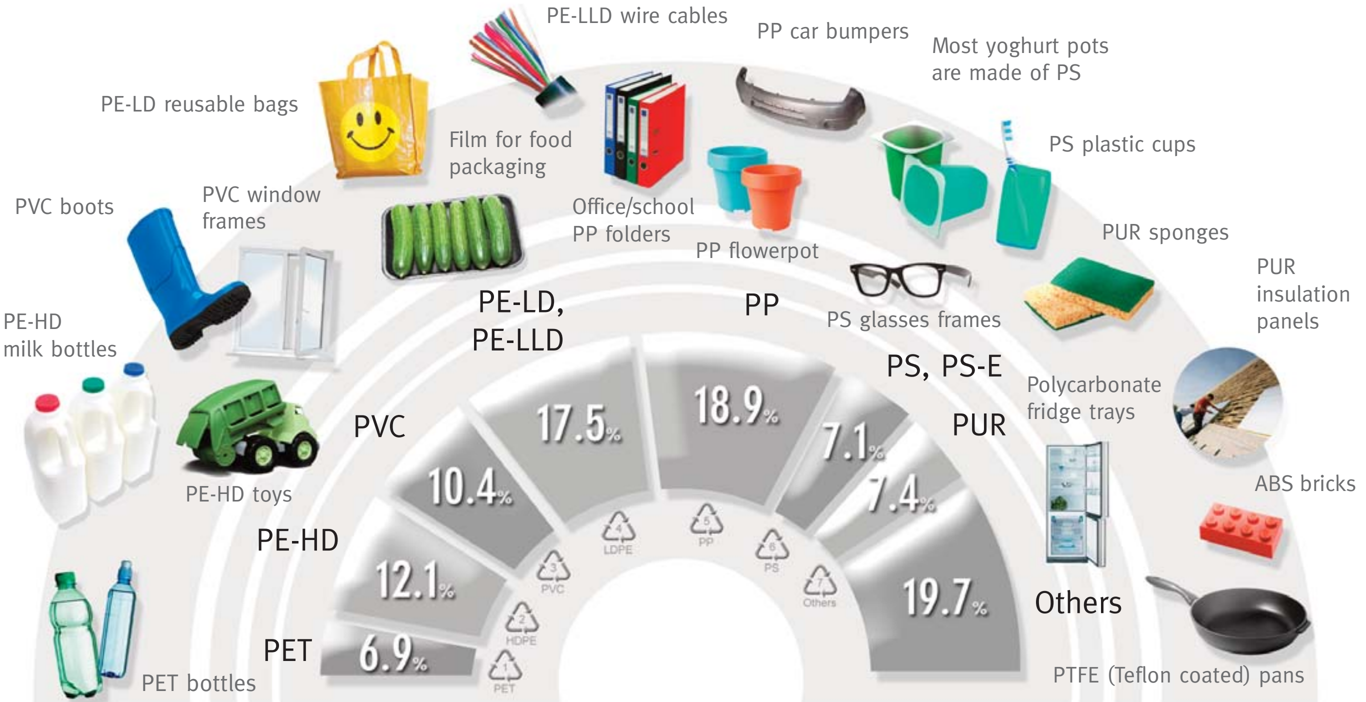
Electrical and electronic applications represent 5.6% of the plastics demand and are closely followed by agricultural applications which have a share of 4.3%.

Other application sectors such as appliances, household and consumer products, furniture and medical products comprise a total of 21.7% of the European plastics demand.



European plastics demand* by segment 2013
Source: PlasticsEurope (PEMRG) / Consultic / ECEBD
* EU-27+NO/CH

Different plastics for different needs

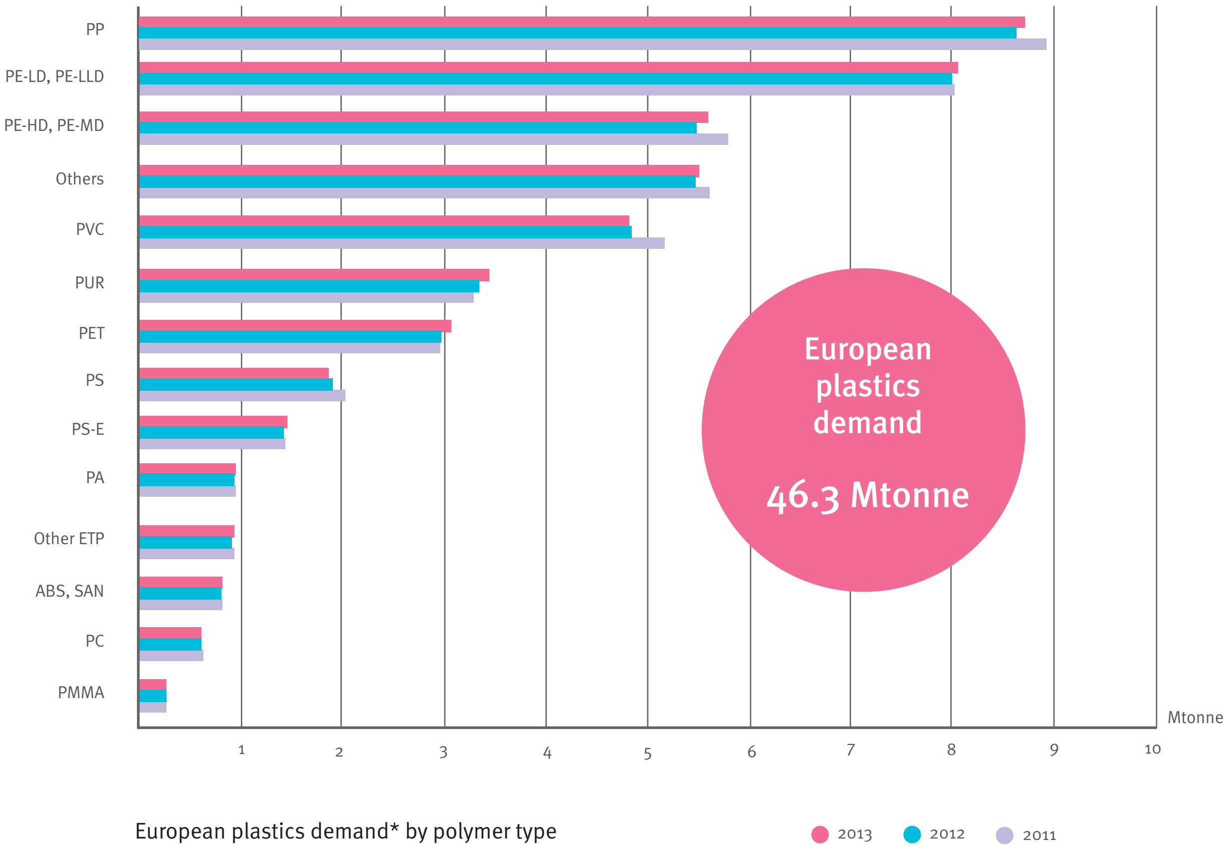


European plastics demand* by polymer type 2013

Source: PlasticsEurope (PEMRG) / Consultic / ECEBD

* EU-27+NO/CH

European plastics demand increased by 1% in 2013

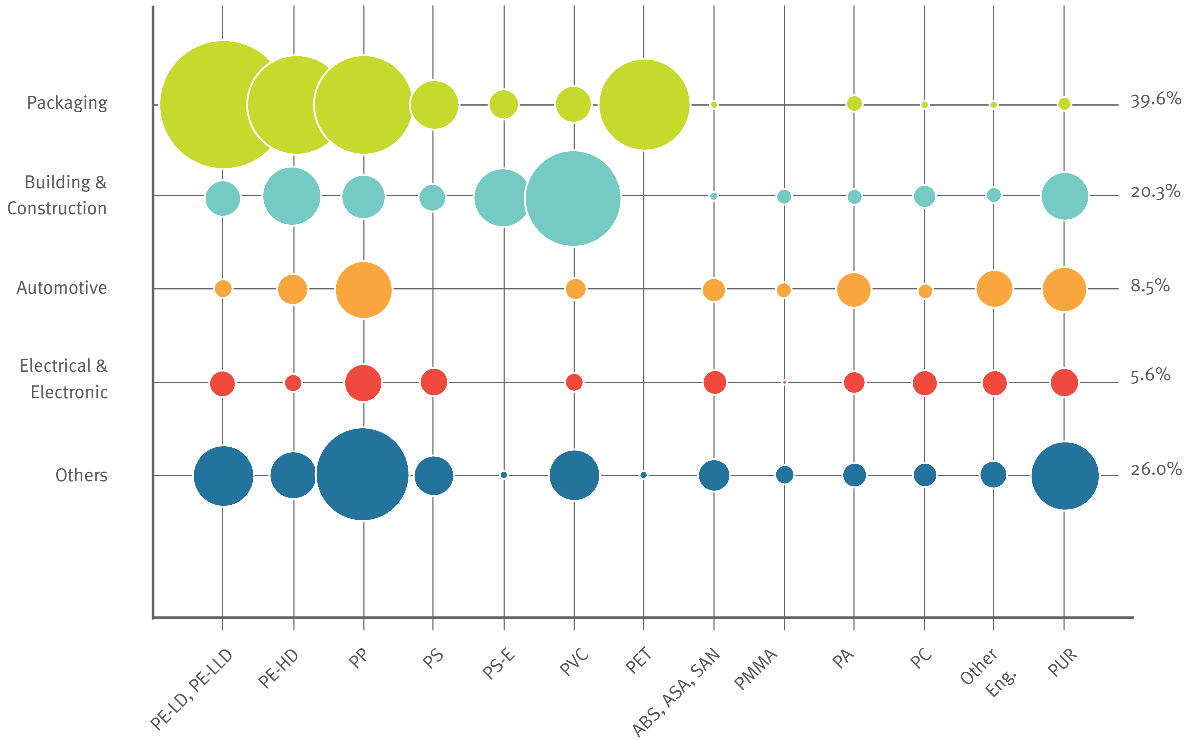


European plastics demand* by polymer type

Source: PlasticsEurope (PEMRG) / Consultic / ECEBD

* EU-27+NO/CH

Packaging, building & construction and automotive are the top three markets for plastics



European plastics demand* by segment and polymer type 2013

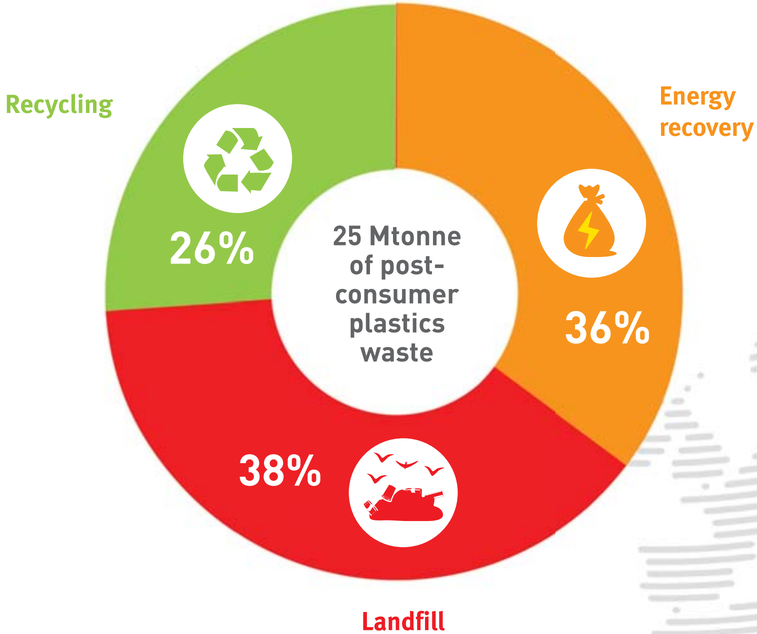
Source: PlasticsEurope (PEMRG) / Consultic / ECEBD

* EU-27+NO/CH

Waste management data

In 2012 plastics recycling and energy recovery reached 62%

In 2012, 25.2 million tonnes of post-consumer plastics waste ended up in the waste upstream. 62% was recovered through recycling and energy recovery processes while 38% still went to landfill.

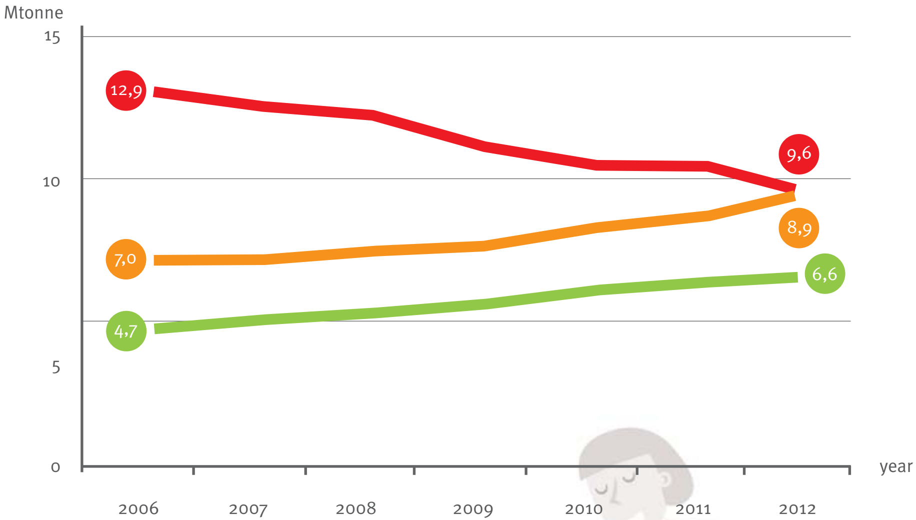


Treatment for post-consumer plastics waste in the EU27+Norway and Switzerland

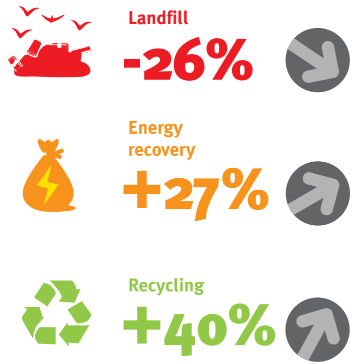
Source: Consultic

Since 2006 recycling and energy recovery have increased...

The annual average of post-consumer plastics waste generation from 2006 to 2012 is 25 Mtonne.

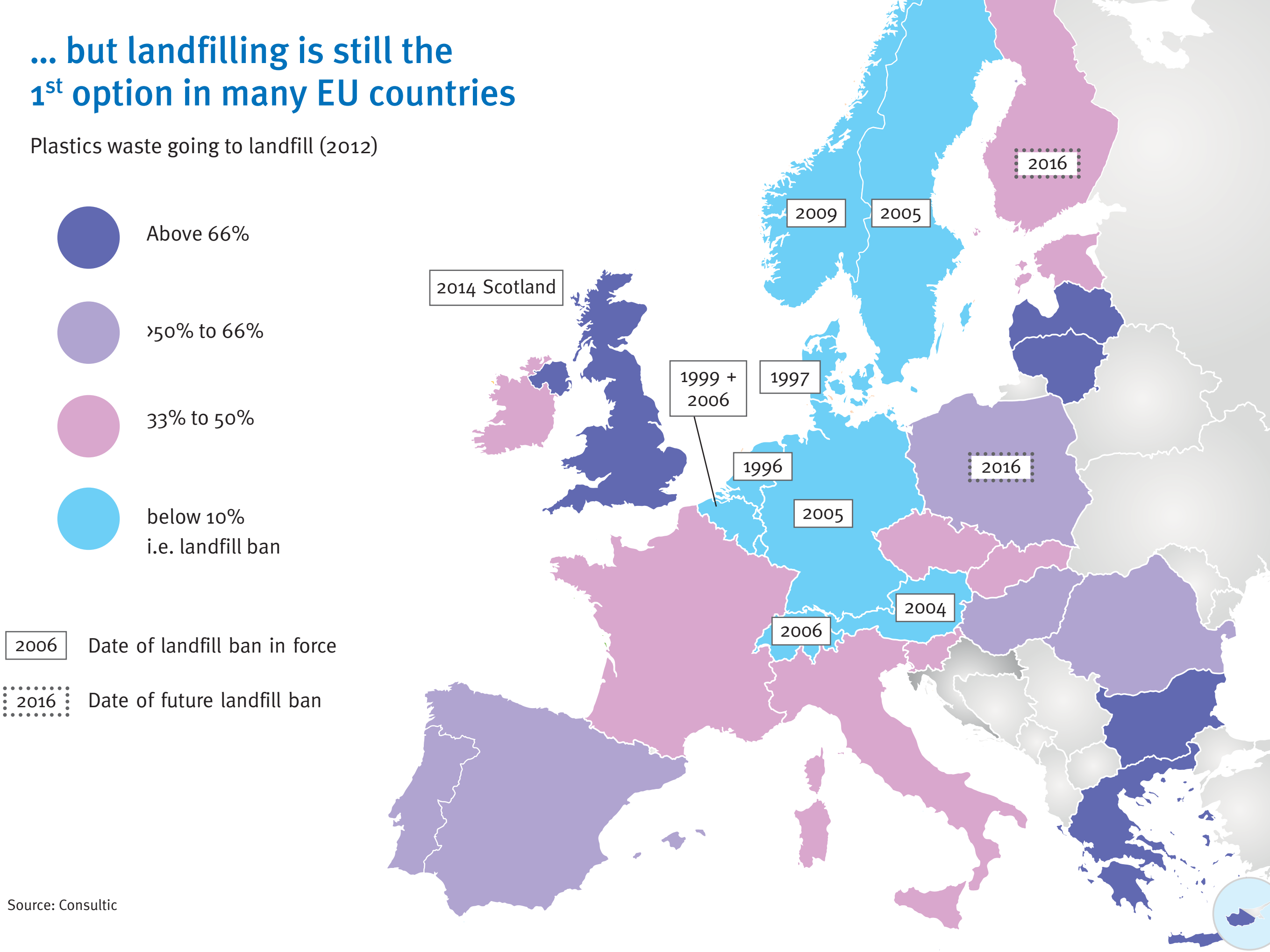


Total plastics waste recycling and recovery 2006 – 2012
Source: Consultic



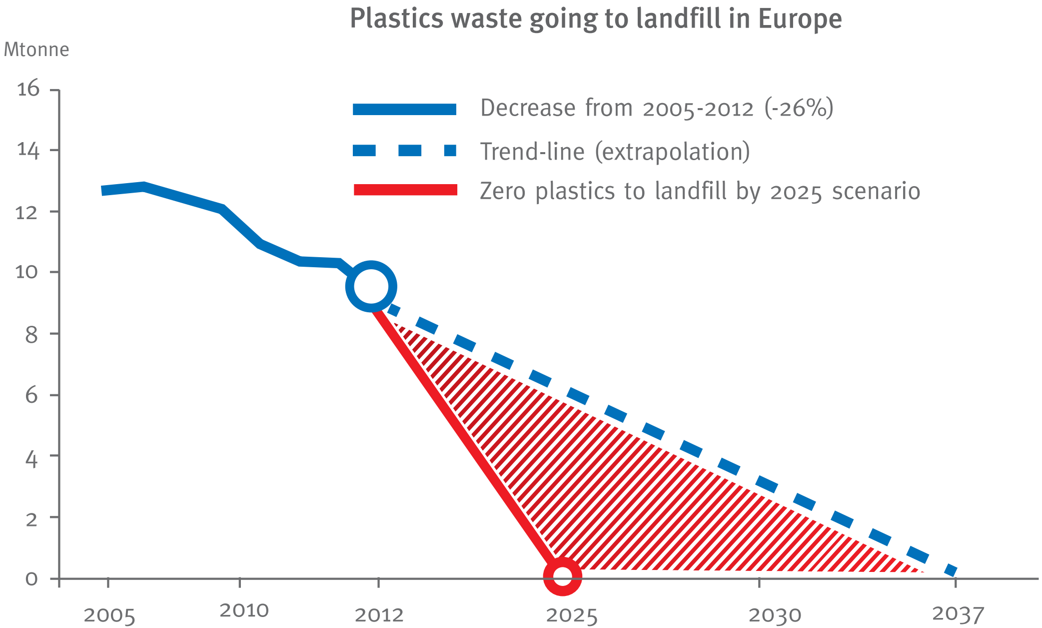
... but landfilling is still the 1st option in many EU countries

Plastics waste going to landfill (2012)



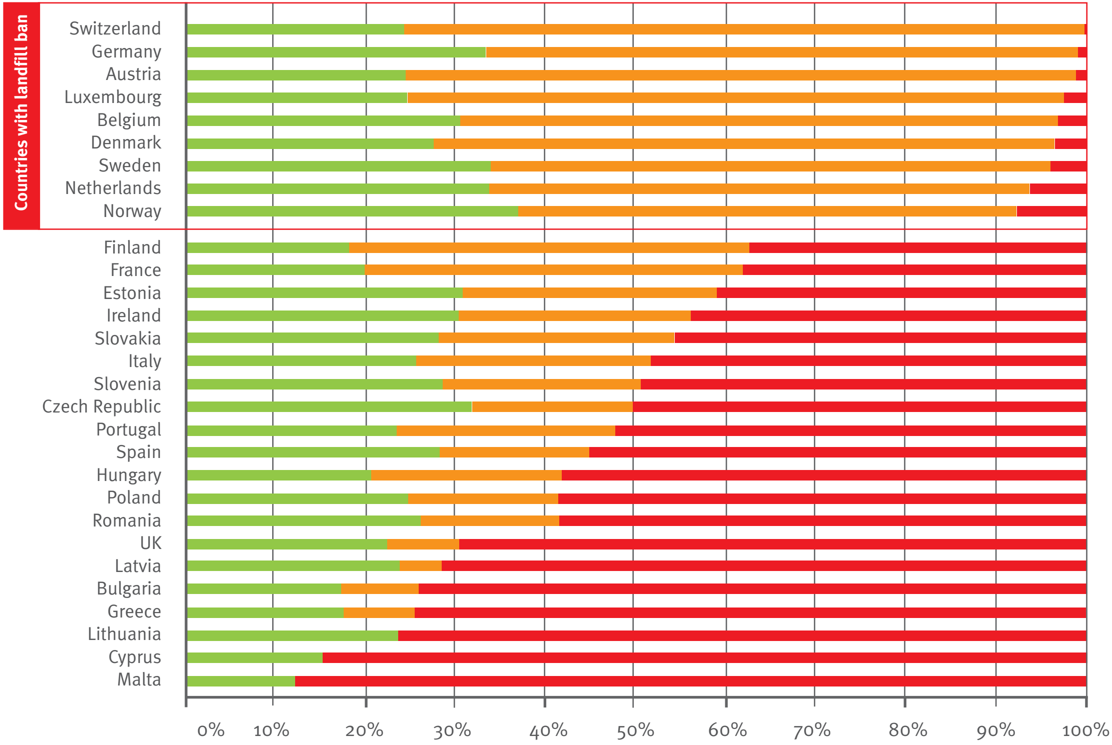
Source: Consultic

Zero plastics to landfill, a challenging but worthwhile goal



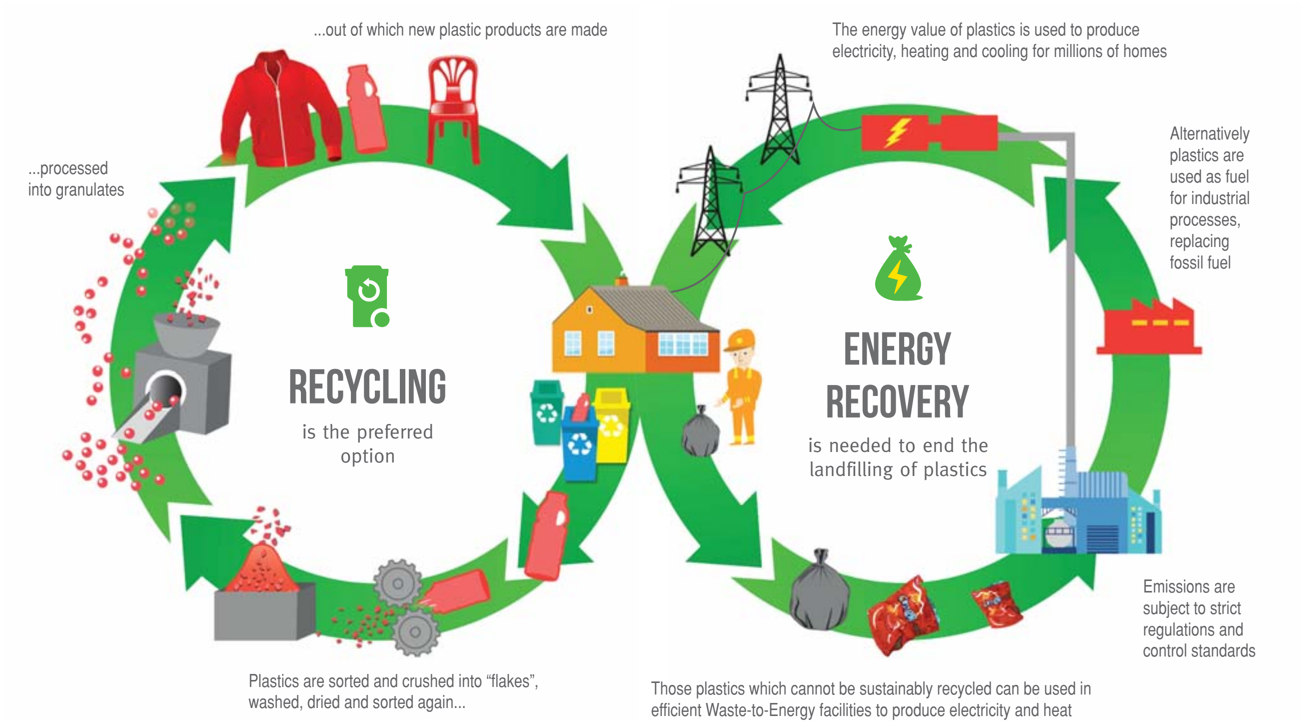
= 60 million tonnes of plastics prevented from landfill, equivalent to over 750 million barrels of oil or 60 billion euros

In general, countries with landfill ban achieve higher recycling rates



Treatment of post-consumer plastics waste 2012
(EU-27 + CH/NO)
Source: Consultic

Plastics waste is a resource



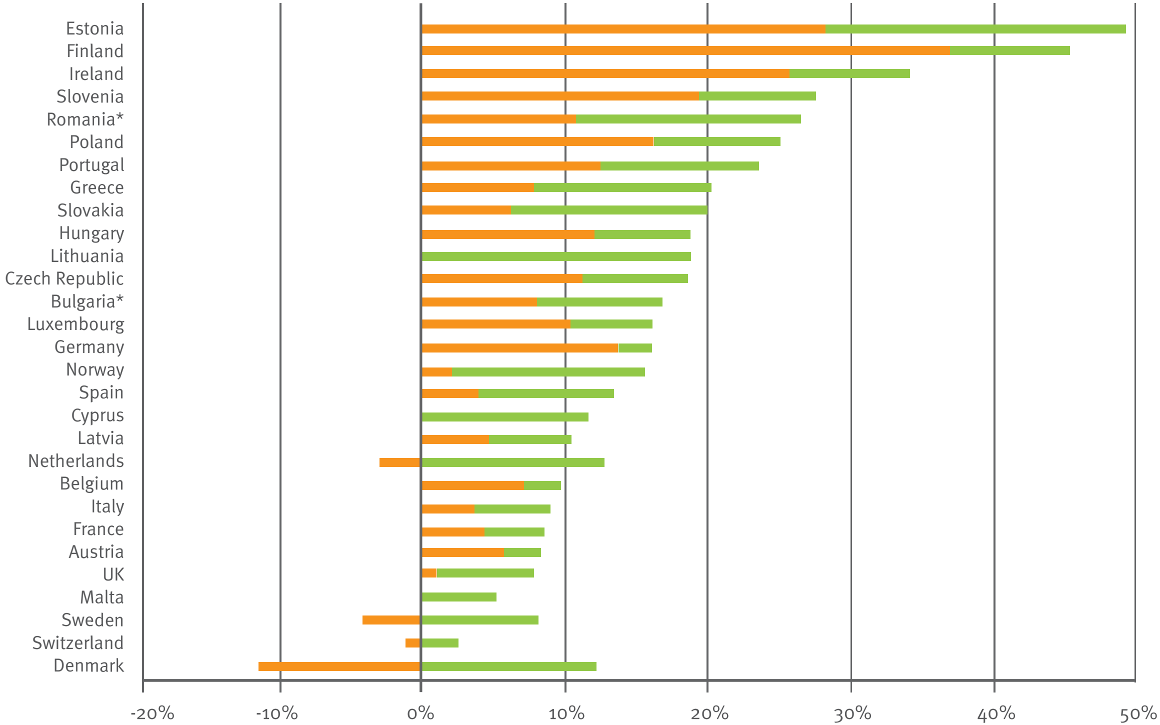
9.6 MILLION TONNES *of plastics waste are landfilled every year in Europe*

16-19 MILLION *more citizens potentially supplied with energy recovered from plastics waste*

41% *of plastics packaging was recycled in Germany in 2013 (based on input)*

Plastics recycling and energy recovery complement each other

Changes in recycling and energy recovery rates by country



Comparison of rates 2012 vs. 2006

Referred to post-consumer plastics

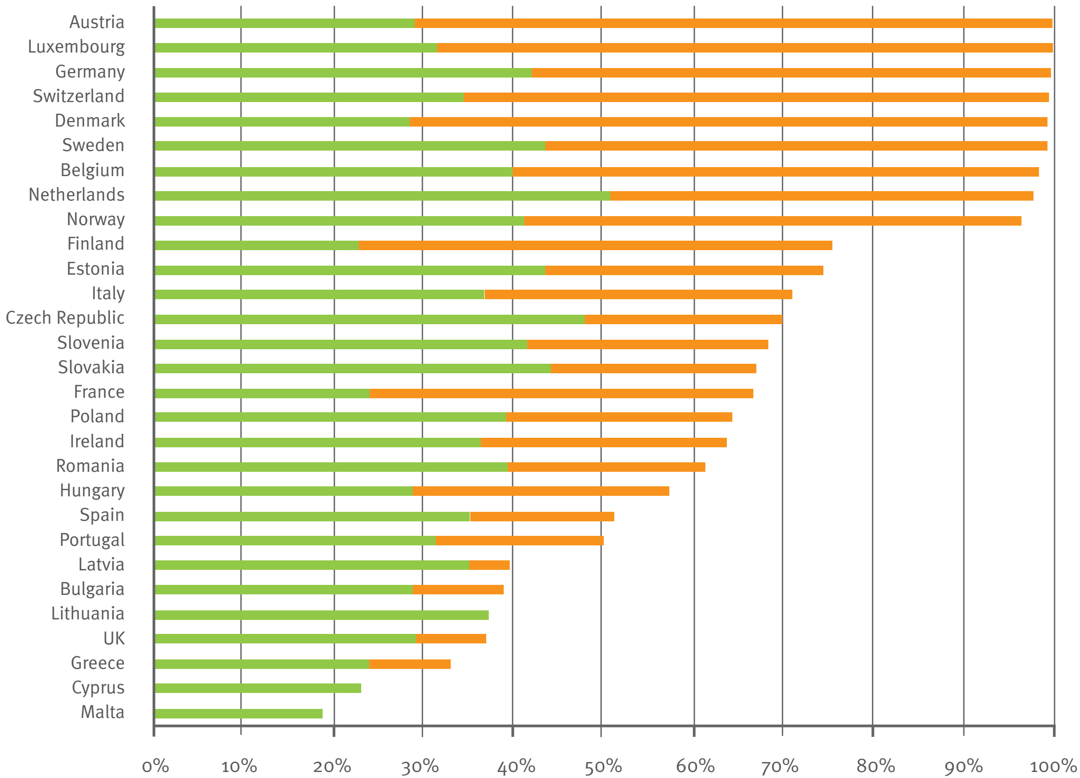
Energy recovery rate

Recycling rate

Source: Consultic

* For Bulgaria & Romania: comparison 2012 vs. 2007

Plastics packaging has the highest recycling and energy recovery rates

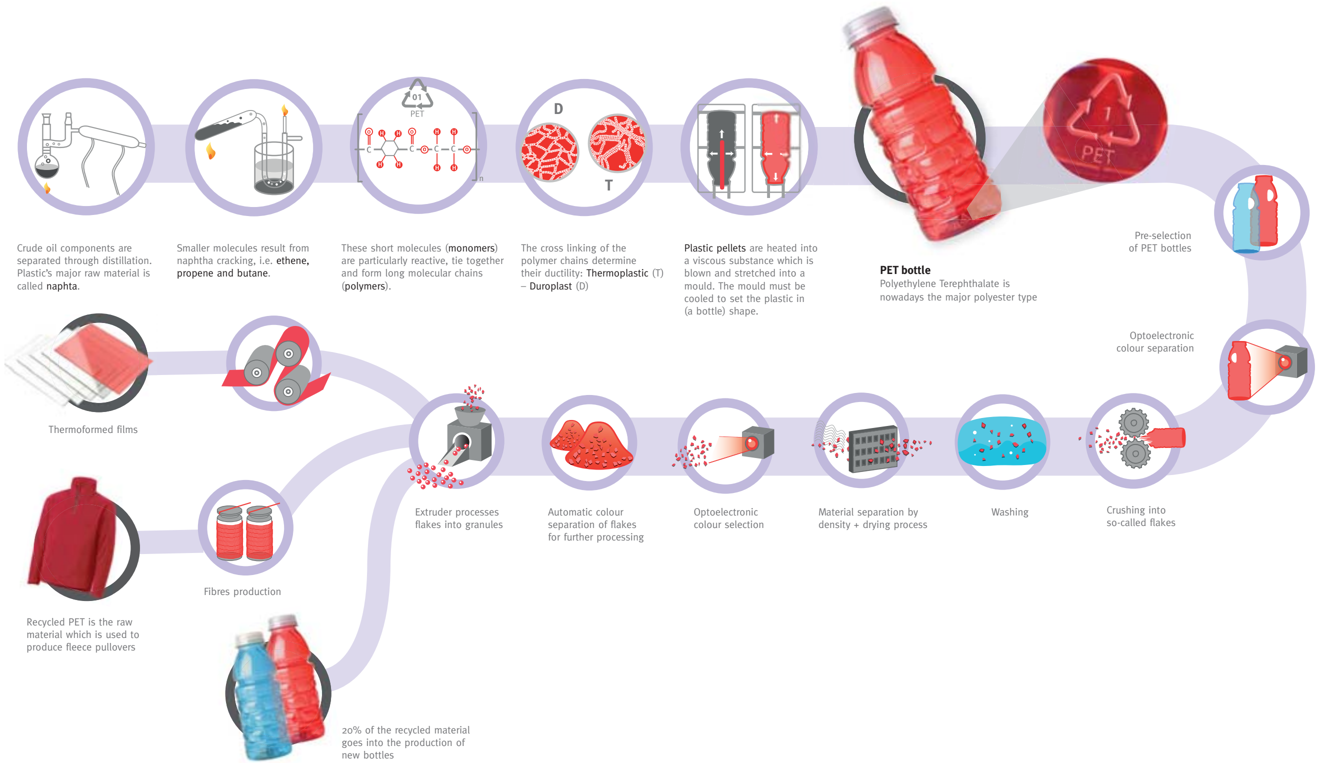


Packaging recycling and energy recovery rate by country 2012

(Referred to post-consumer plastics waste)

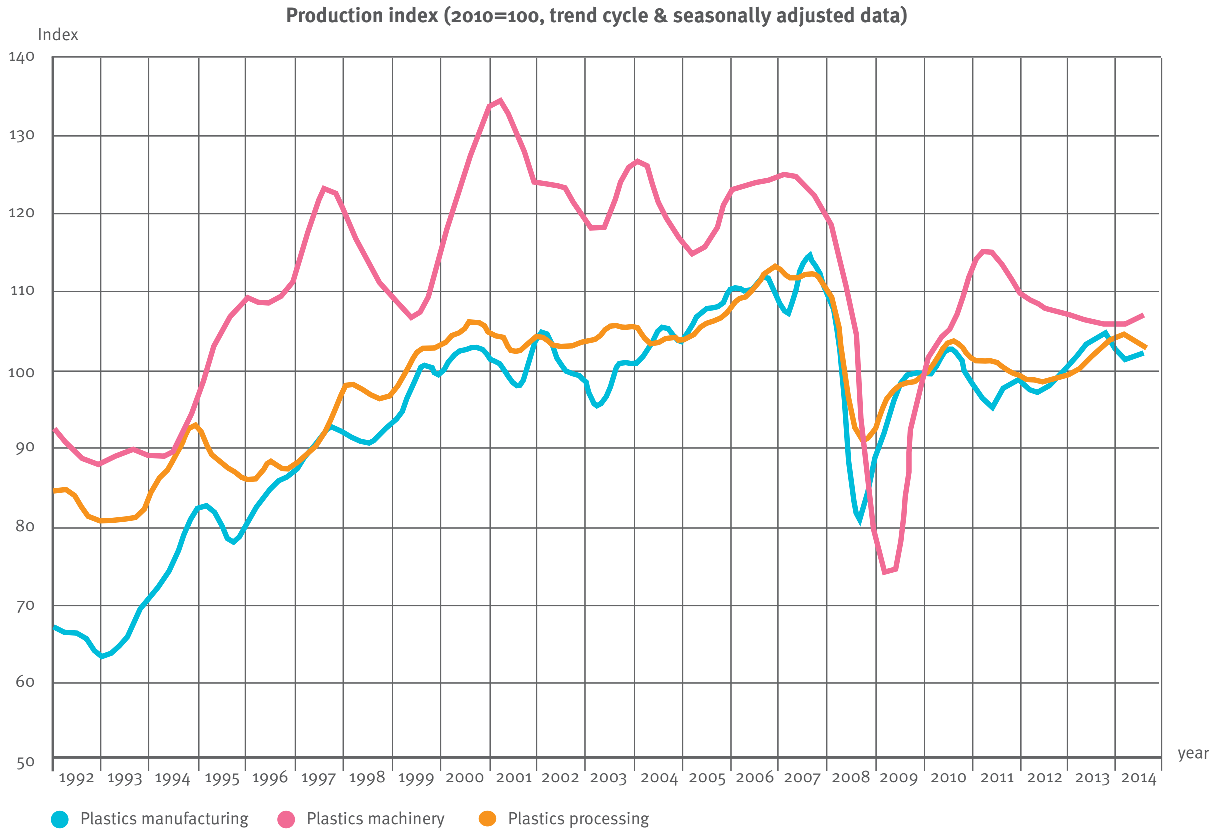
Source: Consultic

Life cycle of a plastic bottle: recycling options



Snapshot and outlook

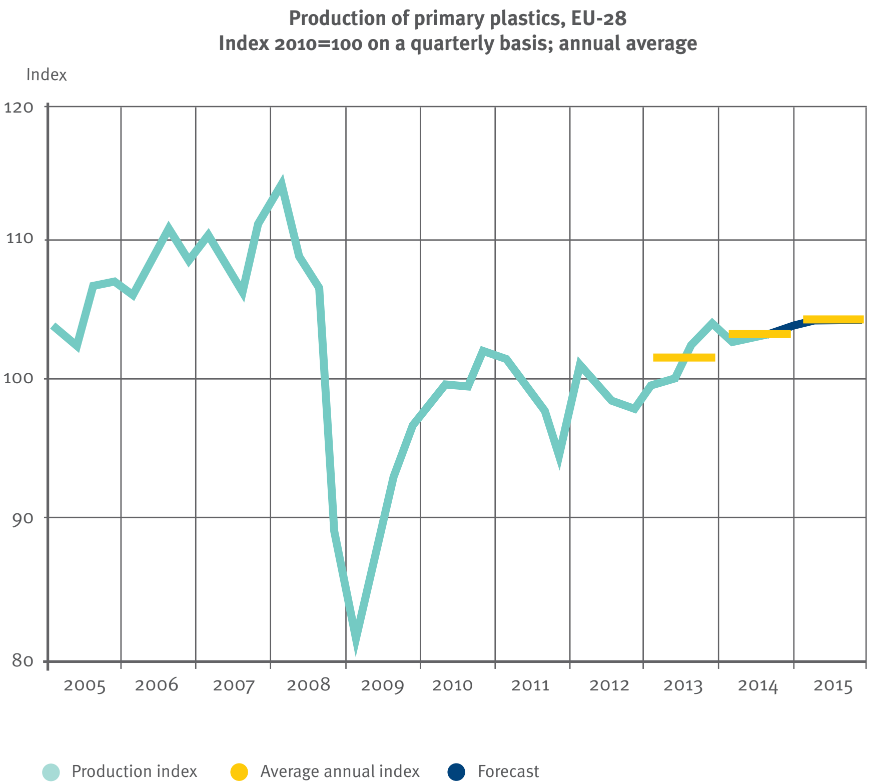
In 2014 plastics production is still below pre-crisis level



Plastics industry production in EU-27

Source: Eurostat

For 2015: plastics production is expected to have a very slight increase



- In 2013: European producer profited from the recovery of the customer industries.
- The positive trend gained momentum in the seconded half of 2014.
- 2015: Moderate upward trend.

Growth rates:
2013: +2.6%
Est* 2014: +1.5%
Est* 2015: 1.0%

Source: Eurostat, VCI, PlasticsEurope, *estimation for 2014 and 2015

Glossary of terms

ABS	Acrylonitrile butadiene styrene
ASA	Acrylonitrile Styrene Acrylate
bn	billion
CH	Switzerland
CIS	Commonwealth of Independent States
Consultic	Consultic Marketing & Industrieberatung GmbH
ECEBD	Eastern and Central European Business Development
EU	European Union
EPRO	European Association of Plastics Recycling and Recovery Organisations
ETP	Engineering Thermoplastics
GDP	Gross domestic product
Mtonne	Million tonnes
NAFTA	North American Free Trade Agreement
NO	Norway
Other plastics	Thermosets, adhesives, coatings and sealants
PA	Polyamide
PC	Polycarbonate
PE	Polyethylene
PE-HD	Polyethylene, high density
PE-LD	Polyethylene, low density
PE-LLD	Polyethylene, linear low density
PE-MD	Polyethylene, medium density
PEMRG	PlasticsEurope Market Research Group
PET	Polyethylene terephthalate
Plastics Materials	Thermoplastics + Polyurethanes (PUR)
PUR	Polyurethane
PMMA	Polymethyl methacrylate
PP	Polypropylene
PS	Polystyrene
PS-E	Polystyrene, expandable
PTFE	Polytetrafluoroethylene
PVC	Polyvinyl chloride
SAN	Styrene-acrylonitrile
Thermo-plastics	Standard plastics (PE, PP, PVC, PS, EPS, PET (bottle grade)) + Engineering plastics (ABS, SAN, PA, PC, PBT, POM, PMMA, Blends, and others including High Performance Polymers)
Thermosets	Urea-formaldehyde foam, melamine resine, polyester resins, epoxy resins, etc
UK	United Kingdom
VCI	Verband der Chemischen Industrie e.V.

PlasticsEurope

PlasticsEurope is the association of plastics manufacturers and one of the leading European trade associations with centres in Brussels, Frankfurt, London, Madrid, Milan and Paris. It is 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 Association of Plastics Recycling and Recovery Organisations (EPRO)

EPRO is the association of national organisations responsible for organising and promoting plastics recycling and recovery in Europe. EPRO provides a unique forum for leading European specialists in plastics waste management to exchange experience and ideas, develop integrated plastics packaging and agriculture waste strategies and support technological development.

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