

Business resource efficiency

Past drivers

Increased recycling rates and reduced generation of waste has lowered landfill rates. These changes were partly influenced by higher landfill taxes. The significant drop in output from the construction industry during the 2008-09 recession resulted in a sharp reduction in tonnage sent to landfill. Methods of food waste disposal have had an impact on the tonnage of biodegradable waste sent to landfill.



Where are we now?

- The amount of non-household waste generated in Scotland remained around 8 million tonnes in recent years, equivalent to around 75% of all waste generated in Scotland. The construction and demolition industries account for around 60% of non-household waste generated in Scotland and remains sensitive to the number of large infrastructure projects in a given year.
- In 2016, 2.47 million tonnes of non-household waste generated in Scotland were sent to landfill, down 17.8% from 2015 and 35.7% compared to 2005.
- In 2016 91.% of construction & demolition waste was recycled and reused.
- Between 2011 and 2015, the marginal carbon impact of a tonne of Non-Household Waste fell 36%.



Key evidence gaps

Understanding of how products and materials flow through our economy (waste flows) and their value, from the point of production to the final destination.
Greater understanding of the treatment costs associated with increased recycling.
How agricultural and food and drink waste can be reduced across the supply chain.
How sustainable in the long-term current practices of applying organic wastes to land and how to adapt these practices to deal with increasing amounts of organic waste as other pressures on land use also increase.

Future drivers

Potential barriers to future reduction in waste include: product design; the infrastructure to sort and process valuable materials; consumer behaviour (the “throwaway” consumer culture and incorrect use of recycling facilities); and changes in demand, often driven by new technology, which leads to products becoming obsolete and useless. The global market for recyclables.



Where do we want to be?

- We are a zero waste, resource efficient nation.¹
- The global footprint of our consumption and production is sustainable.¹
- We are a climate leader and play our full roll in limiting global temperature rise to well below 2°C.¹



Current initiatives and their impact

Helping businesses use resources more efficiently: Primarily through Resource Efficient Scotland, bringing together expertise on managing energy, water and materials to make it easier for businesses and organisations to access support and make savings.
Establishing Resource Efficiency Pledges: to build momentum and help Scottish companies take the credit for their actions.
Stimulating innovation and business opportunities in reuse, refurbishment and remanufacturing.
Promoting sustainable product design: including via Resource Efficient Scotland support and facilitating business collaboration through the Product Sustainability Forum.
Stimulating a culture of resource efficiency by influencing behaviour.
Landfill tax: underpins the efforts to find economical alternatives to landfill.

¹ Draft outcome, Developing an Environment Strategy for Scotland: Discussion Paper

Draft Knowledge Account – Business resource efficiency

A Introduction

1. In Scotland we consume large amounts of materials and generate a lot of waste. This uses up finite resources and causes pollution. Like most developed countries, the Scottish economy relies heavily on domestic consumption with waste produced from packaging and the disposal of items when they are no longer wanted. For example, in the year to Q4 2017 consumer spending contributed 2.2 percentage points to the overall growth in Scottish GDP of 2.9%.ⁱ
2. Waste is produced from a variety of sources including households, industry, construction and agriculture. Waste can have a serious impact on the environment through the loss of finite resources and the generation of pollutants. Recycling is one means to reduce Scotland's waste impact by transforming waste into new and useful products.
3. A reduction in the amount of waste generated in Scotland is an indicator of greater resource efficiency and more sustainable consumption behaviour - addressing the first step in the waste hierarchy ('Reduce, Re-use, Recycle, Recover').
4. Waste management accounted for around 5% of Scotland's net greenhouse gas emissions in 2014, so reducing the impact of waste types that have the largest contribution to this helps with meeting Scotland's climate change targets.

B Recent trends

5. The amount of non-household waste generated in Scotland has remained around 8 million tonnes in recent years, equivalent to around 75% of all waste in Scotland. The construction and demolition industries account for around 60% of non-household waste generated in Scotland and fluctuates depending on the number of large infrastructure projects in a given year. ⁱⁱ
6. From the 8 million tonnes of non-household waste, around 2.5 million tonnes (around 31%) was disposed of either by landfill or incineration, with the remaining 69% recycled and reused. ⁱⁱⁱ
7. Of the non-household waste sent to landfill, this has continued to decline over the past decade and is down 35% between 2005 and 2016 to 2.47 million tonnes. This decline has been driven by reductions in waste from the construction and demolition industries and combustion wastes, with the latter falling by 75% between 2015 and 2016 following the closure of the Longannet coal power station.^{iv}
8. The volume of non-household waste incinerated has increased sharply since 2011, up nearly 85% to around 600,000 tonnes in 2016. ^v
9. Biodegradable municipal waste (BMW) is the fraction of municipal waste which will degrade within a landfill giving rise to methane emissions. BMW has steadily declined in each of the past 6 years to 1.08 million tonnes in 2016, around 50% lower than in 2005.
10. The Carbon Metric shows how waste reduction and sustainable waste management can play a critical role in the fight against climate change. Despite large annual fluctuations in waste

generated, improved recycling and declining use of landfill continues to reduce the overall carbon impact of waste in Scotland which has fallen 26% or 3.6 MtCO₂e (million tonnes of carbon dioxide equivalent) since 2011. ^{vi}

11. Between 2011 and 2015, the marginal carbon impact of a tonne of Non-Household Waste fell 36%, while the impacts of Household Waste fell just 8%. ^{vii}

C Past drivers of change

12. Three key factors influence the amount of waste generated: rate of income and consumption growth; consumption preferences; and resource efficiency and waste avoidance.
13. Increased recycling rates and reduced generation of waste has had the effect of reducing landfill rates. These changes are likely to have partly been the result of the increases to landfill taxes. Landfill tax is intended to encourage waste producers to produce less waste, and promote recycling and waste recovery. The 2008 recession occurred alongside a sharp reduction in tonnage sent to landfill, which may be due to the drop in activity within the construction industry (which experienced a major fall in output during the recession). Methods of food waste disposal can also have an impact on the tonnage of biodegradable waste sent to landfill.
14. A further driver for increased resource efficiency has been the rising value that can be extracted from waste (e.g. converted into energy and recycled).

D Future drivers

15. There are still a number of barriers which have prevented greater use of waste as a resource in Scotland. These include:
 - Product design (using materials that cannot be recycled, or restricting easy repair or recovery of materials);
 - The infrastructure (fragmented collection systems and insufficient facilities to sort and process valuable materials);
 - Consumer behaviour (the “throwaway” consumer culture and incorrect use of recycling facilities); and
 - Changes in demand, often driven by new technology, which leads to products becoming obsolete and useless.
16. Scotland’s ability to influence some of these factors is limited, as many goods we use are sourced and manufactured in other parts of the world. Therefore the waste associated with their production is not visible to us and remains in the country where a product came from.
17. The global market for recyclables will impact our shift towards a circular economy. For example, the ban on the import of plastics in China which was introduced at the start of 2018.

E Current initiatives and their impact

18. Helping businesses use resources more efficiently: Primarily through Resource Efficient Scotland, bringing together expertise on managing energy, water and materials to make it easier for businesses and organisations to access support and make savings.
19. Establishing Resource Efficiency Pledges: to build momentum and help Scottish companies take the credit for their actions.
20. Stimulating innovation and business opportunities in reuse, refurbishment and remanufacturing: this includes a range of activity such as: engaging with business and establishing an early adopter network of companies to help share good practice; extending a loan fund to support reprocessing and remanufacturing; increasing the supply and demand for quality reusable items; and supporting the growth of refurbishment and remanufacturing businesses and investigating the viability of alternative business models/services.
21. Promoting sustainable product design: including via Resource Efficient Scotland support and facilitating business collaboration through the Product Sustainability Forum.
22. Stimulating a culture of resource efficiency by influencing behaviour: targeted public engagement, including supporting teachers to equip school leavers with the relevant skills and continuing to promote community action to prevent waste.
23. Requiring retailers to charge for carrier bags from October 2014 to reduce the number of bags used in Scotland – promoting reuse and reducing litter – with a voluntary agreement that net proceeds will be donated to charitable good causes, including for waste and litter prevention.
24. Landfill tax: continues to underpin the efforts to find economical alternatives to landfill in order to create a resilient and more circular economy, where we minimise waste and keep valuable resources in as high value use for as long as possible.

ⁱ Quarterly National Accounts Scotland, Quarter 4 2017, Scottish Government
<http://www.gov.scot/Resource/0053/00535575.pdf>

ⁱⁱ Waste from all sources, 2016, SEPA

https://www.sepa.org.uk/media/356705/wfas_2016_official_statistics.pdf

ⁱⁱⁱ Waste from all sources, 2016, SEPA

https://www.sepa.org.uk/media/356705/wfas_2016_official_statistics.pdf

^{iv} <https://www.sepa.org.uk/media/320745/2016-waste-landfilled-commentary.pdf>

^v Waste incinerated in Scotland, 2016, SEPA <https://www.sepa.org.uk/media/320747/2016-waste-incinerated-commentary.pdf>

^{vi} The Carbon Footprint of Scotland's waste, 2014-15, Zero Waste Scotland

<https://www.zerowastescotland.org.uk/sites/default/files/The%20Carbon%20Footprint%20of%20Scotland%E2%80%99s%20Waste%20-%202014%20and%202015%20Carbon%20Metric%20Summary%20Report.pdf>

^{vii} The Carbon Footprint of Scotland's waste, 2014-15, Zero Waste Scotland

<https://www.zerowastescotland.org.uk/sites/default/files/The%20Carbon%20Footprint%20of%20Scotland%E2%80%99s%20Waste%20-%202014%20and%202015%20Carbon%20Metric%20Summary%20Report.pdf>