

APSE Briefing: The Sixth Carbon Budget Waste Specific Report

To All APSE contacts UK wide

1. Introduction

On the 9 December 2020 the UK Climate Change Committee released its Sixth Carbon Budget report which included a number of subset reports and recommendations. An overview of the report for local authorities can be found in APSE briefing [20-96](#). In addition to the local authorities report the CCC produced a number of sector summaries including a summary of content for the waste sector.

The CCC's recommended Sixth Carbon Budget pathway sees a reduction in waste due to improvements in recycling, a phase-out of biogenic waste going to landfill, and carbon capture and storage installed on both new and existing energy-from-waste facilities.

Their report advised that the UK set its Sixth Carbon Budget to require a reduction in UK emissions of 78% by 2035 relative to 1990. This, it suggests, places the UK with a world-leading commitment, and decisively on the path to Net Zero by 2050 at the latest, with a trajectory that is consistent with the Paris Agreement.

The report was split to cover pathways, method and policy advice, it is set out in three sections: -

- The approach to the Sixth Carbon Budget analysis for the waste sector
- Emissions pathways for the waste sector and
- Policy recommendations for the waste sector.

The report looks in detail, at the challenges and opportunities, faced by the UK to reach the net zero target in the waste sector.

2. Findings of the Report

Generating less waste, recycling more and not sending waste that can decay to landfill are the key pillars to reducing landfill emissions.

Some messages which came out of the report show that:

- Recycling rates have plateaued in England, although Wales, Northern Ireland and Scotland have seen improvements in the past decade. With the significant decrease in landfilling, more local authority waste is now incinerated for energy than recycled or composted in England, and this has translated into increasing EfW (Energy from Waste) emissions.
- Waste sector emissions (now including EfW plants), accounted for 6% of UK GHG emissions in 2018 and were 63% below 1990 levels with emissions falling significantly over the past two decades, due to reductions in waste being landfilled, although emissions have not

improved in the past few years due to a plateau in UK recycling and significant growth in fossil emissions from EfW plants.

- Mitigation options for reducing emissions were considered and include, reduced landfill methane generation (through waste prevention, recycling and banning biodegradable waste from landfill), reduced residual waste sent to EfW (through waste prevention, recycling), increased landfill methane capture and oxidation, improvements at wastewater treatment and composting facilities, and installation of CCS on EfW plants. A Reduction in landfill methane generation could also be achieved with a reduction in the amount of biodegradable material that is landfilled.
- Waste sector emissions rose with increases in landfill methane in the early 1990s (as emissions from waste arise mostly from decomposition of organic matter in landfills), but since then have shown significant reductions. This is primarily due to falls in the amount of biodegradable waste being landfilled, driven by the UK's landfill tax diverting waste away from landfill. Landfill methane capture rates also increased significantly in the period up to the early 2010s, with policy support under the Renewables Obligation.
- Reductions in residual waste sent to energy-from-waste, achieved via increased recycling rates and reductions in waste arisings (including food waste), need to out-pace the bans on landfilling and export of wastes to avoid increased residual waste volumes being sent to EfW facilities.
- Wastewater treatment processes and combustion of residual waste in energy-from waste plants can be reduced by 75% by 2050, through greater waste prevention, recycling, higher landfill methane capture rates, improvements to wastewater treatment and composting facilities, and adding CCS to energy from-waste plants.
- Investment requirements and costs front-loaded investment in the 2020s will be required to realise a biodegradable waste landfill ban by 2025.

3. Policy recommendations

Some policy recommendations which came out of the report for the waste sector included:

Waste reduction and recycling

- Developing further policies to accelerate the Resources and Waste Strategy for England, introducing greater ambition for efficiency in manufacturing and construction, material substitution for more sustainable alternatives, and reduction in consumer demand for products. Applying similar focus in Wales, Scotland and Northern Ireland with their respective circular economy strategies.

- Mandatory business food waste reporting to be introduced by 2022, building on WRAP's existing voluntary scheme.
- Accelerating investment plans for local authorities to put in place universal municipal waste recycling collections, along with downstream recycling, composting and anaerobic digestion (AD) facilities.
- Setting targets for a 68% recycling rate by 2030 covering all wastes in England via the Environment Bill, and announcing new policies to meet this target. Northern Ireland to set a 70% target for 2030. Scotland and Wales to set new targets for 2030 that go beyond their 70% targets for 2025.
- Composting facilities incentivised to install forced aeration as a method of reducing onsite emissions.

Landfill and exports

- Legislating for (in England via the Environment Bill, and in Wales, Scotland and Northern Ireland via new legislation) and implementing a ban on landfilling of all biodegradable municipal and non-municipal waste from 2025. For this to be achievable however, there must be sufficient recycling/composting/AD treatment capacity made available before the ban comes into force, so that significant increases in energy-from-waste are avoided.
- Phasing out exports of waste by 2030.
- Long-term planning for eventual diversion of all wastes from landfill, but with a date conditional on sufficient action on reduction, re-use and recycling, and installation of CCS at energy-from-waste plants, to avoid a surge in fossil emissions when the ban comes into force.
- Announcing policies and funding for increased methane capture and oxidation at landfill sites, to significantly decrease fugitive landfill methane emissions.

Wastewater

- Including decarbonisation as one of its core principles, to assist the water industry's goal of decarbonising by 2030, and the need to roll out advanced AD systems.
- Innovation funding committed to development and demonstration of novel wastewater treatment process that achieves a step change improvement in direct process emissions.
- Outside of the municipal wastewater sector, industrial wastewater plants should be incentivised to reduce their process emissions.

Energy from waste

- Examining the impact of waste reduction & recycling targets on the utilisation of (and need for further) energy-from-waste plants. Issuing guidance notes to align local authority waste contracts and planning policy to these targets.
- New waste conversion plants (including incineration, gasification and pyrolysis facilities) must be built with carbon capture and storage (CCS) or CCS ready.
- Existing plants should start retrofitting CCS from late 2020s onwards, with 2050 a backstop date for full CCS coverage. This will require either use of GHG thresholds for generated power and heat (which could be set as part of the UK's new Bioenergy Strategy), access to CCS incentives to lower the costs of capture (particularly for smaller facilities further from CCS clusters), and/or carbon taxation (either taxes or inclusion in a UK ETS). Regional retrofit timings should be aligned with BEIS' CCS infrastructure.

4. Challenges for waste policy and strategy

A number of challenges to the waste sector were identified in the report, these included:

- **Diffusing sources and incomplete data**

Waste emissions are generally diffuse, dominated by methane and nitrous oxide, and spread across a large number of actors and diverse supply chains. Data regarding commercial and industrial waste recycling is very poor, and the industrial wastewater sector is not well characterised.

- **Locational and quality variations**

There can be large differences between local authorities as to what materials can currently be recycled, and variations in the quality of materials collected for recycling. Space for additional bins at properties can be limited. Some wastes also cannot currently be recycled or are hazardous

- **A growing population**

The UK has a growing population, and so a growing requirement for wastewater treatment, and without action, potentially greater consumption of goods leading to more waste.

- **Time lags**

Biodegradable material sent to landfill today will still be producing methane in several decades – policy benefits can therefore take significant time to be fully realised. This makes near-term action all the more important. Many new energy-from-waste (EfW) plants are under construction and have been granted planning permission, which if built without CCS will likely significantly increase sector emissions.

- **Long-term contracts**

Waste volumes are often tied into long-term waste management contracts, making it difficult or expensive to quickly change course and prioritise other uses and the current lack of carbon capture and storage (CCS) infrastructure in the UK.

5. Existing policy and planned publications (across the UK)

The reports highlights that the UK published the Circular Economy Package (CEP) in August 2020, which introduces a revised legislative framework, transposing across EU 2020 CEP measures it: -

- Identifies steps for waste reduction, to ensure better compliance with the waste hierarchy.
- Establishes a long-term path for waste management and recycling, with 2035 targets across the UK of at least 65% municipal recycling, and below 10% municipal waste sent to landfill.
- Bans separately-collected plastic, metal, glass and paper from being landfilled unless it has gone through treatment and is the best environmental outcome.

In England, the Environment Bill currently going through Parliament will establish several new policy levers to tackle waste in England: These are: -

- Extended Producer Responsibilities on packaging.
- Deposit Return Schemes for drinks containers.
- Provision of resource efficiency information.
- Mandating consistent collections of separate recyclable/compostable materials from households and businesses (starting in 2023 and fully rolled out by 2035). These streams include food waste, plastics, paper and card, metal packaging and glass, plus garden waste collection from households.
- Establishment of binding long-term targets for England, potentially for resource productivity and residual waste targets (with the latter measuring reductions in per capita tonnages sent to landfill or incineration).

In Scotland, the Scottish Government proposed several 2025 targets in 'Developing Scotland's circular economy' but this is not being taken forward in this legislative session due to COVID-19, although it may be reintroduced in 2021. These 2025 targets include: -

- A 70% recycling rate for all wastes (with households achieving a 60% recycling rate by 2020).
- A 15% reduction in total waste (against 2011 levels).
- A 33% reduction in food waste (per capita against 2013 levels), following the Food waste reduction: action plan.
- No more than 5% of all waste being sent to landfill.

In Wales, the current recycling rate is 62.8% of municipal waste, which is one of the highest recycling rates globally. In December 2019, the Welsh Government consulted on a new circular economy strategy 'Beyond Recycling'. It contains a number of ambitious near-term and longer-term targets. A 'zero waste' goal for 2050, aiming to phase out residual waste to landfill and incineration (an effective 100% recycling rate from all sectors).

- Development of minimum preparation for re-use targets for local authorities, and prioritising re-used and remanufactured content in the goods that the public sector procures.
- A 50% reduction in food waste by 2025, against a 2006-07 baseline, and looking to go further after 2025.
- 70% recycling of all waste by 2025, as well as statutory local authority recycling targets at the same level. A £6.5 million fund is available for local authorities and public bodies to increase their recycling rates. Improved waste collections for Welsh businesses are also being implemented.
- In Northern Ireland, the Department of Agriculture, Environment & Rural Affairs (DAERA) consulted on its 2019 Waste Prevention Programme 'Stopping Waste in its Tracks' in early 2020.
- A discussion document on the Future of recycling and the separate collection of waste of a household nature in Northern Ireland' was published in June 2020. The proposed targets match the CEP, with a municipal recycling rate of 65% by 2035 (with interim targets of 55% by 2025, 60% by 2030) and less than 10% of municipal waste going to landfill by 2035).

6. Key policy changes needed

As stated in the report achieving significant future emission reductions in the waste sector requires a step-change towards a circular economy, moving away from landfill and energy-from-waste and towards a reduction in waste arisings and collection of separated valuable resources for re-use and recycling. This applies at local, regional and national levels.

Without substantial increases in policy ambition, and new policies in a range of areas, waste will become an increasing share of emissions and could still have substantial emissions by 2050. Given lead-times for changing waste management practices without a risk of unintended consequences, the waste sector requires new policy urgently.

Waste sector emissions will become increasingly important to UK Net Zero by 2050, to achieve the route map on carbon eradication as highlighted in the report as follows: -

- Policy needs to be developed in multiple areas.
- Development of further policies to accelerate the transition to a circular economy.
- Food waste policy needs to align with agricultural policy.
- Biodegradable waste should be banned from landfill by 2025.
- Exporting of waste from the UK should stop by 2030, but full landfill waste bans should not be rushed.
- Recycling rate ambitions need to be raised.
- Energy-from-waste emissions continue to grow, but need to be constrained by waste prevention, re-use and recycling, and over time further mitigated via carbon capture and storage.
- Incentives for landfill operators to reduce methane emissions are required.
- Wastewater decarbonisation needs to be embedded into the sector's investment framework.

- Composting facilities should be incentivised to install forced aeration.
- Waste sector data is in places poor, and requires improvement.

APSE concluding comments

It is clear that a lot of work is already ongoing across the UK to meet the targets as identified by the Sixth Carbon Budget Waste report and indeed within devolved Government Administrations.

Many councils have made significant efforts in waste management through encouraging waste minimisation, as well as reduction of biodegradable waste to landfill, use of behaviour change to encourage greater recycling, and working with residents, and commercial customers, to view waste as a resource, and support the concept of a genuine circular economy.

There is however still more work to be done to ensure those targets identified in the report are met. Local authorities will still have to be one of the main players in delivering these aims, the waste sector including local authorities, needs to consider their future strategic planning for waste services in order to meet the objectives as laid out in the report by the Climate Change Committee.

The Resource and Waste Strategy (2018), for England, provides something of a bed rock for the report, with key elements aimed at reducing waste and gaining greater resource value from the materials used and moving towards a circular economy. Similarly, within Scotland, Wales and Northern Ireland, Waste and Resource strategies and planning is intrinsically linked to net-zero goals, and indeed within Scotland the Climate Change Act 2019, commits Scotland to net-zero emissions of all greenhouse gases by 2045, and within Wales and Northern Ireland this is aligned to England with a target date of 2050.

Whilst APSE supports the aims of the Sixth Carbon Budget sector report on waste, to help achieve zero emissions from the waste sector, local authorities still face a number of barriers. Financial investment will be necessary to achieve the innovations and new technologies to support the move to zero emissions. This will need to be 'at scale' and there is a strong argument that alongside the ban on exporting waste the UK could become a world leader in developing innovative solutions to recycling, waste re-use and disposal, as part of the approach towards a green economy.

There is also significant divergence on UK wide policies. For example, in Scotland the policy developed towards the introduction of a deposit return scheme, ahead of other parts of the UK raises some interesting questions on the transition of waste between different parts of the UK. It also raises questions as to how other Administrations' will catch up with the progress already made in Scotland, or if they will develop similar schemes, and consistency of approach for retailers and waste producers, as well as domestic collections used by residents.

Moreover, many Waste Disposal Authorities face the end of PFI contracts and this may require new forms of investment. Alongside this older disposal facilities will not necessarily meet new needs for recycling and disposal options as the ban on landfill is introduced and emissions are decreased, or indeed eradicated from the EfW plants. Whilst there are already innovations in tackling fugitive gases from landfill again further investment will be required.

From a refuse collection perspective, the vast majority of local authorities recognise the urgency of the climate change decisions that are now being made both within the UK and globally; it is also the case that many APSE member councils have already advanced the case to reduce emissions in the waste sector. However, changes in waste collections can be a sensitive issue and pressure on

budgets in many council areas has lessened public campaign spending which APSE would argue is essential in engaging the public, and wider industries, to reduce waste in the first place, to reuse and to recycle (as a last resort). Support for the sector therefore needs to be consistent, and reflect the need to take the public with councils on the journey to zero emissions in the waste sector.

There are also advances in new methods of collection such as Underground Bin Systems, which may assist in improving recycling, particularly in areas where traditional recycling schemes may be difficult to manage, and where cost savings may be achieved from an operational perspective. Such schemes may also help to reduce the emissions from the collection operations.

Finally, a step change in regulatory measures will be necessary to support zero emissions in the waste sector. Local authorities and their residents are left to foot the bill for waste producers with weak regulation on excessive packaging, and hard to recycle or repair products still flooding the UK marketplace. It is welcome that this is reflected in the Sixth Carbon Budget but there is an urgent need for a coherent approach to tackle waste production at source.

APSE member councils can access a number of support networks on this issue through our advisory groups on waste and street scene services, held across the UK, as well as the APSE Climate Change and Renewables networks. [You can view APSE networks using this link](#), where you can also sign up to join the networks, which are free to access for APSE members.

More detailed support on energy from waste, alongside renewables, is available to those councils that are members of APSE Energy. You can view details about [APSE Energy using this link](#). In addition, a new innovative public procurement framework to support local authorities in the development of Underground Refuse Systems has been developed by APSE Solutions. You can find out more [using this link](#).

Whilst the CCC report makes a recommendation to improve data on waste it should also be noted that for over twenty years APSE performance networks has collected and analysed waste and recycling data including cost and productivity measures. The service also provides measurement on the recycling streams, trend changes and the methods of collection in place on a UK wide basis. We would encourage all councils to recognise the value of inputting this data and receiving their annual assessment report on their performance and how they compare to others to drive improvements. You can view more about [Performance Networks in Refuse and Waste using this link](#).

Finally APSE Training is a major provider across the local authority sector on certified Carbon Literacy courses which are suitable for all levels within an organisation including those with direct responsibilities in tackling carbon emissions, those working in waste and recycling and elected members with a special interest on or responsibility for carbon reduction and climate change. [You can view details using this link](#).

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