

Event summary: Innovative Technologies for Recycling

A roundtable from the All-Party Parliamentary Sustainable Resource Group and Sustainable Resource Forum, in partnership with Imperial College London

29 March 2022

Overview

The All-Party Parliamentary Sustainable Resource Group (APSRG) and Sustainable Resource Forum (SRF) held an online roundtable to discuss innovative technologies for recycling.

This event was made possible by kind sponsorship from Imperial College London's *Transition to Zero Pollution* initiative and was chaired by Shadow Minister for Nature Recovery and the Domestic Environment, Alex Sobel MP.

A range of stakeholders took part, including Tim Duret (Veolia), Emma Beal (West London Waste Authority), Professor Jason Hallett (Imperial College London) and Graham Gould (Thermal Recycling).

This document was produced as a post-event write-up by Policy Connect. While it was informed by the roundtable discussion, this write-up does not necessarily represent the views of all those in attendance or Policy Connect.

Key themes discussed

- **Financial tools:** the right economic instruments are required to drive change, and Extended Producer Responsibility (EPR) can fill this gap if applied correctly
 - **The role of redesign:** some complex materials must be redesigned with deconstruction in mind
 - **Scaling up innovative technologies:** innovative technologies are in operation, but targeted financial support is required to create economies of scale
 - **Recycling aims and definitions:** measuring recycling processes, expanding definitions of recycling and agreeing common policy aims would increase UK recycling rates
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Financial tools

This roundtable took place shortly before the introduction of the Plastic Packaging Tax on 1 April, so financial tools for incentivising recycling loomed large for participants.

Extended Producer Responsibility (EPR) was described as a “disruptor” and a test for producers. During the discussion the question was raised whether, after EPR is introduced from 2024, it will be cheaper for producers to pay the costs of disposal, prioritise recyclability, or redesign packaging and their use of materials. Some participants were of the view that EPR will be most effective if financial tests are applied in the right places and escalated over time. Comparison was made with the introduction of the Soft Drinks Industry Levy in 2018, when Coca Cola did not initially reduce the sugar content of its products, but instead reduced the size of their products and paid the tax. Similar responses in products such as crisp packets could occur if EPR is not carefully applied, preventing the intended benefits of the policy from being realised.

Participants agreed that the right economic instruments are essential for driving change. Investment cycles are long-term, so the value of materials will likely change over time in response to a number of factors, for example energy security. Participants highlighted that modulated fees are an important tool for increasing recycling rates, under which fees paid by the producer would vary according to specific criteria relating to their products' environmental performance.

However, if they vary from month to month, they may appear to be unattractive investments compared to more reliable income streams.

Participants were also in agreement that the UK should seek to reduce the amount of waste it exports, instead deriving the potential economic benefits of waste domestically. To make sure we have the necessary capacity to do this, more private and public investment in consistent collection and sorting is needed. Participants felt this would send a strong signal to investors that waste can be collected and that there will be stable and viable processing capacity for it. This system currently works well for plastic bottles for example, but many other types of plastics such as films and flexibles pose challenges. More regulatory tools could boost recycling of a wider range of materials.

The role of redesign

Participants highlighted that recyclability needs to be considered at the beginning of waste processes. Assessing what percentage of products made and bought in the UK are recyclable could also be useful in reducing waste and helping waste managers to plan recycling capacity. It was agreed that EPR goes some way towards encouraging producers to consider recyclability at the design stage, and ultimately increase recycling rates.

Participants highlighted that certain materials pose particular challenges, with limited options to keep materials circulating rather than releasing their carbon into the environment. For example, there are eight material layers in the average crisp packet; this complex design performs a preservative function but is extremely difficult to deconstruct for recycling. For complex materials such as this, there is a need to redesign with deconstruction in mind. Packaging redesign should also consider regional differences in climate and production that impact packaging needs. Participants also felt that companies should abandon the use of international packaging consistency for branding reasons only, where this presents a barrier to recycling.

Scaling up innovative technologies

The roundtable heard that several innovative recycling technologies have been developed to process complex and hazardous materials, but they currently operate on a small scale. For example, a trial conducted with a crisp packet producer successfully simplified crisp packet design to just two materials. However, these crisp packets then had to be collected separately from other waste and enter a separate, dedicated process. Financial incentives and economies of scale are not yet in place to make scaling up such technologies possible.

Similar problems prevent asbestos recycling from scaling up in the UK. According to participants, asbestos remains a significant cause of workplace illness and death and innovative technologies to recycle it are currently in operation, diverting it from landfill and creating cement, but there is insufficient financial support in place for this technology to operate on an industrial scale.¹ Similar problems face capacity for food waste processing in some cases. Leeds City Council, for example, would like to move towards food waste collection but does not have an anaerobic digester to do so.

Recycling aims and definitions

Participants discussed the need for clarity on definitions and aims surrounding recycling. For local authorities, legal definitions of recyclability can be restrictive. Consequently, some plastics are left behind in rubbish, diverting them from recycling and moving them down the waste hierarchy to landfill or waste to energy processes. Expanding the definition of recycling would increase recycling rates, and measuring recycling at different stages of the process would allow local authorities to

¹ According to the Health and Safety Executive, asbestos kills around 5,000 workers each year - more than the number of people killed on UK roads. Health and Safety Executive (n.d.) *Why is asbestos so dangerous?* [<https://www.hse.gov.uk/asbestos/dangerous.htm>].

identify gaps. For example, if households put out large volumes of recycling which cannot be processed by facilities, this gap is not measured as part of the recycling process.

Participants also agreed the need for aligned aims when it comes to recycling policy. For example, recycling technologies such as pyrolysis can emit significant carbon and produce low yields. Participants felt that if industry and government can work together to prioritise competing priorities, they can be more effective in preventing pollution, conserving resources and deriving economic value from waste. Participants agreed that securing the greatest environmental benefits from recycling processes should be the priority of both industry and government. Whilst chemical recycling technologies would not currently deliver this, the balance of benefits may shift if carbon capture, usage and storage (CCUS) technology is rolled out more widely.

About the *Transition to Zero Pollution* initiative

The session was kindly sponsored by *Transition to Zero Pollution*, a major new initiative from Imperial College London's academic strategy. The initiative aims to bring about a sustainable zero-pollution future, drawing from expertise across Imperial in new energy, climate change, the health impacts of pollution, resources and waste management, and also in thinking about policy and business models. When we're building new systems or thinking about the future, Transition to Zero Pollution is about thinking holistically and making sure that our actions do not result in unintended consequences.

About Policy Connect

Policy Connect is a cross-party think tank. We specialise in supporting parliamentary groups, forums and commissions, delivering impactful policy research and event programmes. We bring together parliamentarians and government in collaboration with academia, business and civil society to help shape public policy in Westminster and Whitehall, so as to improve people's lives.

As well as focusing on Sustainability, our work focusses on four other key policy areas: Education & Skills; Industry, Technology & Innovation; Health; and Assistive & Accessible Technology.

We are a non-profit organisation funded by a combination of regular annual membership subscriptions and time-limited sponsorships. We are proud to be a Disability Confident and London Living Wage employer, and a member of Social Enterprise UK.

About the APSRG

Established in 1995, the All-Party Parliamentary Sustainable Resource Group (APSRG) is the leading forum informing the debate between parliamentarians, business leaders and the sustainable resource community. The APSRG's mission is to provide an objective platform for effective communication between policymakers, businesses, and organisations with an interest in sustainable resource management, and to raise awareness of sustainable resource issues within Parliament. The APSRG organises a regular programme of focused parliamentary events, conducts detailed policy research projects and provides in-depth parliamentary monitoring and analysis to its associate member organisations and parliamentarians. It provides an invaluable platform for engagement in the sustainability agenda, facilitating relationship building and generating a forward-thinking policy debate.

About the SRF

The Sustainable Resource Forum (SRF) aims to improve public policy by informing and engaging with the waste policy agenda. The SRF provides a cross-party forum for communication and debate between parliamentarians, government officials and leading experts and stakeholders in the waste sector on the crucial policy issues affecting sustainable resource management. It achieves this through organising regular parliamentary events, conducting detailed policy research projects and providing in-depth parliamentary monitoring and analysis to its member organisations and parliamentarians.