From: Brian Gilmore <bgilmore@cement.ie>
Sent: Friday 11 June 2021 12:32
To: circulareconomy
Cc: David Duffy
Subject: CMI - DECC Circular Economy Strategy 2021-2022 submission
Attachments: CMI - Circular Economy Strategy 2021 submission.pdf

Follow Up Flag: Follow up
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Good morning,

Attached please find a submission from Cement Manufacturers Ireland to the Department's public consultation on the Circular Economy Strategy 2021-2022.

Please feel free to contact me if you have any questions or require any clarification.

Best Regards
Brian Gilmore
Sustainability Manager

CEMENT MANUFACTURERS IRELAND

mobile: **+353 872560512**
website: **www.cement.ie**
address: 84/86 Lower Baggot Street, Dublin 2, D02 H720
CMI is a business association in Ibec representing Ireland's cement industry.

Ireland's First Whole-of-Government Circular Economy Strategy - Public Consultation on the Proposed Publication of the Strategy

A SUBMISSION BY
CEMENT MANUFACTURERS IRELAND
JUNE 11th 2021

Introduction

Cement Manufacturers Ireland (CMI) was established in Ibec in 2003 as the representative body for the indigenous cement manufacturing industry. CMI has three members in the Republic of Ireland; Breedon Cement, Irish Cement, and Mannok Cement and an associate member in Northern Ireland - Lafarge Cement.

The cement industry has a long heritage, providing local employment, maximising resource efficiency and producing high quality cement products. Our cement has been the essential foundation of Ireland's current building stock and will continue to be a critical element as Ireland transitions to a more sustainable built environment.

Our member companies operate modern manufacturing facilities to the highest international and European standards supporting over 2,000 direct and indirect jobs in Ireland. The members compete on the island of Ireland to supply cement products to the domestic construction market and to overseas markets.

CMI is a member of Cembureau, the European Cement Association and an Associate Member of the Global Cement and Concrete Association.

Response to the Public Consultation

CMI welcome the opportunity to provide this submission to Ireland's First Whole-of-Government Circular Economy Strategy and we look forward to ongoing engagement with this important work as a member of the Circular Economy Advisory Group.

As the business association for one of Ireland's few large-scale manufacturing activities CMI's members are already contributing significantly to the circular economy through two principle pathways: **raw materials** and **fuels**.

Given the annual demand for approximately 5 million tonnes of raw materials, containing calcium, silica, alumina and iron, the sector is working actively to increase the portion of these essential elements it can recover from **construction and demolition** sources.

Fossil fuel replacement – our members' cement factories have active programmes using alternative fuels in place of fossil fuels which directly improves the circularity of the production process and provides wider benefits as we recovery energy and recycle key elements from society's discarded resources. **See Appendix A – which includes a link to a short, animated video by CMI - 'Cement Concrete and the Circular Economy'.**

Circular Economy Benefits

The Waste Action Plan for a Circular Economy Ireland's National Waste Policy 2020-2025 states, "*As its name suggests, the 'Waste Action Plan for a Circular Economy' goes beyond the management of waste and addresses how we look at resources more broadly, capturing and maximising the value of materials that may in the past have been discarded.*" For our members, manufacturing high quality cement from local resources is our primary goal and the fact that our high temperature manufacturing process allows us to safely maximise the value of discarded resources and return them into the circular economy is an added benefit to our businesses and the wider community.

The use of discarded resources in the kilns in place of fossil fuel not only utilises the energy value of waste but also recycles the non-combustible elements in the waste. How this contributes to the circular economy is perhaps best illustrated by the **case study 'Aluminium' – circular economy in the cement industry in Appendix B**, which fulfils one of the overarching objectives of the action plan to, "*shift the focus away from waste disposal and treatment to ensure that materials and products remain in productive use for longer...*"

Concrete which is essential to our built environment and modern way of life, is a fundamentally circular material meeting many of the attributes of circularity; it is manufactured using local resources, creating local jobs, with short and resilient supply chains. Concrete structures can

be re-used, repaired and refurbished ensuring the resources have a long and productive life in our buildings and infrastructure and at the end of life concrete is 100% recyclable.

Our members are researching a number of promising fractions of end-of-life concrete and construction and demolition (C&D) wastes that can be taken back into our cement manufacturing process as raw materials, helping us to reduce the use of virgin raw materials and access already decarbonated raw materials.

Climate Action Benefits

Cement manufacturing is a large-scale, energy intensive activity that transforms natural raw materials into cement powder which is essential for virtually every construction project. Our members are continuously investing in upgrades and improvements and today Ireland has modern energy efficient cement factories operating to European Best Available Technology (BAT) standards producing more sustainable local cement products for Ireland's construction sector.

In line with the 2019 Climate Action Plan target for the cement kilns to achieve 80% fossil fuel replacement by 2030 all four cement kilns have ambitious programmes to minimise fossil fuel use over the coming decade. This directly reduces the carbon emission from the factories and significantly boosts Ireland's self-sufficiency by making this thermal capacity available for the recovery of a range of discarded resources.

In addition, to fossil fuel replacement our industry recognises the carbon reduction opportunities of becoming more circular, by improved resource efficiency, reduced virgin raw material consumption and having access to already decarbonated raw materials. Our members are well on the way, but further progress will be essential for our sector to reach the ambitious 2030 targets. Making further progress will require a coordinated approach where policy and practice are fully aligned.

Wate Management Benefits

Currently CMI members use approximately 250,000 tonnes of alternative fuels in place of fossil fuels each year in three of the four cement kilns in Ireland. The fourth kiln has recently received authorisation to also begin replacing imported fossil fuels. The use of alternative fuels not only directly reduces the carbon emissions from our factories but also returns discarded resources back into the circular economy.

The Waste Action Plan for a Circular Economy Ireland's National Waste Policy 2020-2025 recognises the critical contribution of our sector "*In the case of cement kilns, energy recovery avoids burning of fossil fuels by substituting packaging waste materials as a fuel source.*" As our members continue to reduce fossil fuel imports and increase the range and quantity of alternative fuels to include additional 'hard to recycle' materials, we will be assisting Ireland to achieve climate action and waste management targets.

Solid Recovered Fuel (SRF) made from non-recyclable waste sourced from Municipal Solid Waste (MSW) makes up the majority of the alternative fuels we use today. SRF is typically composed of fragments of paper, plastics, composite packaging and other materials that are generated by households and businesses alike. Through co-processing in the cement kilns these discarded resources provide vital heat and mineral components to our manufacturing process.

Based on the anticipated availability of suitable feedstock and the capacity and expertise in the waste management sector, who manufacture SRF, we believe it will continue to be most important fuel to 2030. By 2030 we estimate that the four cement kilns in Ireland will be using 500,000 tonnes of alternative fuels. Of this, 400,000 tonnes will be SRF, with the remaining fuels being meat and bonemeal, tyres and solvents.

In the coming decade Ireland must meet ambitious recycling targets for MSW. Assuming Ireland achieves the 2025 and 2030 recycling targets our projections show that the cement kilns will be recovering 20% of residual MSW in 2025 and 28% by 2030. Making this capacity available at home reduces the need to export these resources and improves Ireland's self-sufficiency.

Recovering C&D waste

The Circular Economy Strategy Pre-consultation document describes the circular economy as "*one in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of life.*" This accurately describes cement and concrete in the structures all around us where the resources are kept in use for as long as possible. Designing and constructing robust and durable buildings is the best use of these natural resources. In Ireland we benefit from having abundant deposits of high-quality limestone; the primary raw material for cement and also used for aggregates in concrete production. While concrete is 100% recyclable, it is estimated that across Europe if we recycled all the C&D waste each year as aggregates for concrete it would only meet between 10%-30% of the demand. Before setting minimum recycled content requirements for any product it is important to understand and map the resource flows. The opportunity will then exist to ramp up the recovery of suitable end-of-life resources and return them into the cement manufacturing process.

Our members cement factories are well positioned to disrupt the past linear model by extracting C&D fractions containing the essential elements we need to make clinker. Because of the scale of our members operations and the inherent high temperatures needed our industry can assist the construction sector to become more circular. Working with partners in the waste industry we have initiated R&D programmes to sample the hard-to-recycle fractions from demolition and refurbishment projects. With proper segregation and quality control we are confident that this will become an important source of raw materials for our sector over the next decade.

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A Shared Vision

Over the next ten years our members will dramatically reduce the use of imported fossil fuels and increase the recovery of discarded resources as both fuels and raw materials. These programmes are essential for our businesses to be more sustainable and competitive.

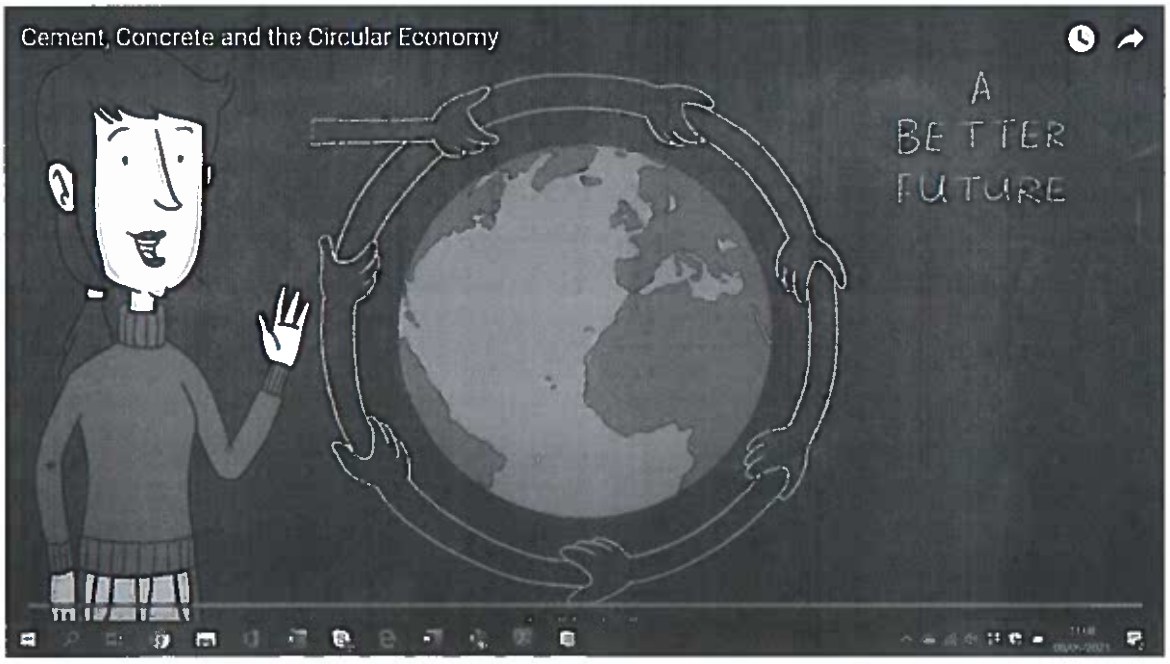
The shared benefit from maximising the value of local resources is that Ireland will become more circular with reduced waste disposal and reduced climate impacts. As the Department recognises raising public awareness of the benefits of the becoming more circular will be vital to achieving success. In this regard, CMI members welcome the Department's goal to establish national policy to 'demystify' the circular economy and develop an online platform to assist with this objective. Our members would be happy to support any practical initiatives that promote a better understanding of our high temperature circular manufacturing process and the role it can play in building a more circular Ireland.

A future with less waste, more recycling and where resources are kept circulating is only possible when all sectors and actors in the economy are working towards this shared vision. Each part of society must recognise that they have a part to play. Each has its own responsibilities and strengths to contribute to help achieve the challenging targets that lie ahead. The strengths of the cement industry are its scale and high temperature manufacturing process. These can be harnessed through a coordinated policy framework that discourages the wasting of resources and rewards circularity. A policy framework that recognises co-processing will mean our members play a more active role. As we make cement, we can make a real contribution to achieving that shared vision.

APPENDIX A – Video Link

Link to a short, animated video by Cement Manufacturers Ireland

Cement Concrete and the Circular Economy



https://vimeo.com/179041902

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APPENDIX B – Case Study

Case Study 'Aluminium' – circular economy in the cement industry

Four primary elements, calcium, silicon, aluminium and iron are required to make cement. Local limestone and shale quarries provide the calcium and silicon and smaller quantities of aluminium and iron. Supplementation to get the correct proportion of aluminium and iron is typically required and these are obtained by the importation of bauxite (rich in alumina) and iron ore to supply iron to the cement factory.

One of the CMI member cement factories, Irish Cement Platin, has significantly reduced the requirement for external supplies of bauxite. Since 2011, when Platin first started replacing fossil fuels with Solid Recovered Fuel (SRF) it has been able to reduce the importation and delivery of bauxite by approximately 90,000 tonnes.

SRF is made from non-recyclable waste materials like paper, plastic and composite packaging. Close to 2% of the SRF used in Platin contains non-recyclable aluminium, primarily from foil-lined composite packaging, (examples include crisp packets and packaging for coffee). The SRF is primarily needed for its energy content however, the non-combustible or mineral fraction of the SRF, in this case the alumina, becomes available at high temperatures inside the cement kiln. Here it mixes with the other essential ingredients to form the cement clinker.

At an elemental level the aluminium in the SRF is recycled and allows Platin to reduce the quarrying and transport impacts of importing bauxite. It is a real-life example of the circular economy in action, where discarded resources are recycled in a manufacturing process instead of using virgin resources. This is an added benefit to the primary goal of replacing fossil fuels.

This type of 'hidden recycling' is being increasingly recognised around Europe with a number of Member States working to assess its contribution to the local circular economy and national recycling targets.