No time to waste

Newcastle Waste Commission

Final Report

Photographs provided by Suez and O'Brien Waste Recycling Solutions

Foreword from Commission Chair Heidi Mottram

The world is producing more and more waste, currently 1.3 billion tonnes a year. Reducing it is one of the biggest challenges we face. So, when I was asked to chair Newcastle's first ever Waste Commission I accepted with a sense of duty if not a little trepidation. Ten months on and I am pleased to present our final report. It will, I hope, frame the debate about how the city is to deal with its waste for years to come.

The Commission met six times, in London and in Newcastle as well as holding a series of stakeholder sessions during the summer. We heard evidence from a broad range of organisations and individuals. We talked about a multitude of issues. The enthusiasm and passion with which they spoke was a pleasure to behold. It was inspiring and reassuring that so many others shared our concerns for our fragile earth.

Today we have a report that sets out a number of ideas and options; from recycling to re-using; from waste-to-energy to tackling food waste. These are for the consideration of residents, businesses, large organisations – not just Newcastle City Council. We all produce waste and so everyone has a stake in it. It is critically important that anyone who picks up this report should be able to understand it. It is written with as little jargon as possible in the hope partners and communities will read it, come together, and decide how they want to make Newcastle a world leader in dealing with waste.

Anyone looking for a silver bullet will be disappointed. There is no single big idea to solve all of the waste challenges. And, this is not a report primarily about bin collections. Waste is too varied and complex for that. One of the things we have learned is that new, evolving technologies mean we have to use a range of methods and remain flexible and open minded to ways of reducing and dealing with waste.

In Newcastle, the challenge of how to reduce our waste is growing. It is a city that has attracted significant investment and jobs. The North of Tyne devolution deal will accelerate growth. That in turn will attract more people - 30,000 more by 2030. To keep pace with demand 21,000 new homes are planned and an extra 14,000 new jobs are expected. This is good news when cities are competing for fewer resources but growth also has the potential to generate more waste.

Add to that the challenges of modern living. More of us live our lives online. The rise in online shopping has created an explosion in excess packaging. Coffee cups are everywhere and single use plastics are choking our oceans, found even in creatures seven miles beneath the sea. We have to stop and take stock now. But it's not all bad news. There are some real opportunities.

Arguably, for the first time since the global financial crisis we are seeing renewed, widespread passion in environmental issues. Newcastle is creating jobs in clean industries; high-tech, digital, creative and life sciences; and sustainable engineering such as off-shore and sub-sea. Regionally, devolution will give us new options for a shared vision. Nationally, Government is looking at reducing single-use plastics, and internationally, Brexit will spark fresh debates on how the UK can reduce waste and protect the environment beyond 2019.

I would like to thank everyone who took part in this report, from those who gave evidence and shared experiences to those who helped in its final production. We were inspired by the people we met and feel confident that they will harness our recommendations around reduction and reuse and really make a difference. And, I thank my fellow Commissioners who for the last year have given their time and expertise so generously. Great things are happening in Newcastle, but more can be done if we pull together. I hope the work of the Waste Commission will make a valuable contribution.

And finally, a call for action…

This report sets out high-level recommendations and numerous initiatives and ideas on how the city can become a leader on waste. The most important themes in all of this are partnership working and community involvement. Simply put, we cannot be a world leader on waste unless organisations and communities in the city work together to take coordinated action based on shared ambition.

I believe two ideas in the report: The Creation of Resource Newcastle Partnership; and, establishing a Newcastle Food Movement to reduce food waste are potentially key foundations around which all the other actions and initiatives can be built. I hope this report acts as a catalyst to create these partnerships. But, ultimately, the people of Newcastle hold the key to success on waste. By taking action to reduce their waste, increase recycling and reusing everyday items, people can make the step-change required. This report is a call to action to all people, businesses and organisations.

Heidi Mottram

Summary of Commission's recommendations

Our recommendations to communities, partners and businesses:

1. Newcastle set an ambitious target to be a zero food waste city.
2. Newcastle make waste minimisation a key priority, with ambitious targets for waste reduction.
3. Newcastle adopt bold new approaches to significantly increase recycling.
4. All stakeholders retain the maximum value from waste in the city.
5. That where energy from waste is generated, Newcastle's homes and businesses should benefit.
6. The city drive positive behaviour change with communities.
7. Newcastle Build zero waste principles into homes, buildings and spaces.

What will make the biggest difference?

- People making everyday small changes: reducing their own waste; choosing to recycle more; and, reusing items, not throwing them away.
- Creating a Newcastle Food Movement that will work with communities, partners and businesses to reduce waste, promote education on food and ensure we get the most out of food.
- Establishing Resource Newcastle Partnership to grow the circular economy, with strong community involvement.

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- Separating food waste collection as part of adoption of WRAP consistency framework.
- Making greater use of anaerobic digestion, generating energy and nutrients from food waste.
- Taking forward high-profile, local action to end use of single-use plastics and strengthening infrastructure for collecting and recycling all plastics.
- Creating a re-use mall, selling a wide range of high-quality items.
- Exploring alternatives to sending waste to Sweden, using regional capacity and ensuring Newcastle homes and businesses can benefit where possible.
- Developing a strong marketing and communication campaign on waste.
- Planning for waste reduction through the planning framework, engagement with developers and using the Future Homes project as an exemplar for designing in waste reduction.

What will success look like?

- Newcastle recognised as a world leader in waste reduction.
- Overall waste per household and businesses down by 10% by 2025
- Waste sent to landfill reduced to less than 10% by 2025
- Recycling rate increased to 65% by 2030
- By 2030, millions of pounds and hundreds of new jobs added to the local economy.
- Helping to reduce food poverty in Newcastle.
- The Commission also agreed the city should in future consider developing carbon-based targets as an alternative to weight-based waste reduction and recycling targets. There are strong arguments this will ensure more environmentally sustainable outcomes.

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Introduction

Achieving a step-change in Newcastle's approach to waste requires everyone in the city – families, communities, businesses and public services – to play their part.

Too often in the past, waste has been seen principally as a job for the Council. Councils of course have a role in collecting, processing and disposing. But, they cannot control where waste comes from whether this is from the packaging, the 'throw away' culture or single-use plastics.

Nor is there a single high-tech solution to the waste challenge. True, advances have been made – e.g. in energy from waste. But, the real breakthrough can only come from real and long-lasting changes in behaviour where:

- Producers design products that last longer and can be reused and recycled.
- Retailers, restaurants, cafes and bars commit to reducing packaging, incentivising customers to reduce waste.
- Residents are encouraged and supported to make better decisions on waste – e.g. reducing food waste, extending the life of household items and recycling much more.
- Communities actively embrace sharing and reuse so that what was once seen as waste is valued as a resource and second-hand is no longer seen as second best.

We know residents, businesses and organisations are up for this challenge. During summer and autumn last year the Commission listened to a wide range of stakeholders. They told us: they want to reduce waste and to reuse and recycle more. And, they had some great ideas on how we do that, many of which are reflected in this report. People are critical to making progress on waste. Businesses and organisations can do a lot. But, ultimately this requires personal responsibility - people reducing the waste they generate and choosing to recycle and reuse more.

Newcastle's waste challenge…and opportunities

Like most modern cities, Newcastle's waste challenge is complex. It is driven by a mix of: evolving consumer demand; changing population; changes in living patterns; new technologies; shifting markets; and, environmental pressures.

The interplay of these factors is not straightforward and shaped by national and international trends.

So it's tempting to think there is little we can do at a city level to create a new approach to waste. Yet, the Commission has seen so many opportunities for sensible and straightforward changes that can make a big difference and create a new culture on waste. Many of these are low-cost (or even free) – important at a time where financial pressures are pressing on families, businesses and public services.

Government has recently published: 'A Green Future: Our 25 Year Plan to Improve the Environment', with proposals to reduce waste and increase resource efficiency. This will be followed with a national Resources and Waste Strategy to be published later this year, again creating opportunities for positive change.

And, there is renewed enthusiasm for protecting our environment inspired by documentaries such as 'Blue Planet' and widespread concern over the impact of plastics on marine habitats.

People want to do more to prevent this. We must harness this enthusiasm, creating momentum and changes at all stages of the product life-cycle.

The waste challenge may well be complex. But, the opportunities from doing things radically differently are truly exciting with potential benefits for all.

The Waste Commission

The Newcastle Waste Commission was established in March 2017 and its Terms of Reference included engaging with communities and partners to develop long-term, ambitious approaches that ensure:

- Waste is reduced wherever possible;
- Recycling and reuse is maximised;
- We get as much value as possible from waste; and,
- Where prevention, reuse or recycling are not possible, we maximise recovery through waste to energy.

The Commission has heard evidence from a range of local residents, partners and experts. It has looked at baseline data and information on waste in Newcastle (including comparisons with other places) and has considered key waste research. More importantly, the Commission engaged and listened to stakeholders through an online call for evidence, as well as a series of stakeholder sessions held throughout the summer.

The challenge: wasted food, wasted resource

Food waste is a particular target for reduction.

The estimated amount of household food waste in the UK for 2015 was 7.3 million tonnes and valued at £13bn. Of this, about 4.4 million tonnes was avoidable. For the city alone we estimate over 20,000 tonnes per year of avoidable food waste." Leading studies on food waste show we throw away 20% of the food and drink we buy – on average, that's £700 each year for a family of four.

Reducing avoidable food waste could have a big, positive impact on families, especially those struggling to make ends meet.

Research also suggests big reductions can be made in food waste through simple changes in communities, combined with more sophisticated campaigns and mechanisms.

1. The Commission recommends Newcastle set an ambitious target to be a zero food waste city.

How might the city achieve this?

- Create a Newcastle Food Movement that will work with communities, partners and businesses to reduce waste, promote education on food and ensure we get the most out of food.
- Exploring scope for separate food-waste collection for all homes and businesses in the city as a way of reducing food waste.
- The Newcastle Food Partnership working with WRAP on leading a high-level, innovative marketing and education campaign to reduce food waste in homes and businesses.
- All food outlets in the city committing to reducing customer waste through simple measures such as discouraging over-ordering and creating a 'doggy-bag' culture.
- Push nationally for all supermarkets to end the use of 'best before' dates on tinned and dried food items.
- Establish in the city a discounted supermarket model, selling good-quality, sellable food that would otherwise be discarded by producers and supermarkets.
- Maximise use of the city's composting operation to support local food growing in neighbourhoods across the city.

The challenge: growing waste, increased costs

Newcastle currently produces around 141,000 tonnes of municipal waste per year which costs the Council £18.5m per year to collect, treat and dispose.

Compared with similar authorities in England, the city sits around mid-table for waste generation per household so there is significant room to improve this. Currently, around a third of Newcastle's municipal waste is sent to landfill which is the highest cost solution for waste and represents a missed opportunity to extract more value from the materials we throw away.

The amount of waste generated is set to increase due to a combination of economic and housing growth with associated rises in costs of over £600,000 per year.

2. The Commission recommends Newcastle make waste minimisation a key priority, with ambitious targets for waste reduction.

How might the city achieve this?

- People making everyday small changes: reducing their own waste; choosing to recycle more; and, reusing items, not throwing them away.
- Taking action to reduce food waste in homes and businesses.
- All organisations in the city work towards reducing the sale of single-use plastics where practicable. The big anchor institutions in the city should lead the way on this.
- All bars, cafes, restaurants and shops banning plastic straws.
- Creating 'refill Newcastle' – a network of businesses where people can refill their water bottles with tap water.
- Cafes in the city reducing use of single-use coffee cups and embracing existing and new design alternatives.
- Supermarkets supporting a national Deposit Return Scheme.
- Promoting better alternatives to single-use plastics.

The challenge: to increase recycling and reuse

Local estimates suggest there is as much recyclable materials in city's green waste bins as is collected in the blue recycling bins. The city is collecting no more than 50% of all possible recycling from its households. Currently, it costs around around four times more to dispose of rubbish compared with recycling. Furthermore, contaminated recycling bins (caused by people putting waste in recycling bins) are a growing problem in Newcastle - pushing up costs for treatment and disposal.

Between 2005 – 2014, Newcastle, like most places in the UK, increased household recycling rates but the rate of improvement has levelled off in the past three years at around 40%. This is one area where big changes are required to re-invigorate progress.

We know from listening to the public and stakeholders that many residents want to do the right thing by recycling more but some are unclear about what they can and cannot recycle.

Analysis of councils with the best recycling performances points to a strong link between high recycling and separate, weekly food waste collections. For example, Wales has the highest recycling rate in the UK, the second highest recycling rate in Europe and third highest in the world. And, when the Commission visited London it was impressed by how the the London Waste and Recycling Board provided a boost to plans to build a circular economy, where products are reused and recycled into the local economy. Serious consideration should be given to establishing a similar model and devolution North of Tyne creates the chance to do this on a wider geography.

Evidence from other places suggests by adopting one of three standard systems for waste collection from WRAP's Consistency Framework, it's possible to increase recycling by an average of four percentage points as well as realise costs savings. At the time of writing, the Government has recently announced a four-point plan that could see standardised waste and recycling collections in councils across the country.

The Commission was impressed by the enthusiasm for reuse expressed by stakeholders. There are numerous reuse, fix-it and sharing initiatives across the city and the region. These small and medium-sized projects could form the core of a circular economy approach but could benefit from greater coordination, shared vision and awareness of these initiatives. It's also clear from examples from elsewhere that the city's Household Waste Recycling Centres could play a bigger role in making reuse happen.

3. The Commission recommends Newcastle adopt bold new approaches to significantly increase recycling.

How might the city achieve this?

- People making a positive choice to recycle and reuse more.
- Introducing separate food-waste collection for all homes and businesses in the city as a way of increasing quantity and quality of recycling.
- Maximising use of anaerobic digestion for food waste across the city.
- Establishing a clear, powerful brand and long-term campaign to drive waste reduction and recycling.
- Tagging all bins in the city with a unique identifier so they can be individually weighed. Consider neighbourhood waste and recycling improvement challenges and strengthen incentives and enforcement.
- Organisations working together to improve recycling infrastructure so more items can be recycled - e.g. coffee cups, plastic pots, tubs and trays.
- Maximising use of the city's composting operation to support local food growing in neighbourhoods across the city.

4. The Commission Recommends all stakeholders retain the maximum value from waste in the city.

How might the city achieve this?

- Establishing a Resource Newcastle Partnership to plan for and coordinate growth of the circular economy. This could be done on a North of Tyne geography but, must include communities.
- Ensuring long-term city and regional economic plans include priorities to invest in and grow local markets for recyclables.
- Establishing the UK's first 're-use shopping mall', selling a wide range of high-quality, reusable items collected in the city.
- Creating 'Re-use Newcastle' – a network for shared marketing and collections linking up all organisations involved in reuse in the city.
- Taking a lead on challenging product designers and developers to enable repair, re-use and extended product life.

The challenge: getting the best from what's left

In 2015/16, Newcastle exported just under 28,000 tonnes of waste (in the form of 'refuse derived fuel') to Sweden to be converted into heat and power. In addition, some 8,700 tonnes was sent to an energy from waste plant in Teesside. Together, this makes up over a quarter of municipal waste in the city.

The city derives little direct benefit from this trade (aside from dealing with a significant proportion of its waste). The Council currently pays to export RDF to Sweden and this cost is forecasted to increase as the supply of waste to Sweden from elsewhere rises – for example, nationally there has been an average increase in RDF costs by £15 per tonne over the last three years. And, uncertainty over Brexit trade negotiations could further impact on these markets.

Furthermore, although burning waste to produce heat and power is used widely across Europe, there is evidence that some countries aim to wean themselves off this solution.

For example, Denmark, one of the biggest incinerators of waste in Europe, is committed to significant reductions with a plan for carbon neutral energy generation by 2050.

Currently, we know it is almost impossible to significantly reduce waste going to landfill without a proportion of energy recovery (from burning). But, the city and partners regionally could explore options for how households locally can benefit from energy recovery.

As an alternative, there is evidence of the benefits from the anaerobic digestion (AD) of waste – in particular food waste. The Welsh Government is committed to supporting its local authorities to invest in AD plants. And, there is evidence from the stakeholder sessions of an established and growing capacity for AD in the Region. This option needs to be investigated further in the future.

The Commission concluded that Newcastle adopts the principle that technologies are considered on the basis of those with the best environmental outcomes are considered first and then challenged based on affordability, economic, commercial, social and practical considerations. In practice this means Newcastle should aim to: first, reduce waste and recycle as much as it can; don't invest in solutions that artificially cap the city's recycling potential; and, where the city uses energy from waste, ensure it is as efficient as possible, using the heat too and benefiting Newcastle directly if it can. This approach is in keeping with the principles of the Waste Hierarchy, in particular maximising activity higher up the Hierarchy. Achieving this should naturally reduce the amount of waste that needs to be landfilled or sent to Energy from Waste.

5. The Commission recommends that where energy from waste is generated, Newcastle's homes and businesses should benefit.

How might the city achieve this?

- Exploring alternative options for sending waste to Sweden to generate energy from waste. Where possible, alternatives should make best use of regional capacity.
- Maximising use of anaerobic digestion for food waste across the city.
- Maximising the use of existing and new heat networks.
- Reviewing all forms of waste treatment, so future technologies best meet the needs of Newcastle.

The challenge: creating a new waste culture in Newcastle

Throughout the Commission's work we have listened to residents, businesses, community groups and other organisations in Newcastle and beyond. They have all shown real enthusiasm for using resources more wisely, recycling and re-using more.

This is encouraging and shows there are many people out there who want to do the right thing. What is lacking is a sense of shared ambition, clarity on what is possible and an overall, positive waste culture in the city. And, we also need to think about the those who aren't motivated to do the right things on waste. How do we engage them and change behaviours?

6. The Commission recommends the city drive positive behaviour change with communities.

How might the city achieve this?

- In partnership with residents, businesses, organisations and possibly neighbouring councils, lead sustained behaviour change activity through communication and education including better use of social media and technology.
- Making better use of effective and free-to-use communication materials that are already out there. This should use effective, national messaging with a local slant.
- Working with student & landlord organisations, universities and local community groups to deliver a clear and consistent message across the city about recycling. This should emphasise the cost and environmental benefits of recycling.

The challenge: a growing city

Newcastle is a growing city with

21,000 new homes,

14,000 new jobs

and almost 30,000 more people anticipated by 2030

As the city develops and is increasingly at the cutting edge of new and growing sectors, our approach to the resources we all use must keep pace. Too many people, businesses and organisations continue to buy, use and throw materials away, without thinking of the financial, environmental and social costs of their actions. The case for change is compelling.

7. The Commission recommends Newcastle Build zero waste principles into homes, buildings and spaces.

How might the city achieve this?

- Maximising the impact of the city's Future Homes Project to build 40+ new homes at Science Central. This is a fantastic importunity to showcase to the city and nationally how we can 'design in' sustainable approaches to waste to homes and communities. Future Homes will be an exemplar for modern living, with waste reduction, re-use and recycling built into the homes and the community.
- Using Future Homes to trial large-scale, underground bins or other underground collection methods.
- Making Newcastle a new Centre for Excellence in Waste, a test-bed for new ideas and innovation.

- Developers seizing the opportunity to embed reduce, reuse and recycle into all future, new housing development in the city. The local planning system could be adapted to underpin this, alongside voluntary agreements.
- Making principles of waste reduction, re-use and recycling a key feature of the land-use planning framework, influencing all new development. This will require both national and local action.

What will make the biggest difference?

In this report we set out a number of ideas and suggestions for how the city might build toward becoming a world leader in dealing with waste. These include a mixture of big and small things, and actions for the short, medium and long-term. Some are complex and will require some investment whereas others are more straightforward, possibly even cost-neutral. Within these, the Commission agreed the following initiatives could make the biggest difference:

- People making everyday small changes: reducing their own waste; choosing to recycle more; and, reusing items, not throwing them away.
- Creating a Newcastle Food Movement that will work with communities, partners and businesses to reduce waste, promote education on food and ensure we get the most out of food.
- Establishing Resource Newcastle Partnership to grow the circular economy, with strong community involvement.
- Separating food waste collection as part of adoption of WRAP consistency framework.
- Making greater use of anaerobic digestion, generating energy and nutrients from food waste.
- Taking forward high-profile, local action to end use of single-use plastics and strengthening infrastructure for collecting and recycling all plastics.
- Creating a re-use mall, selling a wide range of high-quality items.
- Exploring alternatives to sending waste to Sweden, using regional capacity and ensuring Newcastle homes and businesses can benefit where possible.
- Developing a strong marketing and communication campaign on waste.
- Planning for waste reduction through the planning framework, engagement with developers and using the Future Homes project as an exemplar for designing in waste reduction.

What will success look like?

- Newcastle recognised as a world leader in waste reduction.
- Overall waste per household and businesses down by 10% by 2025.
- Waste sent to landfill reduced to less than 10% by 2025.
- Recycling rate increased to 65% by 2030.
- By 2030, millions of pounds and hundreds of new jobs added to the local economy.
- Helping to reduce food poverty in Newcastle.
- The Commission also agreed the city should in future consider developing carbon-based targets as an alternative to weight-based waste reduction and recycling targets. There are strong arguments this will ensure more environmentally sustainable outcomes.

Chapter 1: Why a Waste Commission for Newcastle?

Newcastle is a modern city, with exciting plans for growth

Newcastle is well know for the industry, invention and innovation that drove the Industrial Revolution and there is great pride in the city's' past achievements. Yet, there is also a growing recognition that the city's' best days lie ahead. Newcastle is a city on the up. By 2030, planners expect 21,000 new homes, 14,000 new jobs and a population increase of almost 30,000 people.

The city's economy is growing in all the right places, notably with the fastest growing digital sector in the UK outside London. Newcastle has become a leader in Life Sciences, with significant growth sectors in sub-sea engineering and financial services.

Newcastle's Science Central development – one of the biggest regeneration sites in the UK – defines the city's economic future, being home to:

- National Innovation Centre for Data - bringing together industry, the public sector and world-leading academics to exploit the opportunities offered by the explosion in digital data.
- National Innovation Centre for Ageing - driving development of innovations to help us all live better for longer.
- National Centre for Energy Systems Integration - investigating the challenges of energy supply, sustainability and affordability.

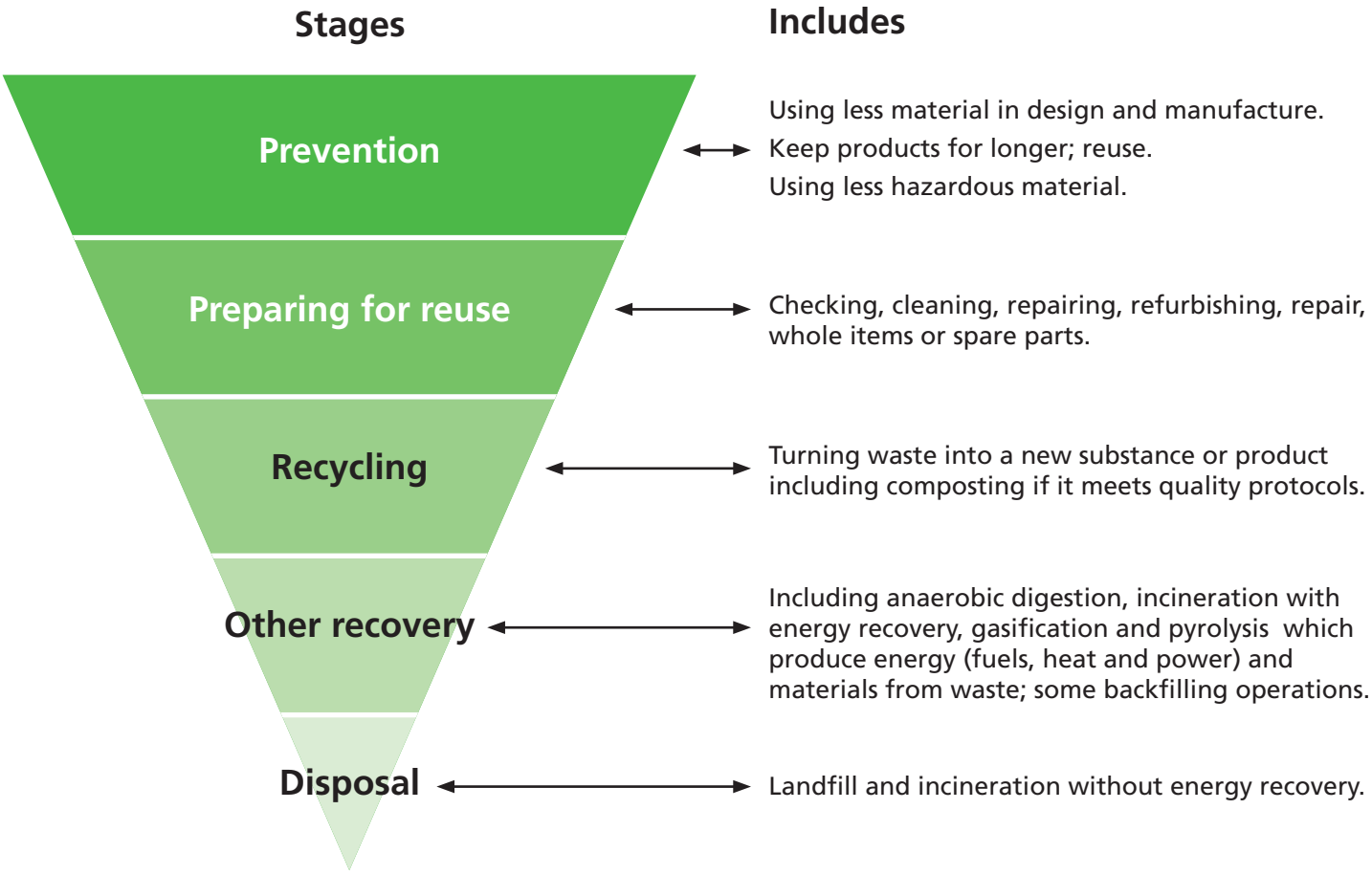
So, the opportunity of a growing population, living and working at the cutting-edge of design, creativity and technology raises a critical challenge to everyone involved in the city. What do Newcastle's people want to do with their waste in the future? Are people content for it to grow in line with our economy and population? Do communities and businesses want to continue to do the same old things with waste at a time when the city is leading innovation in so many other fields? Or, alternatively, does Newcastle aim for an approach to managing waste which matches its ambition for a modern, vibrant, fair and sustainable city?

EU and UK context

The EU sets the framework for waste policy across the EU member states, including the UK [1]. Through the EU's Waste Framework Directive, the UK is committed to recycling 50% of household waste by 2020.

[1] Waste Framework Directive (2008/98/EC), which is translated into the national framework through the Waste (England and Wales) Regulations 2011.

The Waste Hierarchy



The 'Waste Hierarchy' sets the context for current waste policy in the EU and UK with the following priorities:

- firstly, prevent waste from arising;
- then, reuse products and materials;
- recycle into new materials;
- recovery (energy);
- and finally, disposal.

Despite steady growth, the UK's recycling rates recently decreased for the first time, meaning the EU 50% recycling target looks increasingly challenging.

However, through its Circular Economy Package, the EU has even more ambitious plans to reduce the waste we produce, reuse and re-cycle more. It is expected that, even though Brexit negotiations are on-going, the Circular Economy Package will be adopted by the UK as part of the transfer of all existing EU law into UK statute. This position was recently reaffirmed by Government.

On signing up, we expect the UK to come under pressure to adopt more stretching recycling targets as well as any proposed extensions to 'producer responsibility' (where firms that generate waste have to pay towards the costs of managing that waste).

So, whilst the EU is 'raising the bar' on waste and we expect the UK to match this commitment, the challenge for Newcastle is: how does the city play its part in creating a more resource intelligent and less wasteful and carbon intensive world?

The 'Circular Economy Package' explained:

What is a circular economy?

This is where products and the materials they contain are highly valued, unlike traditional, approaches which are based on a 'take, consume, throw away' pattern. In practise this means reducing waste to a minimum, as well as re-using, repairing, refurbishing and recycling existing materials and products. Rather than thinking waste, think resource.

What is the EU's ambition?

Headline targets include increasing recycling rates to 65% by 2035, with incentives to recycle packaging and repair electrical equipment as well as a focus on reuse and repair activities through improved product design.

When?

The following EU targets are nearing final agreement: Recycling: 65% by 2035; 60% by 2030; 55% by 2025. Landfill: Max 10% by 2035.

Mid-table good enough for Newcastle?

Newcastle is not the worst performer in terms of waste in comparison with other places. However, it's not amongst the best – which is where it aims to be. And, we know there is much more that can be done to improve – the Commission heard evidence that up to 50% of waste put into residual bins (i.e. not recycle bins) is capable of being recycled.

Resources are getting scarcer

As we leave the EU, the UK needs to become ever more productive. Using resources more wisely is therefore sensible. In addition, on its own, the UK is arguably not big or rich enough to excel in all areas of economic activity so we may, as a nation, need to choose which key areas of economic activity to focus on. Given what we know (about climate change and resource scarcity) surely those choices need to be within the framework of wanting to create a low-carbon, resilient and resource-efficient economy? And surely places like Newcastle must be a big part of that? The Environment Minister recently suggested that recycling targets should be based on resource efficiency as opposed to weight-based targets once the UK leaves the EU.

Newcastle has high levels of social deprivation.

Newcastle continues to suffer significant deprivation and inequalities between the most and least affluent parts of the city. These inequalities are most recognisable in terms of health, education, employment and housing. Yet, environmental inequalities also exist, including in opportunities for people to participate in more sustainable ways of living.

We know, for example, that the lowest ten recycling routes in the city tend to be clustered around some of our most deprived areas in the West and East of the city. We might equally highlight that some more affluent areas in the city tend to produce more waste per household, including heavy glass. We need to think more about why people in less affluent parts of the city either do not want to or are for some reason unable to recycle as much as they could.

And, there is an obvious opportunity here – engaging more people in these communities in reducing, re-using and recycling more could have practical benefits – e.g. reducing household food waste as a way of easing pressure on family budgets and a way into healthy eating.

People are living their lives differently

Traditional consumer and shopping patterns are changing and this will have big impacts on future waste generation and management, including:

- Rapid growth in online shopping in the UK;
- Rising online grocery sales, driving innovation;
- The Internet of Things leading to smart, interactive technology; and,
- Increasingly new ways of purchasing food, e.g. pre-measured ingredients for specific meals [2]

The opportunity is, through these changing trends, there will be less consumption in terms of food and packaging. However, the risk in the short term is of more packaging and wastage.

Because Newcastle's people want to reduce, reuse and recycle

During the Commission's stakeholder sessions and call for evidence, people and partners demonstrated real willingness to reduce the waste generated in the city. They backed this with some ideas and solutions, including:

- Rewarding or incentivising households or neighbourhoods for reducing waste (and increasing recycling).
- Communicating clear and strong messages to people on food waste (both the costs from chucking good food away and benefits from reducing).
- Encouraging supermarkets to redistribute even more food to charitable causes, including food banks.

Suggestions also included measures where local agencies have few or no powers to act – e.g. "introduce by-laws on excessive packaging" or "working with traders and manufacturers to take back goods at the end of life".

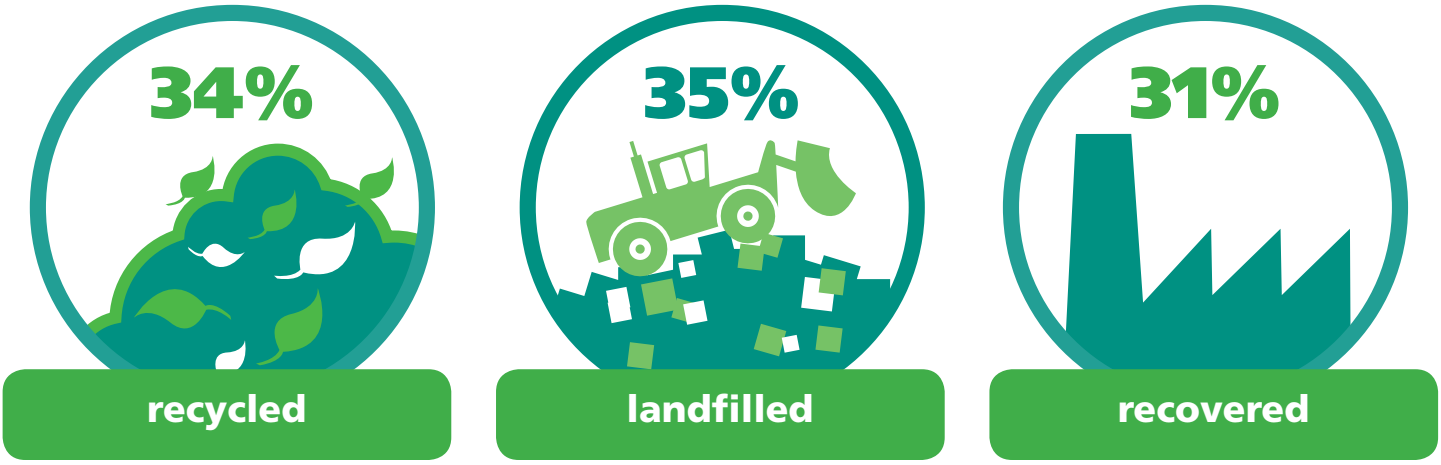
[2] Digital technology and consumer trends: Future scenarios for waste and resource management CIWM, John Twitchen 2017

Chapter 2: Waste is reduced whenever possible

Do we produce too much waste?

Newcastle currently produces around 141,000 tonnes of municipal waste per year. To set that in context, that amounts to approximately 400kg of waste per person and on average 900kg per household.

In 2015/16, around 34% of this waste was sent for recycling or composting and 35% sent to landfill. Some 37,000 tonnes (around 26%) was incinerated to produce energy from waste at sites in Sweden and Teesside.



So how does Newcastle compare with other places in terms of the quantity of waste it produces and the key measure of how much is recycled as opposed to landfilled? On the measures of recycling, waste per-household and waste per-person, Newcastle sits roughly mid-lower table when compared with all authorities in England.

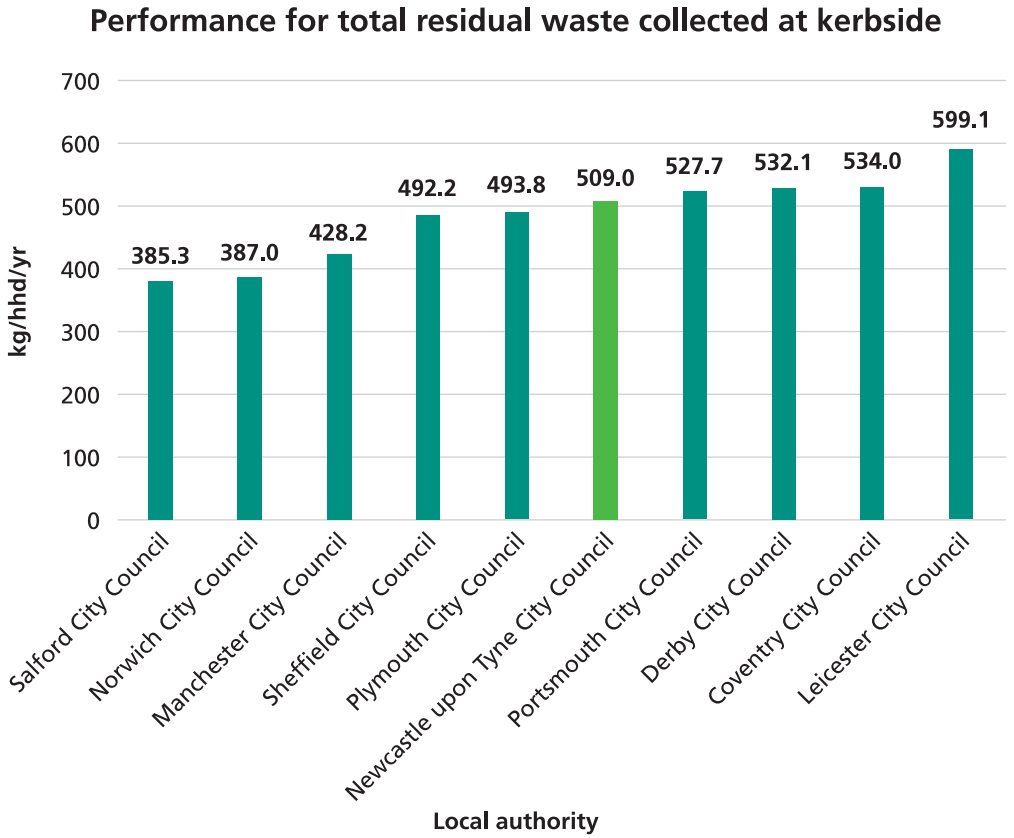
Generally, the waste tonnage and comparison figures in this report only relate to household or municipal waste. Commercial and industrial waste is measured differently, not by councils.

The Commission were asked to look at ways of moving away from traditional approaches – where residents and business simply fill bins, choosing to recycle or not and, the Council (and other contractors) takes the waste away for processing and treatment. Breaking free from this purely transactional approach, requires residents, partners and business to change their own relationship to waste.

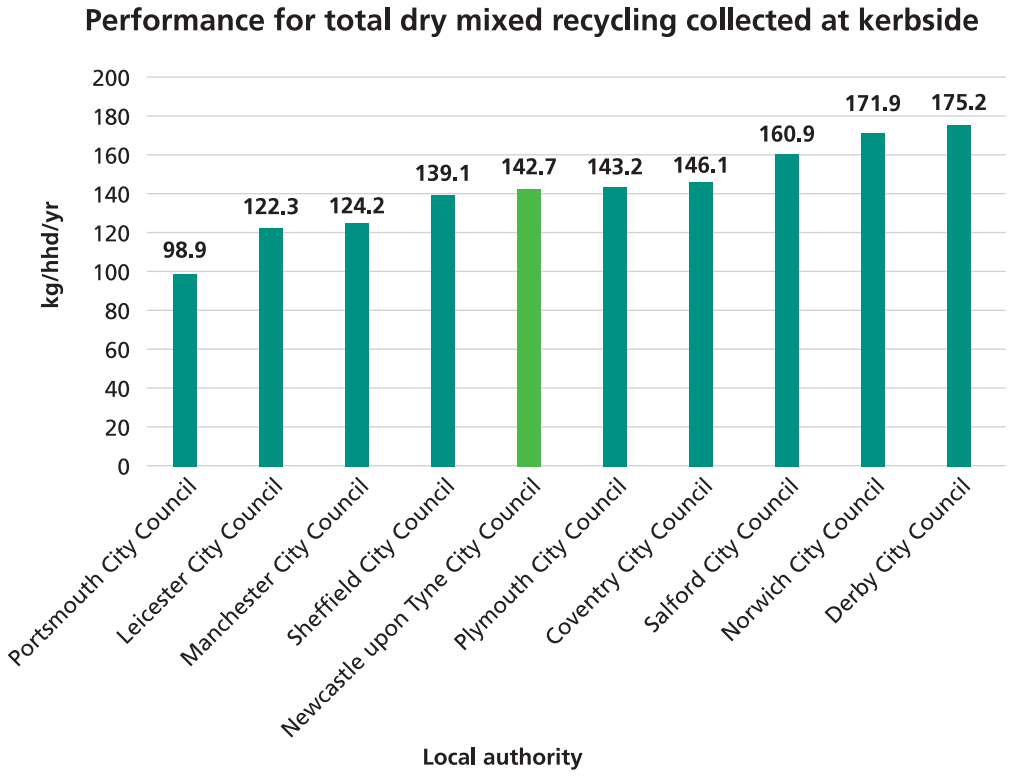
Of course, we must be careful when making simple comparisons across all English authorities as the specific conditions within places are important (e.g. urban-rural, measures of affluence, housing –type and geography are all important factors). We know, for example, that rural places tend to perform better than cities in terms of lower household waste and higher recycling.

A comparison of Newcastle with other, similar English local authorities (based on measures of: urban / rural; population; social deprivation; and, proportion of dwellings as flats) demonstrates we sit roughly 'mid table'.

Graph showing the comparative performance of the above similar authorities for residual waste collected at kerbside in 2014/15:

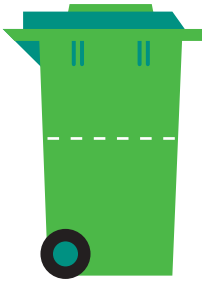


Graph showing the comparative performance of the above similar authorities for dry mixed recycling collected at kerbside in 2014/15:



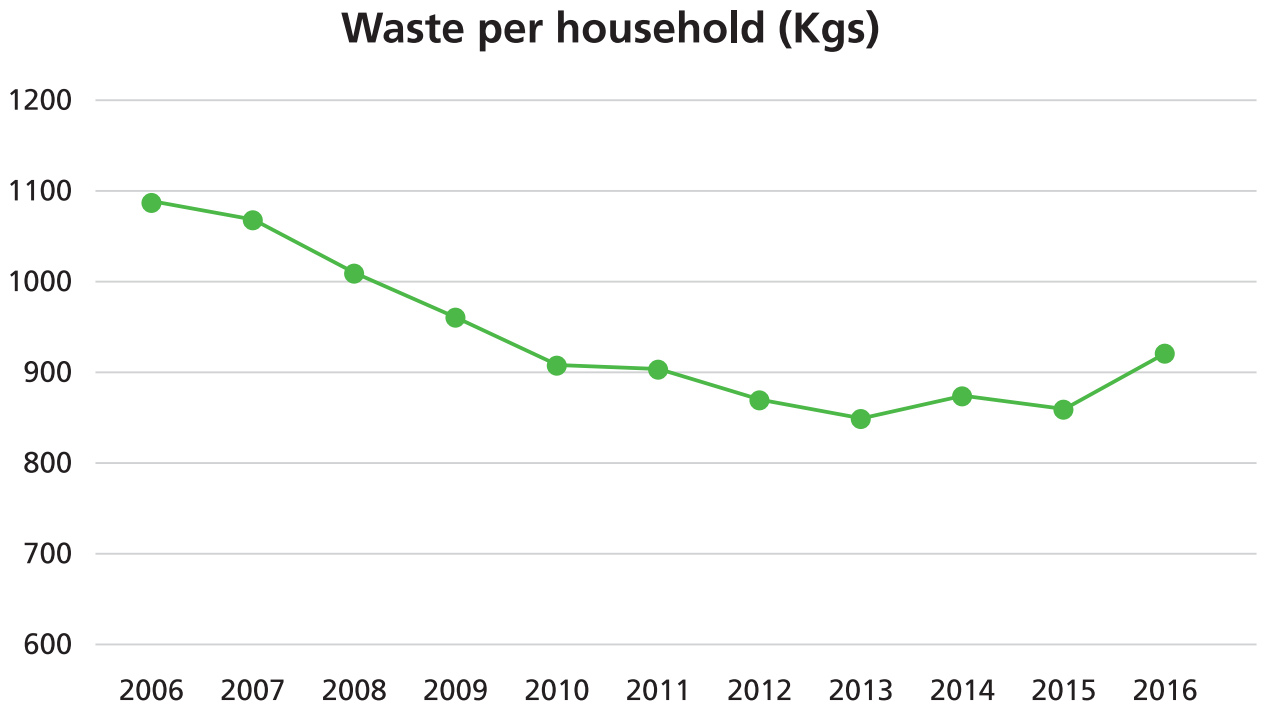
In short, Newcastle is not the worst performer in terms of waste in comparison with authorities across England. But, it's not amongst the best – where it aims to be.

And, we know there is much more the city can do to improve – the Commission heard evidence that up to 50% of waste put into rubbish bins (i.e. not recycle bins) is capable of being recycled.



What is the trend?

Whilst population and households are forecast to continue rising, the trend in Newcastle has been decreasing waste per household. This broadly reflects the national picture although this trend will have been impacted by the recession in 2008 and ongoing pressure on household budgets in subsequent years. The effect of income may in part explain the slight rise in the trend locally and nationally from 2015. This trends suggests that, without further action, intervention and changes in behaviour, we are not going to see significant reduction in the waste in Newcastle in the coming years.



What more can be done at a local level?

We can reduce food waste

We all eat. And, we can assume even the most conscientious amongst us produce at least some level of food waste. On that logic alone there is potential for food waste reduction to be the centrepiece of a citywide culture of waste reduction.

And, the Commission heard compelling evidence to support this. Three major WRAP studies published in 2013 and 2016 estimated annual food waste within UK households, hospitality and food service, food manufacture, retail and wholesale sectors at around 10 million tonnes, 60% of which could have been avoided. This has a value of over £17 billion a year.

Key food waste facts:

- The estimated amount of household food waste in the UK for 2015 was **7.3 million tonnes** – with a retail value of **£13bn**. Avoidable food waste in 2015 was **4.4 million tonnes**. For the city alone we estimate over **20,000 tonnes per year** of avoidable food waste.
- We throw away **20%** of the food and drink we buy – on average, £700 worth each year for a family of four.
- Half of the food we waste is thrown away because we don't use it in time, and another third because we cook, prepare or serve too much.
- Rising food prices and slow wage growth have prevented some food waste in recent years, however food deflation and increases in earnings could reduce the basic incentive to avoid wasting food.
- **In Wales**, there is evidence that household food waste reduced between 2009 and 2015 and is now lower than the rest of the UK. This may be as a result of lower average earnings in Wales and widespread separate food waste collections.

The **Courtauld Commitment 2025** was launched in March 2016, with a target to reduce food waste across the UK by 20% by 2025. Achieving significant further reductions in household food waste will be essential to meeting this target.

What more can we do to tackle food waste?

Research [3] suggests it is possible to make big reductions in food waste through simple changes at an individual and community level, combined with more sophisticated campaigns and mechanisms. These include:

- Better use of social media and other digital channels to target the right messages on food waste to the right audiences.
- Effective sharing of skills that help us make better use of the food we buy – e.g. planning, correct storage, getting portions right, and using leftovers.
- Individuals making a difference through their own actions and sharing skills with others through social networks and community organisations.

[3] Household Food Waste in the UK 2015, WRAP, January 2017

Food waste collection

The Commission considered the role of collections alongside a wider programme for food waste reduction in the city. Analysis of the best performing places (in terms of recycling), suggests a strong link between high rates of recycling and composting and separate, weekly food waste collection.

Under WRAP's Framework for Greater Consistency in Household Recycling in England (September 2016), recyclable materials would be collected either in a single container, two streams (paper and card, plus other recyclables), or a multi-stream system (in which each recycling stream is collected separately). In all cases, food waste and residual waste would be collected separately. WRAP's own analysis suggests adopting one of three systems would increase recycling as well as delivering costs savings.

The level of improvement available from separate food waste collection depends on current arrangements in any given place. Detailed analysis of the costs and benefits are required.

The Commission was particularly impressed by the evidence presented by the Welsh Government on the success of the Welsh Collections Blueprint. The Blueprint involves:

- Weekly collections of dry recyclables and food waste on Resource Recovery Vehicles (RRVs); and,
- Restricted residual waste through smaller bins, fewer sacks or less frequent (3 weekly or monthly) residual waste collections.

Vehicles such as these are used in Wales to collect separate food waste and collect recycling separated at source.

Through its Blueprint, Wales has achieved the highest recycling rate in the UK, second highest recycling rate in Europe and third highest in the world. The evidence from Wales suggests that the 'game changer' in terms of significantly increased recycling rates has been the introduction of segregated, weekly, food waste collection.

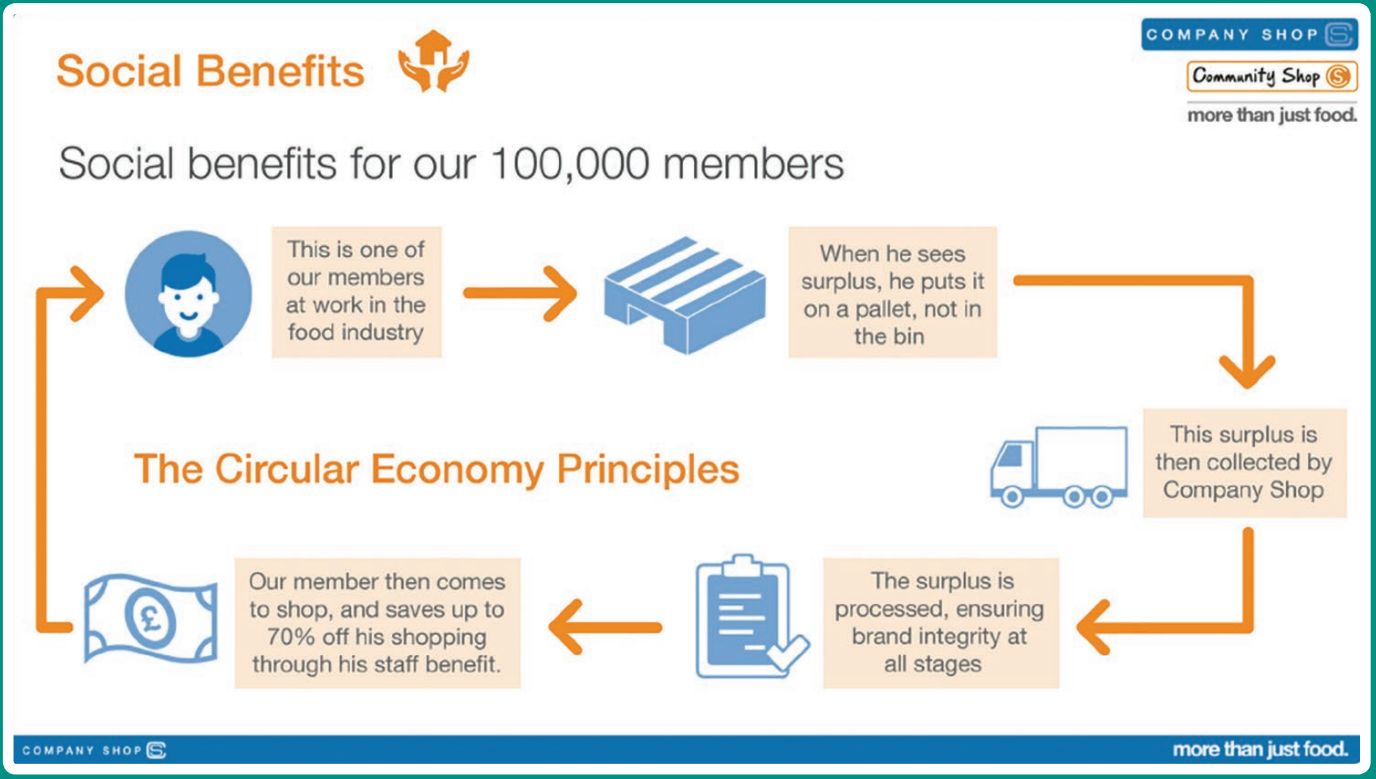
Equally impressive has been the cost savings achieved by Welsh Authorities from 'twin stream' waste collection to 'source separated'.

What can companies do to tackle food waste?

Company Shop case study

As the UK's largest commercial redistributor of surplus products, Company Shop stops good food going to waste by working with Britain's biggest retailers, manufacturers and brands, to ensure that good, surplus food reaches people's plates.

They redistribute surplus through a national network of staff shops, standalone stores and 'click and collect' services, providing offers to members that work in the food manufacturing industry and emergency services.



According to their own figures, Company Shop stops over 30,000 tonnes of food (amounting to over 71m meals) going to waste every year delivering commercial, environmental and social benefits.

In December 2013 Company Shop also launched Community Shop: aimed at ensuring even more people, in disadvantaged communities, can benefit from this model. The Community Shop Model claims to save its members – people on benefits on the cusp of food poverty – an average of £201 per month on their food shopping bill as well as facilitating access to a wider network of support (including routes to employment as well as health and benefits advice).

The Commission finds there is strong evidence that reducing food waste has the potential to drive long-term reductions in waste in the city due to:

- **Communities get it** – we all eat. And, so we all stand to benefit by reducing household food waste. An intelligent, targeted and sustained campaign to reduce food waste at a household level could be bring substantial direct benefits. It could also act as a catalyst for a wider change in behaviours in relation to waste in the city.
- **Interest from companies** – the Commission was impressed with the evidence submitted by Company Shop, which clearly underlined the business case for food producers to reduce their food waste, particularly diverting more to human consumption rather than traditional routes of anaerobic digestion or animal feedstock.

The Commission heard encouraging evidence from Newcastle-based organisations already active in the food-waste reduction agenda. At the time of writing, the existing food partnership (Food Newcastle), is about to publish it's new Good Food Plan. This creates a great opportunity to take forward a Food Waste Movement in the city focused on: a 'love food, hate waste' campaign; schools; businesses; and, food redistribution.

Bind Community Interest Company aims to prevent food waste at source. This complements existing food waste redistribution channels in Newcastle and beyond. Bind brings together governing bodies and food handlers across the city to reduce food waste as well as supporting projects working to educate and raise awareness.

Bind is leading the Sustainability and Waste theme of Newcastle's Good Food Action Plan. They connect knowledge and experience from across the city to build best practice. Bind also consults with food handlers to help them reduce their food waste, and use data to understand how better to tackle the city's food waste problem.

Food Nation is a Social Enterprise passionate about food, nutrition and health.

The team, based in Newcastle, provides innovative food and nutrition services and food waste advice to schools, businesses and communities across the region. They deliver practical activities that enable people to make healthy food choices for themselves and their families.

Packaging and wrapping – isn't this a national issue?

In the context of reducing waste at a city level, it's tempting to put packaging and wrapping in the 'too difficult' box. Decisions on packaging and wrapping are largely driven by big firms for national or international markets whether based in Newcastle or beyond. This suggests limited scope to influence these firms' decisions at a city scale.

This creates a fundamental challenge for places like Newcastle. Even where partners can drive positive behaviour change amongst our residents, consumers have limited control over the packaging waste that is fed to them by producers and retailers.

We know in the UK there already exists producer responsibility requirements for certain goods – i.e. packaging, electrical goods, batteries and cars. Under these schemes, the producer pays a fee related to how much product they produce for sale, and this in turn helps to pay for future collection and recycling.

For packaging in particular, there is a UK-scheme where producers are required to pay for Packaging Waste Recovery Notes (PRNs). PRNs are purchased from accredited re-processors, with the overall aim being to support recycling of packaging. In theory this should also incentivise producers to produce less wrapping and packaging.

There is increasing interest in this agenda at a national level. Recently Government launched a call for evidence on voluntary and economic incentives to reduce littering of drinks containers and promote recycling and a call for evidence on single-use plastic taxes is due soon. The overall aim is to look at how taxing items such as takeaway cartons and packaging could reduce impact the environment and wildlife. Evidence from the 5p tax on single-use plastics bags shows this approach can work. Since, its introduction in 2015 the number of plastic bags used has gone down by more than 80 percent in England.

The Commission welcomes Government's recent publication of a 25 Year Plan to improve the environment, and proposals to develop a national Resources and Waste Strategy. Reducing packaging requires action nationally and locally.

Alongside this Iceland and the Co-op have become the first supermarkets to back a UK-wide bottle deposit return system as a way of tackling the growing threat of ocean plastic pollution [4].

These trends are encouraging and it is important Newcastle contributes to these national conversations. Yet, evidence from other places suggests the city doesn't have to wait for changes at a national level. In London for example, the mayor is looking at creating a new network of water fountains and bottle-refill stations to reduce the use of single-use plastic water bottles. Such a scheme would build on an initiative led by Bristol two years ago, where businesses were encouraged to commit to making their tap water available to the public. This could be emulated in Newcastle with support from businesses and other partner organisations.

It's also clear that larger institutions are increasingly taking the lead in reducing packaging waste. Recently, the Natural History Museum announced it was ending the sale of single-use plastic water bottles at its sites.

Can we all reuse more?

Yes. In fact the Commission heard many, positive examples of community-based initiatives to encourage reductions in waste – including 'fix-it' cafes supporting people to extend the life of everyday household items. That these were often small-scale and local in nature is fine. Indeed, they serve to build local community capital, sense of belonging and neighbourliness as much as reducing waste tonnages.

The Commission also saw strong evidence of a thriving reuse sector across the city, including: charities; for profit; and, online networks. Yet there was no evidence of all of these organisations operating as a collective ecosystem in the city. The Commission was struck by the opportunity to explore building a reuse network from which all of these organisations might benefit and at the same time creating a powerful culture of reuse in the city.

4 In response to a Greenpeace survey of supermarkets views about the introduction of a UK-wide DRS system

An expanding city - planning for waste reduction

The latest ONS population estimates (2015) show around 292,800 people currently living in Newcastle (289,800 in 2014). We expect population to increase over the foreseeable future. The Newcastle Growth Forecast suggests this might increase to 312,900 by 2030. Over the same time period, the latest ONS projections suggest the population may be as much as 317,200, rising to 327,100 by 2039.

Independent estimates suggest the combined population of Newcastle and Gateshead will continue to grow beyond half a million. On this basis we are planning for 21,000 new homes in Newcastle by 2030. In addition, it is expected that at least 2,000 units of purposed built student accommodation will be built in the short term.

Clearly, as the city expands there is the opportunity to do more to build-in reduction, reuse and recycling to new developments. And, the Newcastle Future Homes project provides a great opportunity to do that. Future Homes is developing new housing exemplars that show people the future. They will combine in one place innovations in flexible living, materials, digital technology and zero/low energy systems to provide supportive homes for everyone at any life-stage.

The project, part funded by the Homes and Community Agency, wil construct four demonstrator units at Newcastle's Science Central Site*, with around 40 more units to follow this. Future Homes will address a series of 'industrial challenges', including waste. This provides the opportunity to 'design in' waste reduction, reuse and recycling to the new homes and the new community, serving as a powerful exemplar to other developers locally and nationally.

* Subject to planning permission.

Building in waste reduction and recycling - Stockholm

Stockholm has committed to building in effective waste management as the city expands. This includes innovations such as:

- An underground vacuum-controlled system which supports recycling, especially of bio-waste.
- Stockholm's biggest urban development project, Hammarby Sjöstad, with 11,000 new homes for over 25,000 people. The 'Hammarby Model' is based on a closed ecocycle where waste and energy use are minimised, and as much as possible is recycled, and recovered including district heat and power systems that utilise household waste.
- Stockholm Royal Seaport includes 12,000 new homes, with plans for waste disposal units in every household.

Whilst not everyone would agree with all these solutions (e.g. energy from waste is of course the subject of heated debate), this nonetheless demonstrates the level of ambition in Stockholm.

Recommendations:

The Commission recommends Newcastle set an ambitious target to be a zero food waste city.

How might the city achieve this?

- Create a Newcastle Food Movement that will work with communities, partners and businesses to reduce waste, promote education on food and ensure we get the most out of food.
- Exploring scope for separate food-waste collection for all homes and businesses in the city as a way of reducing food waste.
- The Newcastle Food Partnership working with WRAP on leading a high-level, innovative marketing and education campaign to reduce food waste in homes and businesses.
- All food outlets in the city committing to reducing customer waste through simple measures such as discouraging over-ordering and creating a 'doggy-bag' culture.
- Push nationally for all supermarkets to end the use of 'best before' dates on tinned and dried food items.
- Establish in the city a discounted supermarket model, selling good-quality, sellable food that would otherwise be discarded by producers and supermarkets.
- Maximise use of the city's composting operation to support local food growing in neighbourhoods across the city.

The Commission recommends Newcastle make waste minimisation a key priority, with ambitious targets for waste reduction.

How might the city achieve this?

- People making everyday small changes: reducing their own waste; choosing to recycle more; and, reusing items, not throwing them away.
- Taking action to reduce food waste in homes and businesses.
- All organisations in the city work towards reducing the sale of single-use plastics where practicable. The big anchor institutions in the city should lead the way on this.
- All bars, cafes, restaurants and shops banning plastic straws.
- Creating 'refill Newcastle' – a network of businesses where people can refill their water bottles with tap water.
- Cafes in the city reducing use of single-use coffee cups and embracing existing and new design alternatives.
- Supermarkets supporting a national Deposit Return Scheme.
- Promoting better alternatives to single-use plastics.

The Commission recommends Newcastle Build zero waste principles into homes, buildings and spaces.

How might the city achieve this?

- Maximising the impact of the city's Future Homes Project to build 40+ new homes at Science Central. This is a fantastic importunity to showcase to the city and nationally how we can 'design in' sustainable approaches to waste to homes and communities. Future Homes will be an exemplar for modern living, with waste reduction, re-use and recycling built into the homes and the community.
- Using Future Homes to trial large-scale, underground bins or other underground collection methods.
- Making Newcastle a new Centre for Excellence in Waste, a test-bed for new ideas and innovation.
- Developers seizing the opportunity to embed reduce, reuse and recycle into all future, new housing development in the city. The local planning system could be adapted to underpin this, alongside voluntary agreements.
- Making principles of waste reduction, re-use and recycling a key feature of the land-use planning framework, influencing all new development. This will require both national and local action.

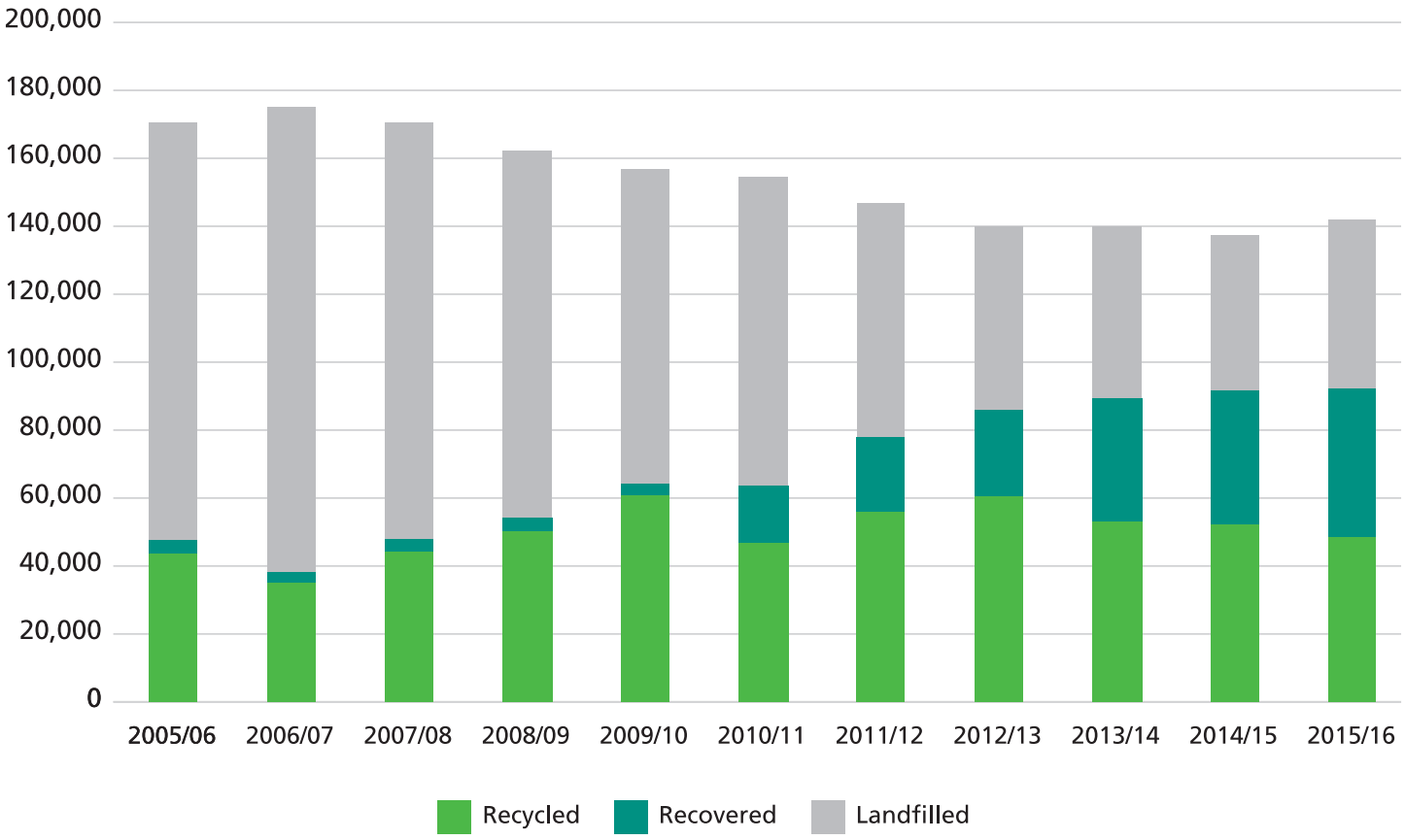
Chapter 3: Recycling and reuse is maximised

What are the EU recycling targets?

Through the EU's Waste Framework Directive, the UK is committed to recycling 50% of municipal waste by the 2020. The EU's Circular Economy Package proposes increasing recycling rates to 65% by 2035.

Since 2005, Newcastle, like most places in the UK, experienced improvement in household recycling rates. However, as shown below, the rate of improvement has levelled off in the past three years.

Treatment of Municipal Waste (tonnes) collected in Newcastle 2005 - 2016



The EU's Waste Framework Directive sets Member States a target for a minimum of 50% (by weight) of municipal waste to be recycled or prepared for reuse by 2020. The national average for recycling was 43% in 15/16, compared to 34% in Newcastle.

Currently, in Newcastle we collect approximately 19,000 tonnes annually of recyclable materials in fortnightly kerbside recycling collection (blue bins collection). This material is processed at a significantly lower cost than waste captured in the city's green bins (rubbish).

Yet, the longer term forecast would be that costs of processing recyclable materials are expected to rise due to the impacts from increased quality control internationally on mixed material (including in China and India).

We collect approximately 62,000 tonnes annually of refuse in our alternating fortnightly refuse collection (green bins) and this material is sent to composting, recycling, energy from waste content or landfill.

Estimates suggest there is as much recyclable materials in green bins as is collected in blue bins. So, we could be capturing no more than around 50% of all possible recyclable materials in the blue bin recycling collection.

There is a potential cost saving to be made if more recyclable materials can be diverted from green bins. This is, in large part, reliant on how well we can motivate and encourage people to put more recyclable materials to blue bins.

Yet, encouraging people to put more in their blue bins can lead to unintended consequences. For example, the city is currently experiencing an increase in contamination of blue, recycling bins by non-recyclable waste that should have been placed in green bins. This has increased the cost of processing blue bin recyclables. In Newcastle, there has been a sharp rise in contamination in the past year.

Non-recyclable refuse (62,000tonnes, which includes at least 15,000 – 20,000 tonnes of recyclable materials suitable for blue bin collection) is sent to the Byker Resource Recovery Centre for Mechanical Biological Treatment (MBT). The outputs of this treatment process are sent to:

- **Organic waste (mostly food waste) sent for composting at Ellington, with the compost produced being applied to brownfield land**

- **Metals sent for recycling**

- **Paper, card and plastic baled as a refuse derived fuel (RDF) and sent to Sweden to be burned for heat and energy**

- **A small mixed waste component sent to SUEZ's energy from waste (EfW) incinerator in Teesside**

- **Residue sent to landfill**

In the past 2 years, the cost of exporting RDF to Sweden has risen sharply. This is due to economic growth on the Continent, producing more waste locally, and significantly reducing dependency on imported waste.

It is clear that in future the challenges are:

- To divert more good-quality recyclates to blue bin recycling collections and reduce contamination.
- To reduce residual waste tonnages, by diversion of more recyclables to blue bin collections (or other recycling systems), and,
- Developing cheaper, more sustainable treatment process for dealing with the residual waste component that is not vulnerable to fluctuating export markets.

Given these challenges, an increased emphasis on recycling in Newcastle would seem straightforward. There already exists a relatively good picture of where the highest and lowest rates of recycling are in the city. And, improvements to use of data collected by refuse vehicles will strengthen the intelligence base further. This 'in-cab' technology could enable neighbourhood-level or even possibly individual household education and incentive schemes.

So everyone is agreed that recycling is always best?

Well, not in all cases. The Commission considered evidence [5] which argued current approaches to weight-based recycling targets can produce negative outcomes, including:

- **Higher costs** - analysis showing implementation of the EU's circular economy package would increase cost to UK businesses of £1.9bn (2015-35). At the same time other analysis [6] challenges this assertion, and suggests the cost burden could be neutral, depending on the policy measures adopted to drive the change.
- **Falling markets for recyclables** – the economics of recycling have deteriorated in recent years due to falling commodity prices.
- **Environmental impact** – some experts argue that for some materials, particularly paper, that incineration and not recycling is the optimum solution in terms of carbon reduction.

However, WRAP's 2010 Report on the Environmental Benefits of Recycling concludes (based on Life Cycle Analyses) that recycling of paper / cardboard, plastics and biopolymers provides more environmental benefits than other waste treatment options.

What to recycle and when?

Whilst most people agree that recycling seems intuitively, even morally right, we cannot ignore that adverse market conditions can quickly erode the business case for recycling. Of course, this is not a straightforward issue and can vary depending on the material in question relative to commodity markets (e.g. oil) as well as underlying consumer demand and changing long-term trends.

Newcastle, like many other places, has had to respond to adverse market conditions for recyclables, pushing up costs of waste disposal.

Is it then possible to formulate a recycling policy capable of flexing to volatile markets, changing demands and trends, whilst remaining committed overall to recycling. The concept of 'highest net resource value' may be one way of achieving this. In simpler terms, this means putting an item of waste to the use that gives you the best resource efficiency. This allows for local context to be factored in, including environmental considerations as well as financial costs.

Getting the right messages to our communities on recycling?

Overall, feedback from stakeholder sessions suggests strongly there is much more to do to communicate core messages on the benefits of recycling as well as basic information on what can be recycled.

The city has recently experienced problems over 'contaminated bins' with concerns over poor quality from recycling from some collection rounds. The main challenge is use of black and plastic bags within recycling bins. There are also problems with food waste, textiles, other dirty items and glass.

5 'Going Round in Circles', Policy Exchange, 2017

6 Environmental Benefits of Recycling 2010, WRAP

Can technology help increase recycling and reuse?

The Commission heard encouraging evidence of the Council's plans to better harness and apply data it collects in its refuse collection vehicles. The Commission could see strong potential for this 'in-cab' data and technology to encourage and incentivise recycling and reuse as well as informing broader communication and behaviour change programmes. Moving forward this 'in-cab' technology could:

- Use data and intelligence to more accurately identify hot spots – e.g. areas of low or contaminated recycling or high levels of waste being generated. There are opportunities to work with local social enterprises to identify how this data and intelligence can deliver better outcomes for people. For example, reuse of items which otherwise would end up in the waste system.
- Drill down data to street level in order to report the picture of waste across the city. This could lead to innovative ways of supporting communities to benefit from waste reduction in their neighbourhoods. And, it could also create opportunities in social media to raise awareness and improve environmental behaviours.

What stakeholders have told us about recycling

In all the Commission's stakeholder sessions, people were passionate about maximising recycling and re-using more.

Some 37% of respondents ranked these two issues as most important in terms of defining the city's future vision for waste.

And, stakeholders were full of ideas as to how the city could increase recycling and reuse. The main issue in recycling which was consistently raised was the need for better education and communication. This included very basic information on what people can and cannot recycle – confusion on this issue appears to be a significant issue and this may link to increased contamination of recycling bins with non-recyclable items.

It was suggested that students coming to university in the city could be given more information on recycling as part of their induction. There may well be some merit in this, given the different collection and recycling methods used in other places and the fact most students coming into the city will have little previous experience of running their own households.

But, the issue of education was not just expressed in terms of basic instructions on what people could recycle. Stakeholders also suggested more education on why recycling is an important and worthwhile thing to do.

Coupled with calls for better education, stakeholders also asked for more investment in resources and infrastructure to recycle – i.e. more opportunities to recycle. This included more support to local groups who are leading community-based efforts to reduce waste and recycle more. There we also calls for more incentives for households and, perhaps neighbourhoods to reduce waste and recycle more.

Interestingly, stakeholders get that recycling isn't simply an issue for council and households to resolve. There were many suggestions on what more could be done to encourage the right behaviours by businesses, including:

- Lobbying businesses to phase out non-recyclable packaging (e.g. some plastics and polystyrene) as well as pressure more generally on manufacturers to reduce packaging and ensure this is always recyclable. It was recognised that this had a significant national dimension and Newcastle should work with other places to nudge Government to do more with businesses on this.
- Coffee retailers were highlighted, with people saying they should do much more to address the problem of not being able to recycle coffee cups. This could either be a technical solution or more simply, doing more to encourage customers to use re-usable cups.

On reuse specifically, stakeholders highlighted the need for more access to repair facilities (particularly for electrical items). This is perhaps a response to the 'throw away' culture which has, in part, contributed to the decline of traditional, high-street repair shops. Throughout the work of the Commission, we have been contacted by small-scale, often community-based, repair facilities who are passionate about growing the reuse sector. So, there may an issue around communicating the existence of these facilities better to the people who would benefit most.

There was an interesting idea to promote sharing of low-use, relatively expensive items – e.g. lawnmowers as well as better promotion of reuse and existing sharing schemes more generally. Finally, people were very attracted to the idea of sharing points or reuse shops within Household Waste Recycling Centres.

What more can be done in Household Waste Recycling Centres to promote reuse?

Technically reuse within HWRCs has been a grey area, due to the designation of 'waste' items once they have entered the sites. Yet, the Commission saw evidence of other places where reuse shops or designated reuse areas have been established in HWRCs. For example in Hull, where residents can pick up quality, second-hand goods at lower prices in the Hull Reuse Shop. The shop is stocked from re-usable items taken to the city's HWRCs. Available goods include, furniture, TVs, vacuum cleaners, tools and even unwanted musical instruments. As the proceeds from the shop go to good causes, this is a simple and effective way of extracting maximum monetary and social value from waste and retaining this at local level.

ReTuna Återbruksgalleria in Sweden is the world's first recycling mall. Old items are given new life through repair and upcycling. Everything sold is recycled or reused or has been organically or sustainably produced. Could Newcastle go beyond the reuse shop and be the first UK Reuse Mall?

How are partners leading on recycling and reuse?

The Commission was encouraged by how some of the city's biggest partner organisations were leading efforts to recycle and reuse more. In particular the Newcastle Upon Tyne Hospitals NHS Foundation Trust has, in recent, years made substantial progress through a combination of: staff and patient communication and engagement; investment in new technologies; and, a variety of simple, common-sense approaches.

Progress highlights include:

- **A 4-fold increase in recycling (326t / 1183t) 2016/17 = 41% of non-clinical waste recycled. In 2010/11 this was 10%!**

- **The first Trust in Europe to use reusable sharps containers over 12 years ago.**

- **Around 33% lower costs for waste disposal (£1.58m to £1.06m).**
- **Zero waste to landfill (from 40%in 2010).**

- **Contributions of over £1,000,000 savings so far.**

Whilst some of these examples are specialist (e.g. reusable sharps containers), it's important that these achievements are more widely understood and best practice shared to illustrate the positive results that can be achieved by organisations willing to invest time, energy and money in taking a different approach to waste.

Recommendations:

The Commission recommends Newcastle adopt bold new approaches to significantly increase recycling.

How might the city achieve this?

- People making a positive choice to recycle and reuse more.
- Introducing separate food-waste collection for all homes and businesses in the city as a way of increasing quantity and quality of recycling.
- Maximising use of anaerobic digestion for food waste across the city.
- Establishing a clear, powerful brand and long-term campaign to drive waste reduction and recycling.
- Tagging all bins in the city with a unique identifier so they can be individually weighed. Consider neighbourhood waste and recycling improvement challenges and strengthen incentives and enforcement.
- Organisations working together to improve recycling infrastructure so more items can be recycled - e.g. coffee cups, plastic pots, tubs and trays.
- Maximising use of the city's composting operation to support local food growing in neighbourhoods across the city.

The Commission Recommends all stakeholder retain the maximum value from waste in the city.

How might the city achieve this?

- Establishing a Resource Newcastle Partnership to plan for and coordinate growth of the circular economy. This could be done on a North of Tyne geography but, must include communities.
- Ensuring long-term city and regional economic plans include priorities to invest in and grow local markets for recyclables.
- Establishing the UK's first 're-use shopping mall', selling a wide range of high-quality, reusable items collected in the city.
- Creating 'Re-use Newcastle' – a network for shared marketing and collections linking up all organisations involved in reuse in the city.
- Taking a lead on challenging product designers and developers to enable repair, re-use and extended product life.

Chapter 4: Behaviour change and communications

The role of behaviour change

Reducing and recycling waste is not simply about changing collection services or introducing new technologies. It is as much about changing people's attitudes and behaviours towards their waste so they see it as a valuable resource and are more inclined to do the right thing. The question is what is effective in driving positive attitudinal and behaviour change? Why do people behave in the way they do? What motivates people to change their behaviour?

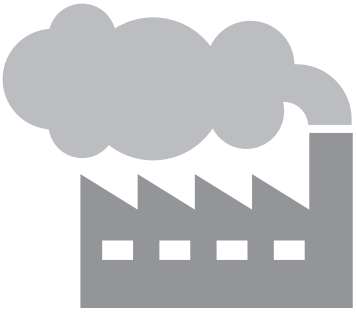
The Commission heard expert evidence on the issues of behaviour change in helping to reduce waste and recycle and reuse more. The key conclusions were:

- **Rational behaviour** - when deciding on their environmental behaviours, people often weigh up the costs and benefits of their actions – i.e. they want to maximise the benefits at the lowest costs (the perceived 'costs' are not necessarily financial – they could be measured in time or effort or even "what do my friends, family or neighbours think?"). Timely, accurate and impactful information from trustworthy sources is an important element in this process and for waste, people might want better information on what they can recycle, or what happens to the material once it's put in the right bin.
- **Habits** – individual, environmental behaviours are often based on habits but these habits can be modified through direct information and feedback. For waste this might include talking to households about how well they are recycling.
- **People respond to social norms** – i.e. what people perceive as normal behaviour can be powerful influences on what they do. For example, if most people in a neighbourhood are recycling or reducing their waste, more and more people will join in this behaviour. However, if recycling bins are constantly full of rubbish then where's the motivation to go to the effort of sorting out your recyclables? Stigma may surround reuse and yet, for some people, it's perfectly acceptable and second hand products are almost as good as new (and a lot cheaper). Encouraging positive social norms around reuse and recycling is very important to make them become 'normal'.
- **People have barriers** – These can be physical or practical (e.g. infirm or no recycling container), knowledge based (not knowing or confused about what to recycle), attitudinal ("It's not worth recycling") or perceptual ("No-one else recycles round here, why should I? It's a waste of time."). To succeed, recycling schemes must identify and address these barriers, which vary from person to person, area to area.

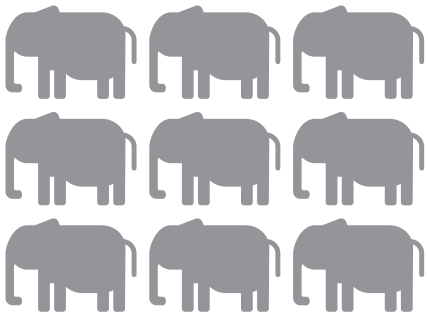
Engaging people to address barriers and build awareness and positive attitudes can change habits and, in turn influence social norms which is how recycling in some areas of the UK has reached over 60%.

Case Study: British Heart Foundation

Newcastle Students Union & City Council have worked in partnership with the British Heart Foundation since 2013. The Students Union run the campaign "Leave Newcastle Happy" and BHF work alongside them providing the free collection service. In 2016 the campaign hit a record high due to a Halls of Residence furniture clearance at Richardson Road. This collected 1,698 items of furniture worth over £59k and 266 bags of donations worth over £3k raising an amazing total of £62k for The British Heart Foundation in 2016.



Your donations have helped save 564,213kgs of CO2 greenhouse gas emissions.



Your donations have saved the weight of 9 elephants in waste going to landfill.

The Council sited nine Clothing Banks in areas of the city where there is a high population of students living off campus. This reduced the amount of waste and mess left behind for the Council to clear away as it gave students and the general public better access to donation points enabling them to donate rather than waste. The new Council Clothing banks have been a huge success from day one.

There is an opportunity to develop a single, coherent and long-term narrative about waste capable of driving long-term behaviour change in the city. However, this long term view needs to be balanced by the immediate need for key messages on particular issues such people putting rubbish in recycling bins.

What approaches are other partners taking?

The Commission heard evidence from Newcastle Upon Tyne Hospitals NHS Foundation Trust outlining the impressive progress made to radically reduce waste to landfill. The Trust moved from 40% landfilled to zero waste to landfill in 2011, delivering a 33% decrease in waste costs. This has been delivered through a mixture of communication and engagement with staff, use of new technologies and strong leadership across a large and complex organisation.

One of the striking things about the Trust's journey is how little is known about these achievements beyond the organisation itself. The Trust is the biggest employer in our City Centre yet the fact it generates significant quantities of waste (including complex waste streams) and is doing innovative things to manage it is largely invisible to the rest of the city. There is real potential to use this story of outstanding practice, as well as others to inspire other organisations, big and small, across the city to take similar approaches and realise the benefits for themselves.

The city needs a clear vision and plan for how various elements of behaviour change across Newcastle can be brought together over the long term as well as how to respond to changing short term needs on specific issues.

Community-led behaviour change: Greening Wingrove

The Commission heard evidence from Greening Wingrove and were impressed by the range of projects they had delivered in recent years.

Greening Wingrove was formed by a group of residents and local organisations in 2011. Initially, this was inspired by an interest in cleaning up litter and fly tipping. However, what started as an initiative to take more pride in the area has grown into something much bigger and more ambitious. This enabled residents to tackle other local challenges through a 'green lens', for example:

- Reducing, reusing and re-cycling: a Re-cycled Handmade Jewellery project; Summer Holiday Environmental Club for young people; upcycling clothing; 'Fix-it' Cafes encouraging people to fix and reuse household items; using unwanted materials for vegetable growing initiatives.
- Litter picks: regular, resident-led community litter picks.
- Community food growing: 'Vertical Veg' growing on the streets, encouraging residents to grow vegetables at their front doors.
- Saving water: working with the water company to deliver a water efficiency programme to residents.
- Saving energy: identifying energy saving measures and helping residents to save money through low-cost interventions.
- Planting: encouraging community planting through, for example, use of old Council-owned planters.
- Community Orchard: establishing a community orchard in Nuns Moor Park, with cherry, apple, pear, quince and hazelnut trees.

The Commission also considered the reflections from Greening Wingrove on how environmental behaviour change (including waste reduction and recycling) can be developed and delivered at a community level. The experiences, research and learning from Greening Wingrove highlighted the following lessons:

- The Greening Wingrove model is underpinned by capacity, built within the community over years. Volunteers have achieved significant change over this period by focusing on developing this local capacity which has led to greened areas, new community relationships and new movements such as litter picks and community-led approaches to waste reduction, recycling and reuse.
- There is the potential to accelerate local behaviour change by working with partners to shape and adapt local services around the local knowledge and capacity that has been developed. Local volunteers are well placed to sustain individual behaviours, to work with others to successfully manage service adaptations and, ultimately, to create a new cultural relationship with the local environment.

Recommendations:

The Commission recommends the city drive positive behaviour change with communities.

How might the city achieve this?

- In partnership with residents, businesses, organisations and possibly neighbouring councils, lead sustained behaviour change activity through communication and education including better use of social media and technology.
- Making better use of effective and free-to-use communication materials that are already out there. This should use effective, national messaging with a local slant.
- Working with student & landlord organisations, universities and local community groups to deliver a clear and consistent message across the city about recycling. This should emphasise the cost and environmental benefits of recycling.

Chapter 5: We get as much value as possible from waste

From composting to the circular economy…

At its very first meeting, the Commission visited the city's Sandhills site where it saw first-hand how the Council coverts the city's green waste into the highest-grade compost. This material is then sold – either in small sacks to householders in the city or by the tonne to local farmers. This is a powerful example of how the value from waste material can be retained in Newcastle, generating an income, supporting jobs and, of course, ensuring an element of the city's waste is turned into something positive locally.

The city's composting operation is a good example of the circular economy in action. Alongside this, the Commission are aware of the many small-scale examples of organisations in the city and region, promoting and supporting reuse of everyday household items, including everything from online sharing networks, traditional charity shops to fix-it cafes and firms specialised in repairing electrical equipment.

There are clearly many, very positive, individual examples of extracting value from waste at a local level. Yet, it was apparent to the Commission that these operations exist in the absence of a shared ambition, plan or network for support, promotion and growth.

This contrasts with evidence the Commission from other places that are taking a more deliberate, ambitious and systematic approach to the circular economy.

London Waste and Recycling Board

During its visit to London the Commission heard evidence from the London Waste and Recycling Board – a statutory Board established to provide a strategic approach to waste management in London. The evidence from LWARB focused on its vision to create Circular London – supporting a circular economy to grow in the capital.

A 'circular economy' keeps resources in use for as long as possible, extracts maximum value from them whilst in use, then recovers and regenerates materials at the end their life. It is a more efficient and environmentally sound alternative to the traditional economy which 'makes, uses and disposes'.

LWARB published a Circular Economy Route Map in June 2017, with ambitious plans to provide London with some £7bn annually from built environment, food, textiles, electricals and plastics. As part of this they aim to create 12,000 net new jobs in reuse, remanufacturing and materials innovation. The Routemap recommends actions for stakeholders, including from higher education, digital and community sectors as well as London's businesses and social enterprises.

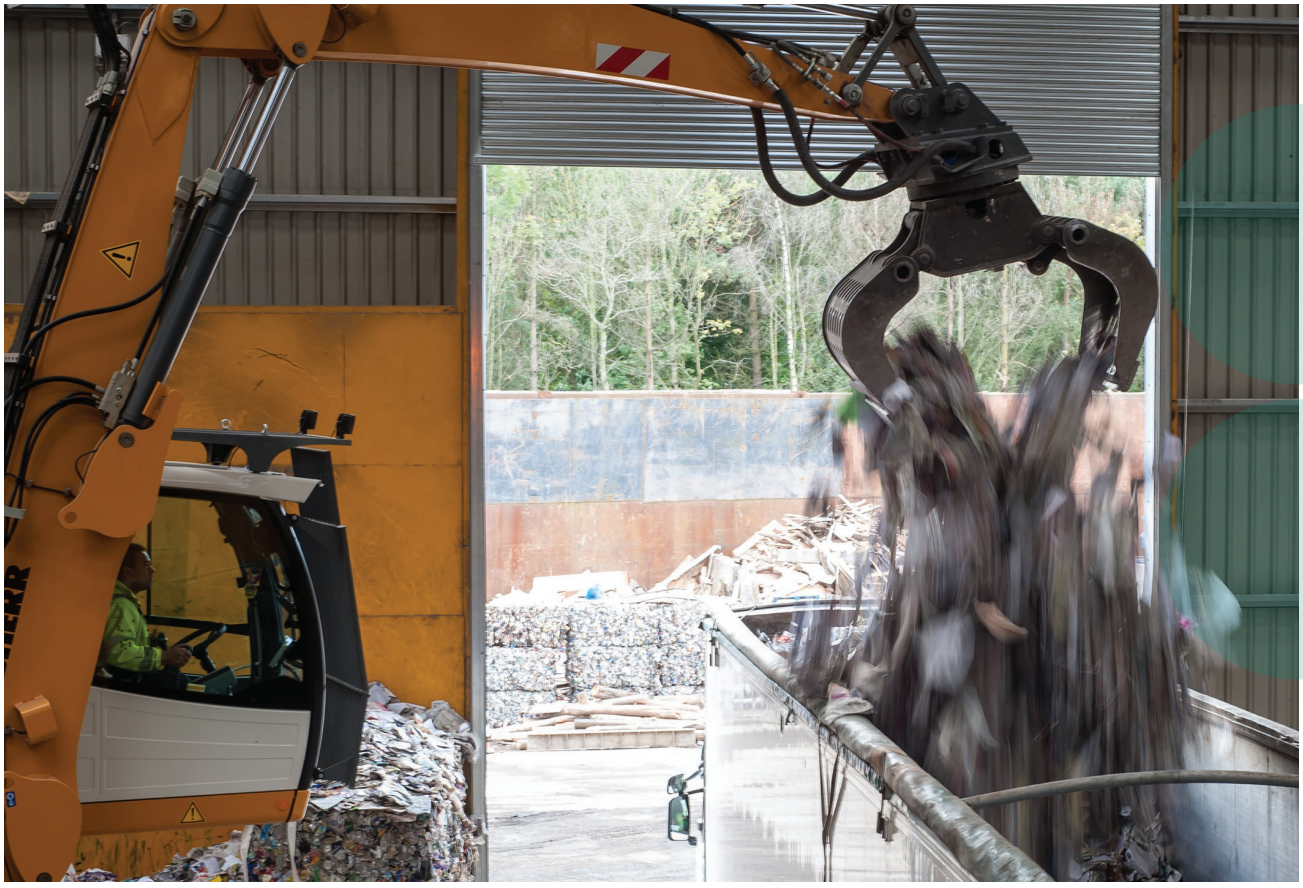
Critically, LWARB is committed to networking, sharing and learning from other places, businesses and partners about the circular economy.

Learning from Wales – creating markets

The Welsh Government is committed to working with businesses, councils and the waste industry to create the right markets for recyclable materials, with the aim to create economic opportunity from these. Critically the Government there recognises the need to integrate changes to waste collection operations and waste infrastructure more generally to the development of these markets. A Sector Plan has been developed which aims to:

- Identify and develop markets within Wales for the recyclable materials and food waste for anaerobic digestion.
- Assess the infrastructure needed to achieve this, seeking economies of scale.
- Develop mechanisms for promoting closed loop recycling facilities in Wales.
- Ensure waste infrastructure and facilities are seen as valuable and desirable assets by the local communities that surround them.
- Increasing skills needed for reuse and refurbishment within the jobs market, so these sectors can grow.

Critically, the Welsh Government has recognised that developing local markets for recyclables and reuse requires a high rate of recycling to feed these markets. This close relationship between developing the markets and ensuring supply for those markets drives the ambitious recycling targets in Wales. It also creates a strong, long-term business and jobs case for recycling and reuse, in addition to the environmental, resource and moral arguments underpinning recycling.



Recommendations:

The Commission Recommends all stakeholder retain the maximum value from waste in the city.

How might the city achieve this?

- Establishing a Resource Newcastle Partnership to plan for and coordinate growth of the circular economy. This could be done on a North of Tyne geography but, must include communities.
- Ensuring long-term city and regional economic plans include priorities to invest in and grow local markets for recyclables.
- Establishing the UK's first 're-use shopping mall', selling a wide range of high-quality, reusable items collected in the city.
- Creating 'Re-use Newcastle' – a network for shared marketing and collections linking up all organisations involved in reuse in the city.
- Taking a lead on challenging product designers and developers to enable repair, re-use and extended product life.

Chapter 6: Dealing with what's left

Maximising the benefits and the value from residual waste

Energy from waste from incinerating residual waste is one of the most contentious debates in the world of waste management even though it makes use of what's left over once we've reduced, reused and recycled as much as possible. In fact, without significant technological advance, there will always be some materials 'left over' which will have to be dealt with somehow.

The Commission has not been asked to specifically determine whether Newcastle should burn its waste to produce energy and the city already does this by sending it to Sweden and Teesside. In 2015/16, just under 28,000 tonnes of waste, in the form of 'refuse derived fuel' (RDF), was exported to Sweden where it is converted into heat and power. A further 8,700 tonnes was sent to an energy from waste (EfE) plant in Teesside. Together this amounts to over a quarter of the city's municipal waste.

Newcastle itself derives little direct benefit from this activity (aside from dealing with a significant proportion of its waste). The city currently pays to export RDF to Sweden and the costs are forecasted to increase in coming years as the supply of waste and competition from elsewhere rises.

The Commission did question whether paying increasing costs to export fuel to Sweden, which then benefits from the heat and electricity generated, is a good idea. It concluded that the city should maximise the benefits and the value from waste (including using EfW), preferably using regional capacity.

The Energy from Waste (EfW) Debate

Arguments for and against EfW abound, and despite substantial technological improvements in recent decades, concerns remain over air quality and other pollution impacts. Arguments also exist around its impact on carbon emissions: proponents believe, from a greenhouse gas perspective, that for some materials, energy from waste is less harmful than recycling. On the other hand, critics argue the evidence is debatable and that whole life cycle analysis endorses the recycling of most products.

As well as these issues, the waste itself is changing and some waste forecasts suggest less paper and cardboard will enter the waste stream (partly as a result of increased digital and less packaging) which could mean residual waste will be less easy to burn, reducing its value as an energy source and increasing its carbon emissions.

Burning waste to generate energy – summary of the arguments

Supporters of energy from waste assert it:

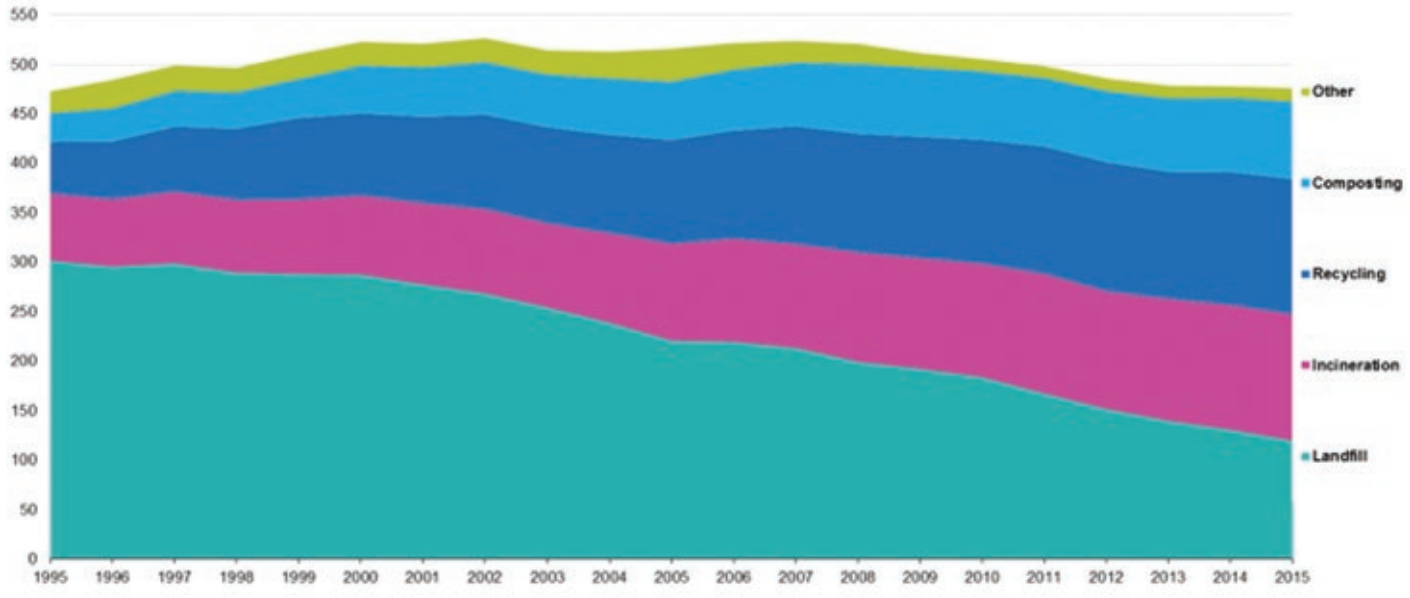
- Generates energy from waste materials
- Is a solution for waste that cannot be recycled
- Can co-exist with recycling to reduce the amount of material landfilled
- Can have less environmental impacts than recycling (for some materials)
- Has reduced its environmental impact with modern plants filtering out pollution

Critics argue energy from waste:

- Discourages recycling of some products (e.g. some plastics)
- Destroys resources for good
- Is vulnerable to changing waste profiles (e.g. less paper means less fuel to burn in future)
- Requires significant investment in facilities and can tie places into long term commitments to generate waste – thus discouraging investment in recycling and waste minimisation
- Is less energy efficient than recycling
- Competes with recycling for the available waste
- Cannot guarantee all pollutants can be filtered out even in modern plants

The Commission also considered evidence that burning waste continues to be a widely-used solution across Europe. The next graph shows waste incineration has grown steadily since 1995, though not as much as recycling and composting. Since 1995, the amount of municipal waste incinerated in the EU-27 has risen by 32 million tonnes (100 %) and stood at for 64 million tonnes in 2015.

Municipal waste treatment, by type of treatment, EU-27, (kg per capita), 1995-2015 [7]



[7] Eurostat: Statistics Explained

Countries with some of the highest amounts of incineration in Europe (e.g. Denmark, Norway, and Sweden which all incinerate at least 50 % of their waste) — also tend to have good levels of recycling and composting of organic materials and food waste. However, critics argue that if not for incineration, these countries would have even higher rates of recycling [8].

Denmark is a particularly interesting case study in the energy from waste debate. Like Germany, Denmark landfills very little although it has much more incineration (54% in 2014) along with increasing recycling.

Denmark has an incineration tax which is lower than its landfill tax. There may be another (cultural) factor at work in Denmark – every city has its own incinerator and most are publically owned. This may reduce the incentive to reduce waste in those places as less waste equals less fuel for heat and power. Denmark is one of the biggest generators of waste per person in Europe which supports the argument that there is a strong link between burning waste and waste generation.

Historically, Denmark embraced incineration on a large scale early in the 20th century as its cities ran out of space to bury waste. However, today the Danes are committed to significantly reduce incineration and have a plan for carbon neutral energy generation by 2050.

In summary, Denmark appears to have acknowledged it has a problem with burning too much waste and is trying to address the issue.

What other proven energy from waste technologies might Newcastle consider?

The Commission recommends a review all forms of residual waste treatment to look at how future technologies can best meet the needs of Newcastle as a growing and dynamic city. One such technology is anaerobic digestion (AD).

There is established evidence of the benefits of using AD especially for food waste. AD is a biological process which breaks down waste in the absence of oxygen (hence anaerobic), producing CO2 and methane as well as other materials, known as 'digestate'. The methane can be used as a fuel, generating renewable energy and the digestate can be used as fertiliser. As the CO2 produced comes from a renewable source (food waste) and not fossil fuels, AD is recognised by the Committee on Climate Change and others as being a renewable energy technology that can help reduce overall greenhouse gas emissions.

The Commission is aware that the Welsh Government is committed to supporting local authorities in Wales to invest in AD facilities. We also heard evidence at stakeholder sessions of an established and growing capacity for AD in the North East Region.

The Commission considered that increased use of AD be looked at alongside consideration of a segregated food waste collection for the city's households.

[8] Incineration Versus Recycling: In Europe, A Debate Over Trash – Nate Seltenrich Environment 360 2013

What about using the heat from EfW?

EfW plants can produce two types of energy: electricity and heat. The heat from EfW plants can be used for district heating schemes for public buildings and private dwellings. District heating schemes from EfW have been underdeveloped in the UK for many years but are now being looked at with renewed interest. The UK government is investing over £300 million in the development of heat networks and more EfW plants are being built with the capacity to utilise the heat generated for district heating schemes.

District heating development in Leeds

Leeds City Council has awarded a £24m contract to design, build and operate a district heating system linked to its new energy-from-waste plant. The deal covers the development of phase one of a city-wide district heating network which will use heat from Leeds' Recycling and Energy Recovery Facility, which is owned by the city and operated by a contractor.

Phase one of the project will provide a "network of underground pre-insulated pipework", which will run from the EfW plant through to the centre of Leeds and supply a branch to the Lincoln Green area of the city. The deal also includes building the associated infrastructure and equipment that will form the spine of the heat network, from which future extensions will grow.

The Commission recommends a review of the use of existing and new heat networks, both in terms of technology and planning for new developments to see how this technology could benefit the city in the future.

In the longer term these developments, using a range of technologies to recover value and energy from all wastes, might require organisations from across the North of Tyne to work together to realise and maximise the benefits for Newcastle. The Commission urges that this process starts soon. As part of this process, the Commission also recommends stakeholders establish a Waste Partnership to look at ways to manage their own waste and to obtain best value in future waste management procurements e.g. for new facilities.

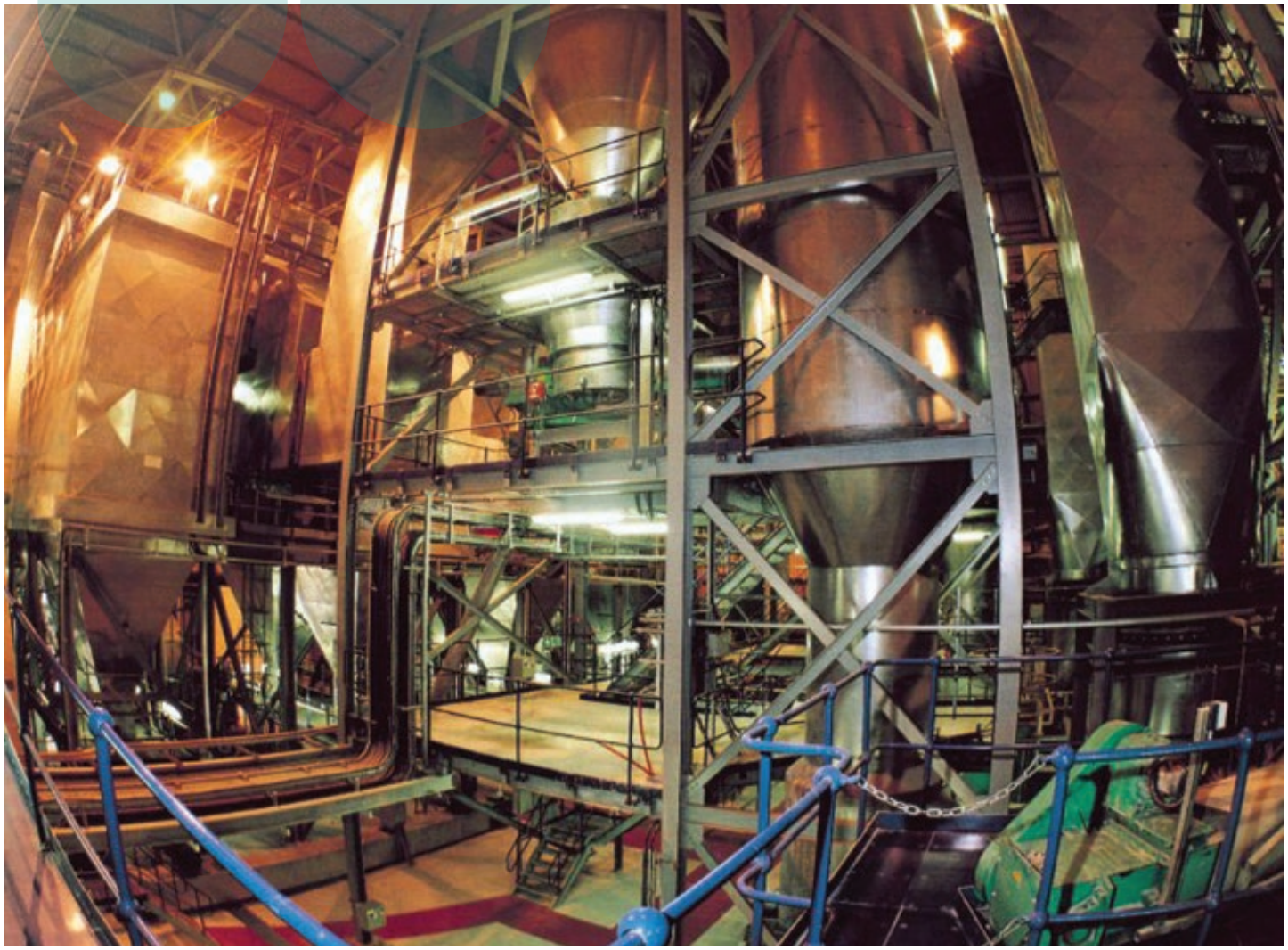
The Commission concluded that Newcastle adopts the principle that technologies are considered on the basis of those with the best environmental outcomes are considered first and then challenged based on affordability, economic, commercial, social and practical considerations. In practice this means Newcastle should aim to: first, reduce waste and recycle as much as it can; don't invest in solutions that artificially cap the city's recycling potential; and, where the city uses energy from waste, ensure it is as efficient as possible, using the heat too and benefiting Newcastle directly if it can. This approach is in keeping with the principles of the Waste Hierarchy, in particular maximising activity higher up the Hierarchy. Achieving this should naturally reduce the amount of waste that needs to be landfilled or sent to energy from waste.

Recommendations:

The Commission recommends that where energy from waste is generated, Newcastle's homes and businesses should benefit.

How might the city achieve this?

- Exploring alternative options for sending waste to Sweden to generate energy from waste. Where possible, alternatives should make best use of regional capacity.
- Maximising use of anaerobic digestion for food waste across the city.
- Maximising the use of existing and new heat networks.
- Reviewing all forms of waste treatment, so future technologies best meet the needs of the Newcastle.



Appendix 1: The Commission

Heidi Mottram (CEO) joined the Board in 2010, when she was appointed as CEO of NWL and NWGL. Prior to her current position, Ms Mottram held a number of senior management roles, including Managing Director of Northern Rail Limited, Commercial Director of Arriva Trains, and Operations Director of Midland Mainline as well as various senior positions in Great North Eastern Railway. She is a Non-executive Director of Eurostar International Limited and a Board Member of the North East Local Enterprise Partnership. She was awarded an OBE in the New Year's Honours 2009 for services to the rail industry. In June 2016, she was named Business in the Community's Prince of Wales Ambassador to the North East. She is also a Board Member of Kielder Water and Forest Park Development Trust, as well as a member of the CBI Board.

Dr Colin Church is the Chief Executive of CIWM, the professional body for resources and waste management. He is also the Chair of the Circular Economy Task Force convened by Green Alliance. Previously, he was Director, Environmental Quality in the Department for the Environment, Food and Rural Affairs (Defra), where his responsibilities covered a range of environmental issues, including resource efficiency and waste management. Colin is a Trustee of CHEM Trust, an NGO working on the regulation of chemicals.

Ben Webster is Environment Editor and Oceans Correspondent of The Times. His recent investigations have included exposing the full impact of air pollution in our cities; the cruel treatment of animals in some abattoirs; the growing plastic pollution of oceans and the loss of the green belt. He joined The Times in 1998. He worked on the Times newsdesk from 1998-2000 as night news editor and then assistant news editor. He was Transport Correspondent from 2000 to 2009, Environment Editor from 2009 to 2011, Media Editor 2011 to 2013, covering the Leveson Inquiry and Jimmy Savile sex abuse scandal, returning to be Environment Editor in 2013.

Marie Fallon is Director Regulated Industry for the Environment Agency. Marie qualified in Town Planning and started her professional working life as an Environmental Educational Officer in Coventry planting trees and working with schools. Marie joined the Agency three years ago as the Area Manager for Northumberland, Durham and Tees and she has recently taking up the role of Director of Regulated Industry within the Agency. Prior to joining the agency Marie had a 28 year local government career including: Corporate Director of Environment in Cumbria, Interim Director of Regeneration, Enterprise and Planning in Northampton; Director of Regeneration in Newcastle.

Peter Maddox is Director at WRAP UK. He has been at WRAP for 10 years in a range of strategy and operational roles related to waste management, resource efficiency and the circular economy. Previously he worked at BP for the polymers and chemicals businesses in UK and France. He has a D Phil in Chemistry.

Paul Taylor is responsible for FCC Environment's entire business in the UK, creating a clear vision for the business with defined strategic goals, delivering shareholder value, leading the business through a period of rapid change in market conditions and expectation. Paul is a chartered civil engineer with 25 years of experience in the waste and recycling industry.

Andy Griffiths is Head of Environmental Sustainability at Nestlé UK and Ireland. He is qualified as both a Chartered Engineer and a Chartered Environmentalist and is focussed on bringing together the engineering expertise, operational experience and environmental insights of the organisation alongside collaborative partnerships with academia and key delivery partners to develop and implement robust and effective sustainability programmes. In addition to leading Nestlé UK & Ireland's waste strategy Andy is a member of WRAPs Courtauld 2025 Steering Group and the co-chair of WRAPs Surplus Food Redistribution Working Group.

The views in this report represent the collective position of the Commission. They do not necessarily represent the views of every individual Commissioner, or of any person or organisation. Whilst the information and facts contained in the report are thought to be accurate at the time of writing no responsibility or liability shall be accepted for any reliance placed on them.

Acknowledgments

The Waste Commission would like to thank all stakeholders who got involved in the conversations on waste during the past year. Through our open call for evidence on: wiseonwaste.co.uk and our waste stakeholder sessions there are too many people and organisations to thank in one document.

However, we'd like to give special thanks to those who took time to meet and present to the Commission, including:

Andrew Waddell	NE1
Tariq Albassan	NE1
Wayne Hubbard	London Waste and Recycling Board
Prof. Simin Davoudi	Newcastle University
Chris Mills	WRAP
Charlotte Henderson	WRAP
Michael Jones	WRAP
Russell Owens	Welsh Government
Andrew Gray	Newcastle Green Party
Frances Hinton	Newcastle Green Party
Bruce Haagensen	National Landlords Association (Tyne and Wear)
Johurun Nessa	West End Women and Girls
Duncan Fairbrother	Bind Food Waste
Jess Miller	Bind Food Waste
Eric Siqueiros	The Wise Group
Trevor Healy	Your Homes Newcastle
Jamie Saddler	Food Nation
Nicola Cowell	Food Nation
Jason Mitchell	The Newcastle Upon Tyne Hospitals NHS Foundation Trust
Cllr Gareth Kane	Newcastle City Council (Liberal Democrat Group)
Katrina Jordison	Greening Wingrove
Cllr Nigel Todd	Newcastle City Council (Labour Group), Greening Wingrove
David Webb	Newcastle University, Greening Wingrove
Sally Young	Newcastle Council for Voluntary Service
Martin Gollan	Newcastle Council for Voluntary Service
Philip Pollard	Byker Community Trust
Gearoid Henry	Newcastle City Council
Christine Herriot	Newcastle City Council
Catherine Lyons	Newcastle City Council
Jan Shimmin	Newcastle City Council
Tom Rumboll	Company Shop
Michael Shields	Fareshare
Mark Varney	Fareshare

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wiseonwaste.co.uk