

THE FUTURE OF EUROPEAN RECYCLING POLICY AND THE CIRCULAR ECONOMY

How can the cement
industry contribute to EU
recycling targets ?



WELCOME



KOEN COPPENHOLLE
CEMBUREAU
CHIEF EXECUTIVE

CEMBUREAU

is the representative organisation of the cement industry in Europe. The Association acts as spokesperson for the cement industry before the European Union institutions and other public authorities, and communicates the industry's views on all issues and policy developments with regard to technical, environmental, energy and promotional issues.

We are strongly motivated to constructively engage with policymakers. It is our belief that the cement and concrete industry, which employs 545,000 people and adds EUR 56 bn to the European economy, will be a driving force in moving Europe's agenda forward and in helping to build the schools, hospitals, offices and infrastructure of tomorrow. With its base firmly established in Europe's local economies, from quarry to end-product, our sector is the backbone of construction in Europe, which accounts for 10% of GDP, and promotes local growth and jobs while bringing local products to local markets.

According to the European Commission, each person in the EU today consumes 15 tonnes of materials annually while generating 5 tonnes of waste with half going to landfill. The Commission also emphasises that energy recovery will have a role to play with regard to non-reusable and non-recyclable waste. In its manufacturing process, the

cement industry uses alternative fuels from waste through a combination of both material recycling and energy recovery. Today, alternative fuels account for 36% of cement industry fuel mix. In line with our Low Carbon Roadmap, the aim is to take this up to 60% by 2050. This would lead to a 27% reduction in fuel CO₂ emissions. In addition, the industry recycles 8 million tonnes of waste material. The industry's end-product, concrete, is also 100% recyclable and is central to the circular economy from the perspective of a whole life cycle approach of a building.

BREAKFAST BRIEFING

Hosted by **Sirpa Pietikäinen** MEP

TUESDAY 24 MARCH 2015

08:00–09:30

**EUROPEAN PARLIAMENT,
Members' Restaurant**



THE FUTURE OF EUROPEAN RECYCLING POLICY AND THE CIRCULAR ECONOMY

How can the cement industry contribute to the EU recycling targets?



Sirpa Pietikäinen
EPP, Finland
Rapporteur for the circular economy

Jude Kirton-Darling
S&D, the UK
Sherpa for the resource efficiency roadmap

Aurore Maillet
Member of Commissioner
Karmenu Vella Cabinet

OUR HOST



SIRPA PIETIKÄINEN

MEP (EPP, FI)

RAPPORTEUR CIRCULAR ECONOMY

Member

ECON Committee on Economic and Monetary Affairs

D-CN Delegation for relations with the People's Republic of China

Substitute

ENVI Committee on the Environment, Public Health and Food Safety

Studies and scientific assessments show that humanity is overusing a number of planetary boundaries that we need to stay within to avoid irreversible negative ecological changes. Of the nine core planetary boundaries defined by a framework created by the Stockholm Resiliency Centre, the World is already surpassing four: climate change, biodiversity, land-system change and altered biogeochemical cycles of phosphorus and nitrogen. At the moment the global economy uses the equivalent of 1.5 planets worth of resources to produce global output and absorb waste, by the 2030's this figure is estimated to reach two planets.

To answer to the problems raised by the ongoing degradation of the Earth System economies will have to adjust their production methods from a linear "take, make, use and dispose" model to a circular economy. A transformation to a circular economy means that through various methods we arrive at a situation where the consumers receive the same or improved utility from their goods as before. This would lead to job creation and growth, increased reuse and recycling and the improved lifespan of products, improved product design and

new business ecosystems where waste residues from one industry can be transformed into assets for another.

To preserve a safe Earth System we need nothing less than a paradigm shift. Since the first Industrial Revolution, all efforts have been geared towards increasing the productivity of the labour factor, given that labour was scarce and nature abundant. Today, the picture has shifted to a situation where labour is abundant, while natural resources are becoming scarce. Therefore, the efforts now must be geared towards increasing resource productivity.

The End of Rainbow-target for such a process would be a European Union which by 2050 would constitute a circular economy with zero emissions in the production process, closed loops on raw materials (non-renewables making a closed cycle and renewables used within the boundaries of renewability and the energy deriving from renewable sources). Additionally biodiversity must not be harmed in operations, and if it is, companies to compensate accordingly. This requires

businesses and policymakers to move from a silo approach marked by partial optimization to a more holistic approach that enable out of the box and thinking on new business ecosystems to improve resource productivity. The introduction of a Europe-wide backcasting scenario would be beneficial: the end of rainbow-targets delineated above would be used as societal goals leaving a broad range of options for innovative business models and policy choices to develop scenarios which could enable us to reach such targets.

The business world is already putting various reforms in practice but EU-level action is needed to upscale these reforms to the macro-level. The development of new business ecosystems where businesses co-operate in creating value from their waste streams should be incentivised. This would mean mapping out and reducing any hindrances on the use of business models such as refitting used products, enhancing the reuse of products through eco-design legislation to increase the lifespan and added value of resources, optimising the materials used in production, reducing material use and supporting the lease economy.

DG ENVIRONMENT



DG ENVIRONMENT
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THE FUTURE OF THE EUROPEAN WASTE POLICY AND THE CIRCULAR ECONOMY

Construction and demolition waste (CDW) is one of the largest waste streams in the EU. Whereas specific pieces of legislation have been adopted for other waste types, CDW was not addressed by EU legislation.

The situation changed in 2008, when the Waste Framework Directive was adopted, including a 70% re-use, recycling and material recovery target for CDW, which has to be achieved by 2020.

This could seem an ambitious target, especially in those countries where recycling was still in its infancy. However, we had also already in 2008 excellent examples demonstrating that recycling rates above 90% can be achieved if the right conditions are set.

You may wonder how the situation has evolved over the last years: Are we coming closer to reaching the target in all Member States? Is an environmentally sound management of this waste stream already a reality in all Member States? Are we living up to the expectations of turning Europe into a recycling

society, a society where waste is regarded as a resource and managed according to the waste hierarchy?

Giving a clear and reliable answer to this question is a challenge today: official statistics show data gaps and inconsistencies - both within Member States, but also across Member States. Even competent authorities in many states and regions struggle to get a complete picture of how this waste stream is managed in practice.

We can assume that the situation is very diverse, with some Member States achieving more than 90% of re-use, recycling and material recovery rates and some Member States still below 10%. The figures seem to suggest that a majority of Member States could easily meet the 70% target by 2020. However, in some cases it seems that this target is likely to be met by backfilling large amounts of CDW - and this would be a suboptimal solution compared to recycling.

We are confident that the situation of uncertainty will change soon: following an initiative from the European Parliament, a study is being conducted

(due end March 2016), which will look in-depth into the situation in the Member States. It will analyse statistics, identify the reasons for gaps and inconsistencies and propose solutions, but also identify obstacles and drivers for recycling as well as best practices.

Increasing the recycling rate and improving the quality of CDW recycling will be an integral part of the circular economy. Nevertheless, in order to be truly circular, it is important that re-use, recycling and recovery are integrated within the entire manufacturing process. Cross-sectoral initiatives offer great potential, with one industry's output (waste) becoming another industry's input (resource). It will therefore be interesting to hear more of such examples, such as energy recovery and material recycling in sectors like the cement industry.

Against this background, we believe that both CEMBUREAU and *The Concrete Initiative* are putting forward good examples which show how industry can initiate the transition towards a more sustainable and resource efficient development model. We would like to thank them for the fruitful dialogue and wish them an equally successful continuation.

CO-PROCESSING

A combination of energy recovery and material recycling

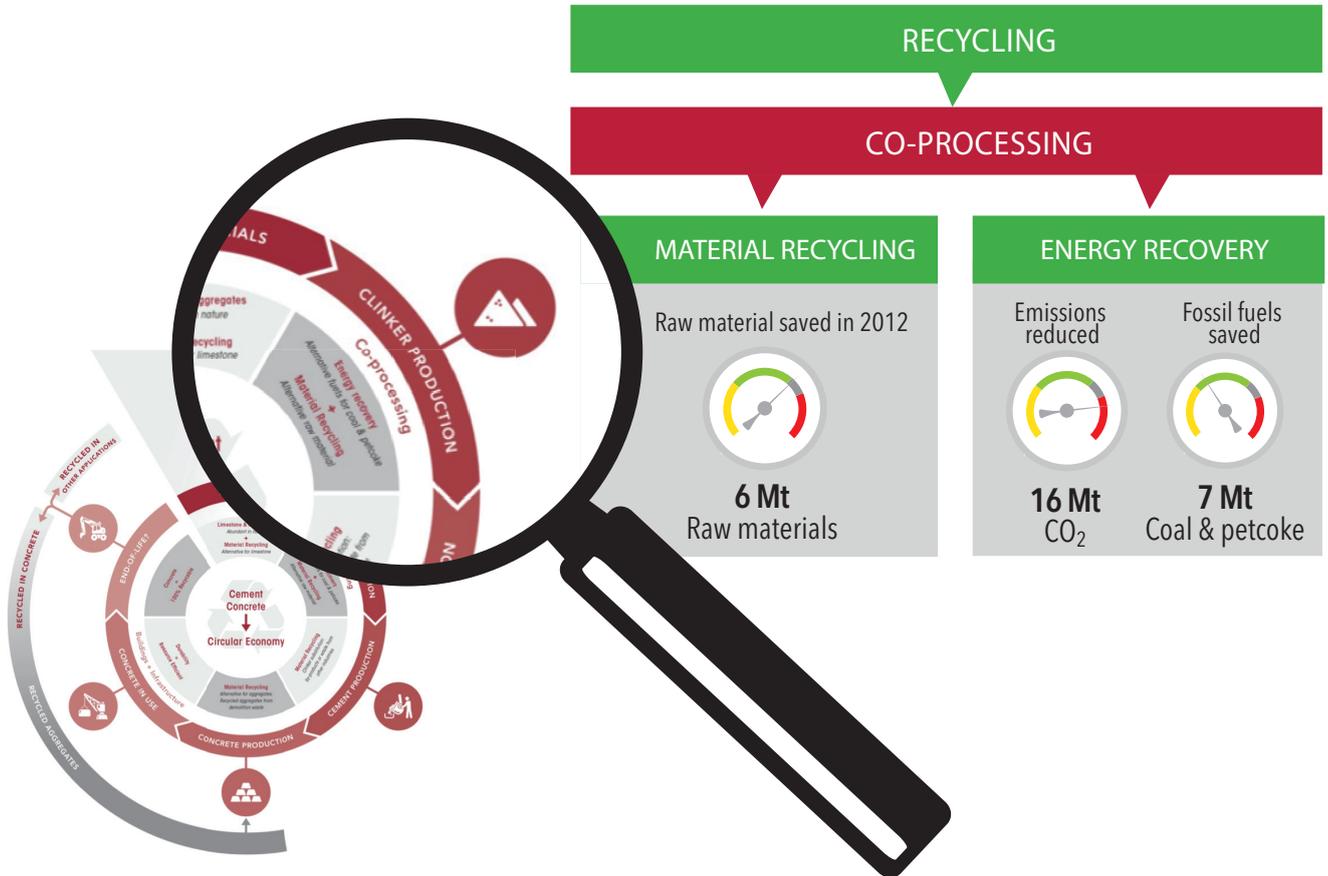
The cement industry specialises in the treatment of difficult waste streams and supports a ban on the landfilling of recoverable waste.

- On the one hand, the cement industry is able to use waste as an alternative fuel (Energy Recovery), which reduces our recourse to primary fossil fuels – as well as reducing CO₂ emissions!
- On the other, the cement industry can recycle the mineral content of the waste as a raw material (Material Recycling) – thus reducing our dependence on virgin raw materials!

In accordance with the Waste Framework Directive, 'recycling' includes any operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes.

Given the above, material recycling in the cement industry is clearly a recycling operation. As such, EU waste management legislation should recognize the material recycling component of co-processing as contributing towards Member States compliance with EU recycling targets.

HOW DOES THE CEMENT INDUSTRY FIT INTO THE CIRCULAR ECONOMY ?



CEMENT MANUFACTURERS IRELAND



BRIAN GILMORE
CEMENT MANUFACTURERS IRELAND

Brian is Sustainability Manager with Cement Manufacturers Ireland (CMI), the business association in Ibec, representing all the cement manufacturers on the island, Irish Cement, Lagan Cement, Quinn Cement and Lafarge Cement. Communicating the sustainability developments in the sector is his primary role along with helping to promote local cement and concrete to Ireland's construction sector. Brian also represents CMI on a number of CEMBUREAU Working Groups and Taskforces.

WHAT IS CO-PROCESSING ?

Co-processing is the simultaneous recovery of energy and recycling of resources when waste materials are used in a cement plant. It combines energy recovery and material recycling.

WHICH TYPES OF WASTE DOES THE CEMENT INDUSTRY CO-PROCESS ?

The cement industry uses waste which is, in principle, non recyclable due to a number of factors, including:

- Recycling it is not always economically viable
- There can be an insufficient market for the recycled product
- Recycling could, in fact, not be the best ecological option (eg, it could increase the CO₂ footprint)

The types of waste include waste biomass (such as animal meal and fats), waste solvents, impregnated saw dust, non-recyclable plastics and used tyres.

WHAT MAKES CO-PROCESSING UNIQUE ?

In addition to combining both energy recovery and material recycling, co-processing in the cement industry is unique in that dedicated waste pre-treatment facilities have been established in order to treat the waste prior to sending it as a fuel to cement plants. On the one hand, these facilities provide a constant supply of waste which allows the cement industry to control the clinker production process and ensure the clinker quality.

At the same time, these pre-treatment facilities also separate the waste and ensure that any waste which can be recycled is sent for recycling.

WHY IS ENERGY RECOVERY IMPORTANT ?

By using waste as a fuel, the cement industry contributes towards security of energy supply, which is fully in line with the recently published Energy Union Package

ENERGY RECOVERY IN THE CEMENT INDUSTRY :

- contributes to the lowering of CO₂ emissions

- makes the cement industry is less dependent on imported fossil fuels
- reduces the amount of waste sent to landfill

WHY IS MATERIAL RECYCLING IMPORTANT ?

Recycling has evolved in recent years - it is no longer only a case of recycling a product back into the same product category. Part of the reason for this is that there is still a large amount of waste which cannot be recycled back into the same product category. Fortunately, there are several other solutions available for this waste - and co-processing in the cement industry is one of them! Thanks to material recycling in the cement industry, the mineral content of waste used as an alternative fuel serves as a raw material for the production of clinker, the main constituent in cement.

WHAT ARE WE CALLING FOR ?

The legislative framework needs to recognise these new waste management options, such as material recycling in the cement industry, as contributing to the EU and Member State recycling targets.

CASE STUDY

THE CO-PROCESSING OF USED TYRES



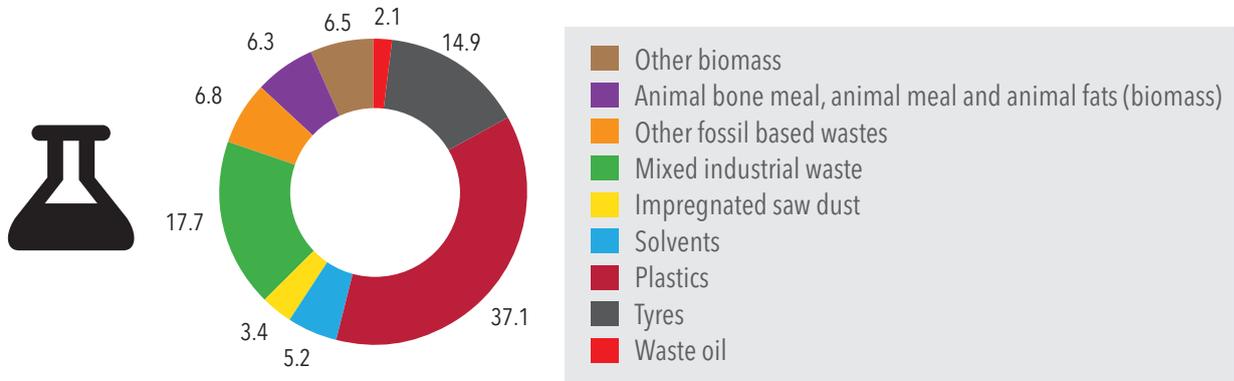
Used tyres are an example of a type of waste which can be recycled, but for which there is insufficient demand for the recycled product.

The cement production process offers the possibility of a simultaneous energy recovery and material recycling of the individual components of the tyre.

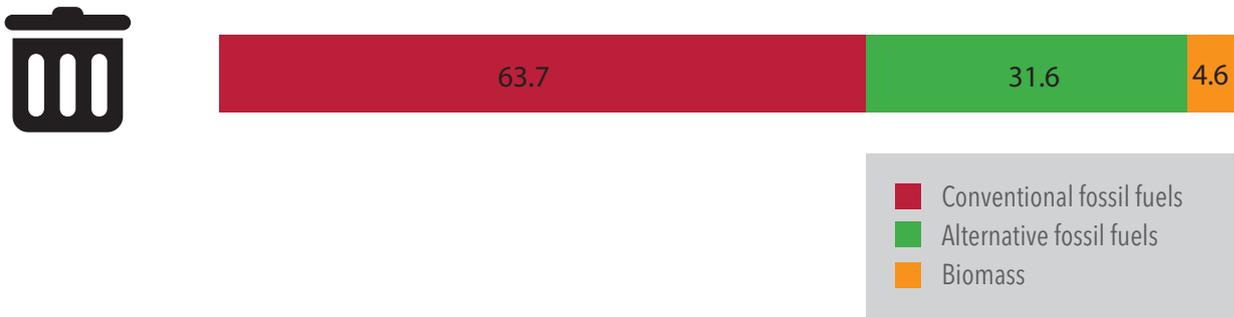
Used tyres have a high calorific value, which make them an ideal fuel for the cement industry. At the same time, they have a high iron and silica content which makes them perfect for material recycling, allowing the cement industry to reduce it's consumption of primary raw materials.

In Europe, about 1.1 million tonnes of ELTs are annually valorised and recycled in cement kilns.

BREAKDOWN OF ALTERNATIVE FOSSIL FUELS, EU28



BREAKDOWN OF MAIN FUEL TYPES, EU28



RECYCLING INDEX

In order to quantify the amount of material recycled thanks to co-processing, the Portuguese cement industry has worked with the consultant 3Drivers and others stakeholders* to develop a methodology. With this methodology, a recycling index has been produced which allows for the quantification of the amount of material recycled, based on the ash content of the waste.

Thus, it has been possible to demonstrate that material recycling thanks to co-processing in the cement industry can boost in Portugal the recycling rate of used tyres by around 8%. For automotive shredder residues (fluff), it could boost the recycling rate by 2%.

Taking into consideration Portuguese municipal solid waste (MSW) characteristics, and based on the projections for consumption, in 2016 material recycling in the cement industry could also boost the recycling rate of packaging waste from MSW by 2.6% and by 1.7% for MSW refuse derived fuel.

This methodology is currently being considered by the Portuguese Government for implementation in national legislation, and there is huge interest in using the results for the purpose of obtaining more accurate figures on the amount of material which is recycled - bringing Portugal closer to achieving its recycling targets

The Portuguese cement industry only recovers in its process materials which are not suitable for recycling by dedicated facilities (and thus does not compete with them on the market)

* Valorpneu, SPV, Valorcar

POTENTIAL INCREASE THROUGH MATERIAL RECYCLING



USED TYRES



AUTOMOTIVE SHREDDER RESIDUES (Fluff)



Legend:

- Current recycling rate
- Potential increment thanks to material recycling

Data 2013



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