

scotland's zero waste plan



REDUCE



REUSE

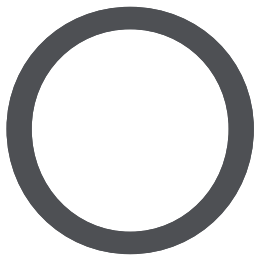


RECYCLE



natural
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SCOTTISH GOVERNMENT

scotland's **zero** waste plan



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Ministerial Foreword

A Zero Waste Plan for Scotland:



Waste affects every one of us in Scotland. Every day, at home and at work, we acquire, use and dispose of resources. And as individuals and organisations we are becoming increasingly aware of our impact on the environment, and the need to look after the precious resources we all depend on.

Scotland has already made huge progress on waste. We have cut dramatically the amount of waste we throw away in landfill sites, and recycling has soared. The Scottish Government has energetically supported local authorities in driving up recycling rates and achieving the European target to cut the amount of biodegradable waste sent to landfill more than 4 years earlier than the deadline of 2013. Our ambitious climate change legislation includes powers to tackle the climate impacts of waste. And we have set up a coordinated Zero Waste Scotland programme to support action on waste.

However, there is still much to do. We must carry on cleaning up our act, preventing and reducing waste. Above all, we have to recognise that everything we use and throw away is a resource which has a value, a value that we should try to preserve, capture, and use again wherever possible.

That is what a zero waste Scotland means – not a country where we never throw anything away, but a new approach to making the most effective use of all resources, and avoiding wasting resources or making them unusable wherever we can. This Zero Waste Plan aims to bring a step change for Scotland. To do that, it has to tackle all Scotland's waste, not just the waste that local authorities collect and manage, which is less than a fifth of all waste.

A zero waste Scotland will need commitment and resolve from every one of us. As I travel around Scotland, I see individuals and organisations taking action to prevent or reduce waste, and use resources more efficiently. I am convinced that by harnessing their enthusiasm and following their lead, we will build a zero waste Scotland.

Government's role is to set the vision, introduce policies to drive change, and give leadership to bring these changes to fruition. This first Zero Waste Plan for Scotland sets a course for the changes we need to make. It proposes long term targets of recycling 70% of all Scotland's waste, and only 5% of remaining waste ending up in landfill by 2025.

I believe this Zero Waste Plan sets realistic, ambitious and sustainable objectives, and that it gives clear signals that allows us to make plans, invest and take decisions for the future, so we can work towards a greener, less wasteful Scotland that can support us and our children.

A handwritten signature in black ink that reads "Richard Lochhead". The signature is written in a cursive style.

**RICHARD LOCHHEAD, MSP
CABINET SECRETARY**



**Target of
70% recycling and
maximum 5% to
landfill by 2025 for all
Scotland's waste**



**Landfill bans
for specific
waste types**



**Source
segregation and
separate collection
of specific
waste types**



**Restrictions
on inputs to energy from
waste facilities**

INTRODUCTION

Scotland has already embarked on the journey towards a more sustainable approach to waste and resources. Recycling rates continue to rise, volumes of waste being sent to landfill are declining, and as a society we are increasingly aware of the environmental impact of our activities.

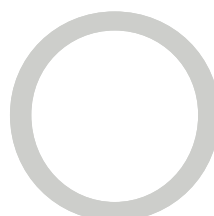
This Zero Waste Plan builds on those past achievements and ongoing progress. It sets the strategic direction for waste policy for Scotland, informed by improved understanding of the environmental consequences of how we use and dispose of resources, and by the requirements of European legislation. The Zero Waste Plan is underpinned by a determination to achieve the best overall outcomes for Scotland's environment, by making best practical use of the approach in the waste management hierarchy: waste prevention, reuse, recycling and recovery.

This Plan has been shaped by the Scottish Government's public consultation in 2009 on proposals for a Zero Waste Plan. The responses to this consultation – from individuals to local authorities, businesses to campaigning organisations – highlighted a very wide variety and depth of concern and interest about Scotland's waste. On some issues views were widely divided, on others they were almost unanimous. Crucially though, almost every response endorsed strongly the vision of a zero waste Scotland, even if there were differing views about the best means of achieving it.

The consultation exercise clarified the issues and areas where effort should be focussed to achieve the greatest impact. The range of responses also made it clear that there is a need for strong leadership from Scottish Government to set a direction for the future. In turn, local authorities, businesses, and public sector organisations will have key roles in providing leadership in their areas of influence. This Zero Waste Plan gives that lead, setting a long-term vision of how everyone in Scotland can help change our approach and attitude to waste.

This Zero Waste Plan is deliberately concise and strategic in its approach. It looks to set the goals Scotland needs to achieve in the future, and focuses on the key areas of activity with the potential to make the greatest contribution to deliver those goals. At the heart of the Zero Waste Plan is a change of mindset, a need for every one of us to start viewing waste as a potential resource, and to think about how to use that resource most efficiently. Many businesses and individuals across Scotland are already making this shift and we all need to follow their lead.

Scotland produces large quantities of waste – almost 20 million tonnes in 2008. This comes from a range of sources, with household waste accounting for 2.9 million tonnes, compared with 8.6 million tonnes from the construction industry, and 7.9 million tonnes from the rest of the commercial and industrial sector. A large proportion of this material which is treated as waste can be seen instead as a resource that still has a value, which can be captured and used in place of costly new resources. By using resources more efficiently and preventing unnecessary waste, businesses and industries in Scotland can reduce their costs and gain a competitive advantage.



Alongside the economic case, there are also compelling environmental reasons for reducing Scotland's demand on new primary resources. The extraction, processing, use and disposal of all materials produces environmental impacts, and contributes directly to climate change through the energy used. Waste disposal also has major climate impacts, particularly the emission of the greenhouse gas methane from landfill sites. A zero waste Scotland will play an important role in helping to achieve the targets set in the Climate Change (Scotland) Act 2009 to reduce Scotland's greenhouse gas emissions. The Zero Waste Plan will also progress some of the key measures and provisions set out in the Scottish Government's Climate Change Delivery Plan (2009) and the Climate Change (Scotland) Act 2009, and build on the progress that has already been achieved in reducing the climate impacts of waste management in Scotland.

The Zero Waste Plan emphasises the importance of separating different materials in the waste stream, to simplify the process of recovering their value. For example, anaerobic digestion of food waste can produce renewable energy, and fertilisers for use in agriculture.

Over 2 million tonnes of food waste is produced every year from all sectors in Scotland. If just half of this food waste was captured and treated through anaerobic digestion, the electricity generated could power a city the size of Dundee for six months, provide heat for local homes and businesses, and produce enough fertiliser for ten percent of Scotland's arable crop needs. This is just one example of how the move to a zero waste society will create real environmental benefits, new economic opportunities and contribute to the creation of green jobs in the Scottish economy.

Managing resources for the best environmental outcomes entails major policy and investment decisions by local authorities and businesses about the treatment capacity and infrastructure that will be needed. The Climate Change (Scotland) Act 2009 will require local authorities to carry out their functions in the most sustainable way that supports delivery of climate change targets. Scotland can learn too from the experience of other countries. Some countries have invested in processes that treat mixed wastes, although this approach can make it difficult to increase recycling levels as the systems are designed around mixed rather than separated waste streams. It is important that our policies and decisions and the supporting regulatory framework drive investment in the most sustainable solutions for Scotland for the longer term.

The Scottish Government recognises that these decisions depend on confidence and stability about future policy directions. This Zero Waste Plan aims to provide clarity about the way forward for waste and resource management in Scotland, and a firm basis for decisions and plans for the future. It sets a course towards a Scotland where resources are used efficiently, resources that are used unnecessarily or thrown away are reduced to a minimum, and we all enjoy the environmental, social and economic benefits this will deliver – a genuinely zero waste Scotland.

Zero Waste Plan

This Zero Waste Plan is intended to create a stable framework that will provide confidence for the investment necessary to deliver a zero waste Scotland over the next 10 years. It does this by setting out a Mission and Vision for the long term. Within that context the Plan sets strategic directions in the key areas of activity for the medium term up to 5 years, with specific actions setting out immediate priorities.

Mission:

To achieve a zero waste Scotland, where we make the most efficient use of resources by minimising Scotland's demand on primary resources, and maximising the reuse, recycling and recovery of resources instead of treating them as waste.

Vision:

This vision describes a Scotland where resource use is minimised, valuable resources are not disposed of in landfills, and most waste is sorted into separate streams for reprocessing, leaving only limited amounts of waste to go to residual waste treatment, including energy from waste facilities.

A zero waste Scotland will:

- be where everyone – individuals, the public and business sectors - appreciates the environmental, social and economic value of resources, and how they can play their part in using resources efficiently;
- reduce Scotland's impact on the environment, both locally and globally, by minimising the unnecessary use of primary materials, reusing resources where possible, and recycling and recovering value from materials when they reach the end of their life;
- help to achieve the targets set in the Climate Change (Scotland) Act 2009 of reducing Scotland's greenhouse gas emissions by 42% by 2020 and 80% by 2050;
- contribute to sustainable economic growth by seizing the economic and environmental business and job opportunities of a zero waste approach.

The principle of the waste hierarchy as set out in the European Waste Framework Directive is central to this vision. The hierarchy identifies the prevention of waste as the highest priority, followed by reuse, recycling, recovery of other value (eg, energy), with disposal as the least desirable option. The waste hierarchy will guide our overall approach to managing Scotland's waste. While recycling performance continues to improve, we must also continue to pursue other treatment approaches to recover greater value from the resources we use.

A zero waste Scotland will be the result of strong national policy that will inform and enable local action. The Scottish Government, in close collaboration with key delivery partners and with support from the Zero Waste Scotland delivery programme, will enable local and targeted support to help different sectors improve their understanding and use of resources. Scottish Government will also work closely with Scottish Environment Protection Agency and local authorities to ensure that the regulatory framework and other regimes are enforced in ways that enable efficient resource use and recovery, particularly the need to plan and develop local infrastructure for the long term.

Areas for Action

The Zero Waste Plan is a plan for all Scotland's waste, not just the waste collected and managed by local authorities, which is largely household waste. It sets a long term vision, and will require a significant change in the way Scotland approaches the management of its waste, however and wherever it arises. To achieve this vision, action needs to be taken across the following four areas: resource streams, economic opportunity, resource management sector, and education and awareness.



**Scottish households
currently recycle enough
each year to fill bin lorries
from Gretna Green
to John O'Groats and
back again!**

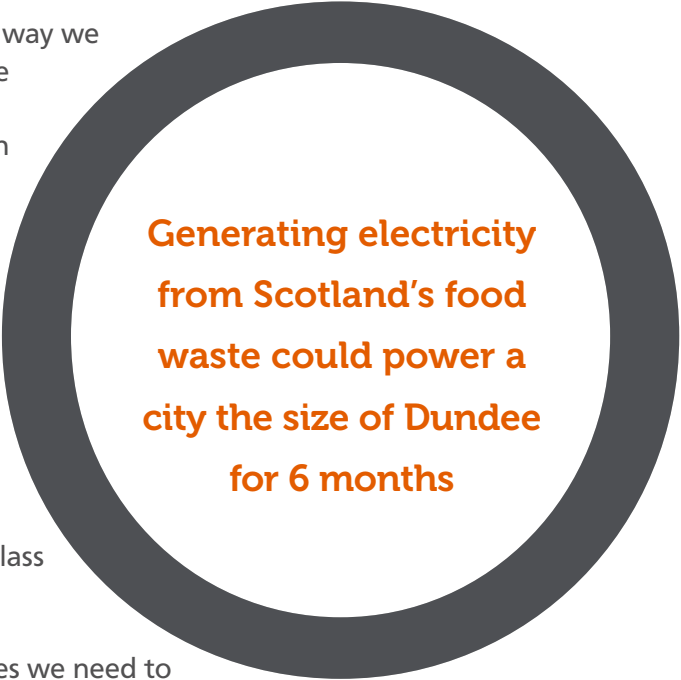
Resource Streams

Strategic Directions

- Encourage waste prevention as a top priority across all resource streams, to reduce Scotland's overall resource use, reduce climate impacts, and increase resource efficiency.
 - Take action to increase the quantity and quality of resources recycled, with the aim of achieving high levels of "closed loop" resource management.
 - Develop clear and coordinated sector-specific programmes of work focusing on resource efficiency, infrastructure needs and the use of recycle.
 - Introduce policy levers that systematically drive the transition to a zero waste society across all resource streams.
 - Continue to improve data on resource use and measurement from both business and the public sector, to steer government policy and raise business awareness of resource use.
 - Introduce a new metric for waste that better captures the environmental impact of resource use. This will be used to drive Scotland's prevention, reuse and recycling objectives.
-

Adopting a zero waste approach means transforming the way we look at waste so that we see it as a valuable resource to be managed, not a problem to be dealt with. Resources flow through the economy from their initial extraction, through processing, into manufactured goods. This process is both energy and carbon intensive. At the end of their life some resources can be recycled, but at present many end up being discarded to landfill, or "down-cycled", where the value of those resources is either greatly reduced or permanently lost – for example, by using glass from bottles to replace aggregate in drainage works. Zero waste policy moves away from this linear management of resources to "closed loop" resource management which captures, reuses and recovers resources in line with the approach of the waste hierarchy – for example recycling glass bottles back into glass bottles.

To achieve this goal of maximising efficient use of resources we need to improve our understanding of how, when and where resources are being used, and which resources are appropriate for reuse, recycling or recovery. This requires better information on the full range of resources currently being treated as waste in order to identify the actions and policies necessary to improve the quality of the resource streams captured. This will reduce the demand on primary resources, and create new business opportunities in areas such as resource efficiency, sustainable design, collection and reprocessing of recovered resources. In this way, the environmental, social and economic health of Scotland will all benefit.



**Generating electricity
from Scotland's food
waste could power a
city the size of Dundee
for 6 months**

Actions:

- 1 The Scottish Government will develop a Waste Prevention Programme for **all** waste, in line with the EU Waste Framework Directive, in order to place prevention at the heart of zero waste policy and action.
- 2 The Scottish Government will introduce a long term target of 70% recycling for **all** waste arising in Scotland by 2025, regardless of its source, based on improved data and supported by sector-specific programmes of work. Annex A sets out the range of targets which will be used to measure progress towards delivery of the Zero Waste Plan.
- 3 The Scottish Government will use powers under the Climate Change (Scotland) Act 2009 to introduce regulatory reporting to improve data on resource use by the business sector by October 2010. Annex A provides further information.
- 4 The Scottish Government will introduce progressive bans on the types of materials that may be disposed of in landfill, and associated support measures, to ensure that no resources with a value for reuse or recycling are sent to landfill by 2020. Annex C provides further information.
- 5 The Scottish Government will introduce a carbon metric for waste, to identify and prioritise the materials with the highest environmental benefit for recycling, leading to better environmental outcomes, and a more efficient economy. This metric will complement the existing tonnage metric. Annex A provides further information.
- 6 Zero Waste Scotland will identify key waste streams and sectors, and establish sector-specific programmes of work to deliver the Zero Waste Plan. This will build on previous successes such as those achieved through voluntary agreements, including the Courtauld commitment by the retail sector to cut its waste, and the commitment by the construction industry to halve waste sent to landfill.

Economic Opportunity


Strategic directions

- Support the development of sustainable and high value markets for recycle, with the aim of extracting highest value from resource flows.
 - The Scottish Government will support the development of infrastructure and resource streams that will underpin markets for high quality recycle.
 - Encourage business, the public sector and householders to reuse or refurbish materials, or use recycle or products containing recycled content to generate market supply.
 - Provide market confidence to enable businesses to invest in innovative resource management infrastructure.
 - Recover and utilise the electricity and/or heat from resources which cannot be reused or recycled for greater environmental or economic benefit, in line with Scotland's renewable energy goals.
-

The zero waste approach of preventing unnecessary resource use and using resources as efficiently as possible has obvious benefits for the environment, conserving finite natural resources. It will also bring clear opportunities for the economy of Scotland. By using resources more sustainably and minimising their waste, Scotland's businesses can reduce their costs and operate more efficiently and cost effectively. There are additional economic opportunities for business through adding value to the resources they recover by turning them into new high quality products, and by developing and marketing the technologies for these processes. This will contribute to sustainable economic growth and enhance the competitiveness of the Scottish economy, particularly as resources become more expensive in the future.

To support these economic opportunities, the Scottish Government must ensure that businesses and householders can access the support they need to maximise their resource efficiency. We also need to promote the long-term policy stability necessary for businesses and others to invest in resource management technologies and treatment processes.

In order to recover the maximum value from resources that are used, the resource management system - acquiring, utilisation and eventual treatment or disposal - needs to be considered and monitored as a whole, rather than as separate elements. Collection and sorting systems should be designed to promote high quality recycle, and avoid reducing its value through contamination between different materials in the waste stream. Although this approach may appear more expensive initially, cost effective solutions at the collection and recycling phases will significantly increase the value of the resources recovered, and reduce the need for costly waste treatment infrastructure. An element of flexibility in the implementation will be applied to recognise public sector infrastructure investment cycles.



**Achieving Zero Waste
could generate over
2,000 jobs in Scotland**

Actions:

- 7 The Scottish Environment Protection Agency in partnership with the Scottish Government will develop further and implement the Better Waste Regulation Action Programme to support delivery of the Zero Waste Plan, including the development of a “waste to resource” tool kit for resource managers. This will introduce minimum standards for recycled materials, which will be periodically reviewed in order to progressively improve the quality of recyclate. This work will directly inform the development of new and existing resource recovery infrastructure.
- 8 To support the introduction of landfill bans, the Scottish Government will introduce regulations to drive separate collection and treatment of a range of resources in order to maximise their reuse and recycling value, and generate market supply. The initial focus will be on separate collection of food waste, in order to recover its material and energy value and avoid contamination of other waste materials. See Annex C for further Information.
- 9 Zero Waste Scotland will develop and promote a sustainable procurement toolkit, for use by both public and private sector, to encourage the purchase of products containing recycled content and minimise overall resource use. This will support the delivery of the Scottish Sustainable Procurement Action Plan published in October 2009.
- 10 The Scottish Government, with the enterprise agencies, Scottish Environment Protection Agency, Scottish Funding Council, Sustainable Development Commission Scotland and other public bodies, will implement the forthcoming Low Carbon Economic Strategy. This will include a strategy for the development of the Environmental and Clean Technologies sector. In particular, the Scottish Government will encourage and support investment in innovative resource management technologies and will support the utilisation of renewable energy generated from resource management facilities, thereby contributing to Scotland's renewable energy targets.
- 11 The Scottish Government, through Zero Waste Scotland, will continue to support the development of collection and reprocessing capacity for plastics, and review what further specific support may be required to develop collection and reprocessing capacity for other materials.
- 12 The Scottish Government will commission a study during 2010 into the implementation of existing producer responsibility directives and initiatives in Scotland (including plastic bags, electronic equipment, batteries, and packaging), to determine how revisions could be made to drive waste prevention and recyclate markets in Scotland. The study will also look at options for extended producer responsibility and “take-back” schemes in Scotland.


Resource Management Sector

Strategic Directions

- Encourage business investment in resource management and treatment by providing regulatory certainty and clear signals that investment in the future is of strategic interest.
 - The land-use planning system will support the delivery of a zero waste Scotland.
 - Scotland will have a waste regulation framework that supports resource management infrastructure and processes that protect the environment and deliver zero waste policies.
 - Drive innovation by defining the outcomes of a zero waste Scotland, without being prescriptive about the means.
 - Improve skill levels and health and safety in the resource management sector.
-

A key element of the change to a zero waste approach is the development of the resource management sector in Scotland. This sector includes the waste management industry whose role is increasingly shifting away from disposal of waste, and towards recovery of resources. However, the resource management sector is broader than the waste management industry, and includes all individuals, businesses and organisations involved in the reuse, recycling and recovery of resources – such as businesses that manufacture new products from recovered materials, and the community sector that refurbishes products. There are emerging business opportunities for the development of new technologies and processes and the Scottish Government will develop policies to ensure a stable environment to encourage investment and develop skills and innovation in the resource management sector in Scotland.

The priority of this Zero Waste Plan is to treat resources as high up the waste hierarchy as possible by preventing, reusing or recycling resources wherever feasible. Energy from waste has an important role to play and could contribute to 31% of Scotland’s renewable heat target and 4.3% of our renewable electricity target. For energy from waste to be truly sustainable it should only be used for resource streams which cannot practicably offer greater environmental and economic benefits through reuse or recycling. The Scottish Government will develop a new regulatory approach to energy from waste, based on categories of resources which may be treated in this way. This new approach will apply to all resource streams, not just municipal waste.



Energy from waste in Scotland could generate enough heat for 110,000 homes and power for 170,000 homes.

Actions:

- 13 Zero Waste Scotland will develop a programme to support continual improvements in health and safety and workforce skills in the resource management sector.
- 14 The Scottish Government will introduce regulatory measures to support the delivery of landfill bans, by ensuring energy from waste treatment is only used to recover value from resources that cannot offer greater environmental and economic benefits through reuse or recycling. These measures will supersede the current 25% cap which currently applies only to municipal waste, and are likely to result in similar amounts of resources being available for energy from waste treatment. See Annex C for further information.
- 15 The Scottish Government, with local planning authorities and the Scottish Environment Protection Agency, will ensure the land use planning system supports the Zero Waste Plan through the consolidated Scottish Planning Policy (SPP), the revision of waste planning guidance (Planning Advice Note 63) in 2010 and the provision of local waste infrastructure mapping and data. Further information available in Annex B.
- 16 Zero Waste Scotland, will develop good practice commitments for resource management collection and services provided to householders and small businesses. The aim will be to encourage the resource management sector to sign up to these commitments so that users have consistent expectations of services, leading to increased public and business participation and cooperation.
- 17 Scottish Futures Trust will provide a service that will enable Local Authorities to achieve value for money in the procurement of resource management infrastructure that supports delivery of the Zero Waste Plan.

Education and Awareness

Strategic directions

- Deliver clear and targeted education and awareness programmes to meet the needs of the public, communities, businesses, local authorities, and the resource management industry.
- Local and national awareness campaigns are well targeted and build on common and consistent messages to encourage participation in prevention, reuse, recycling at home, work and public spaces.
- Develop the role of measures to influence waste behaviours, including incentives, to encourage households and businesses to take responsibility for minimising their own waste and using resources effectively.
- Accurate, informed and consistent understanding, at a local and national level, of the important role new waste infrastructure investment plays in delivering a zero waste Scotland.
- Encourage understanding of the value of resources within the education system.



**70% recycling
and maximum 5%
to landfill for ALL
waste in Scotland**

A zero waste Scotland will depend on everyone playing their part by recognising and taking responsibility for their own use of resources. To support that, everyone in Scotland needs information about how to reduce, reuse and recycle, and how they can participate in their own lives. Individuals, schools, further education establishments and businesses need to understand how their behaviour can prevent waste, maximise resource efficiency and recover value at every step, from the products they design, produce and buy, how they use them, and how to recover their value at the end of their life.

Actions:

- 18 Zero Waste Scotland will develop and implement, in cooperation with local authorities, a consistent, targeted, coordinated and phased education and awareness programme to encourage participation of the public and businesses at national and local levels to meet zero waste objectives.
- 19 Zero Waste Scotland, in cooperation with local authorities, will review the success of measures to influence waste behaviours, including incentives, and from the results of the review, encourage the development of schemes to drive reductions in waste and improvements in recycling performance.
- 20 Zero Waste Scotland will encourage increased “recycling on the go” opportunities to stimulate public behaviour change, including the provision of guidance during 2010 to local authorities and other providers of waste facilities.
- 21 The Scottish Government, with local authorities, the Scottish Environment Protection Agency (SEPA) and Zero Waste Scotland, will seek to raise awareness of the need to take local responsibility for waste, to support development of local infrastructure for resource management. Support will also include the development of a tool, based on SEPA data, to assist local authorities in identifying the infrastructure needed to collect, sort, recycle and recover all waste in Scotland.
- 22 Zero Waste Scotland, with partners, will assess existing support and resources on waste management for education providers and develop appropriate support and resources to integrate zero waste objectives into teaching and learning from early years to tertiary education in the context of Curriculum for Excellence and sustainable development education.

Conclusion and Delivery

Scotland has made great progress in its approach to waste since devolution. Much has been achieved by public, private and third sectors and individuals, but there are still challenging goals ahead in continuing to improve our waste prevention, reuse and recycling performance. These past achievements are a strong foundation for further improvements, and this Zero Waste Plan focuses on the measures and areas of activity with the greatest potential to deliver these improvements.

This Zero Waste Plan charts the way forward over the next 10 years towards a zero waste Scotland. The Plan sets out an ambitious programme of policy changes, implementation and other activities which will require sustained commitment from the Scottish Government and a wide range of partners throughout Scotland. The most immediate priorities for action are contained in the individual actions in this Plan, and progress towards these will be monitored closely.

The Scottish Government has established Zero Waste Scotland to provide a new streamlined and coordinated delivery programme, offering advice and support to businesses, individuals, communities and local authorities on how they can contribute to a zero waste Scotland by using resources more efficiently, through waste prevention, reuse, recycling and recovery. Zero Waste Scotland will take the lead in delivering a number of actions in the Zero Waste Plan, and the details of delivery will be contained in Zero Waste Scotland's Operating Plans (which can be found at www.zerowastescotland.org.uk).

The Scottish Environment Protection Agency, along with other key partners, will continue to play a key role in supporting zero waste policies, through its regulatory functions to control activities with an impact on the environment, and by collecting and presenting the robust waste data required by the Scottish Government to review the progress and refresh or revise actions for the future. Data about Scotland's waste is available on SEPA's website at www.sepa.org.uk.

The following supporting annexes form part of this Zero Waste Plan and are available at www.scotland.gov.uk/zerowasteplan.

Annex A – Zero Waste Targets and Data Needs

Annex B – Role of Land-use Planning in delivering Zero Waste

Annex C – Landfill Bans and Supporting Policies

Annex D – Waste Framework Directive – information on implementation (to follow)



The Scottish
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This document is also available on the Scottish Government website:
www.scotland.gov.uk

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Annex A

ZERO WASTE TARGETS AND DATA NEEDS

1. OVERVIEW

1.1 This Annex to the Zero Waste Plan Scotland provides detail on definitions, data, targets and measurement that will underpin delivery of Zero Waste Plan aims and objectives. Where gaps exist, this Annex identifies areas of policy development that will be taken forward in the period following publication of the Zero Waste Plan.

2. WASTE PREVENTION

2.1 **Waste prevention** is defined in the Waste Framework Directive¹ as measures, taken **before** a substance, material or product has become waste, to reduce:

- the quantity of waste. This includes the re-use of products, the extension of the life span of products, reductions in packaging etc;
- the adverse impacts of waste on the environment and human health; and
- the content of harmful substances in materials and products.

2.2 The respondents to the draft Zero Waste Plan were overwhelmingly in favour of giving priority to waste prevention but were divided on (a) what targets, if any, to set; and (b) precisely what measures should be adopted to ensure that waste prevention activities receive priority attention in line with the waste hierarchy.

2.3 Examples of waste prevention measures include:

- The use of clean technologies that produce less wasteful and/or harmful products.
- The use of effective and meaningful indicators. For example, reductions in the amount of waste generated in Scotland can be measured and reported in terms of waste per household, waste per capita or waste per unit of GDP.
- The promotion of eco-design that has regard to the environmental performance of products throughout their whole life cycle.
- The use of awareness campaigns and the provision of information to businesses, encouraging use of best available techniques to prevent waste production.

¹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:312:0003:0003:EN:PDF>

- The use of voluntary agreements, consumer/producer panels or sectoral negotiations to encourage businesses or industrial sectors to set their own waste prevention plans.
 - The promotion of recognised environmental management systems, including EMAS and ISO 14001.
- 2.4 The Scottish Government gives priority to waste prevention and will develop a **Waste Prevention Programme in accordance with article 29 of the revised Waste Framework Directive by the end of 2010**. In setting the Waste Prevention Programme the Scottish Government will review and develop different measures, and examine the usefulness of different indicators that can be used to monitor and assess the progress of measures that are adopted.

3. RE-USE

3.1 The Waste Framework Directive states that **re-use** is any operation by which products or components that are not waste are used again for the **same purpose** for which they were conceived. There are two important points to note:

1. re-use involves products or components that are **not** considered to be waste; and
2. the activity must involve re-use of products or components for the original purpose - for example, items advertised and made available for re-use on Freecycle <http://www.uk.freecycle.org>

Consequently, “**re-use**” activities would fall under the category of **waste prevention**.

3.2 Reuse can be encouraged by improving the durability of products and discouraging the purchase of single use disposable items where a re-useable alternative exists.

3.3 Items that would fall under the category of re-use would include books, household ornaments, crockery, toys and clothes handed into charity shops where the holder fully intends the items to be used in their current form and the goods or items meet the necessary quality standards laid down by the charity shop.

3.4 The direct re-use of products is not regulated under waste legislation as there has been no discard. Only when a product is discarded does it become waste and subject to waste regulatory control. **Donations to charity shops do not count towards recycling targets but do contribute towards waste prevention where the items are re-used.**

4. PREPARING FOR RE-USE

4.1 The revised Waste Framework Directive defines this activity as checking, cleaning or repairing products or components which have become waste so that they can be re-used for their original purpose without further processing.

4.2 When a product or residue is discarded it becomes waste and the requirements of waste legislation apply. Preparation for re-use activities tend to be regulated by the Scottish Environment Protection Agency (SEPA) through use of light touch exemptions. However, once a waste has been checked, cleaned, repaired and otherwise made suitable for reuse for its original purpose, it ceases to be waste and no further waste controls are placed on it.

4.3 Examples of preparing products or components for reuse are frequently found in the community recycling sector, including repair and refurbishment of furniture and carpets; collection and mixing of waste paint; and bike salvage, repair and refurbishment centres.

4.4 In addition, some electrical equipment, furniture and clothing deposited at household waste recycling centres may be suitable for reuse once sorted, checked, cleaned and/or repaired. Local authorities already collect and report information on the quantities of such items which are “prepared for re-use” for their original intended purpose. **The Scottish Government considers that items deposited at household waste recycling centres which are checked, cleaned and repaired and thus made ready for re-use will count towards recycling targets.**

4.5 Although preparing-for re-use activities do not, strictly speaking, fall under the category of waste prevention, the Scottish Government considers that recognition needs to be given to the degree of priority that such activities have in the waste hierarchy. Accordingly, the **Waste Prevention Programme will include details on the measures that Scottish Government intends to introduce to promote preparing for re-use activities**, including, where appropriate, the establishment and support of re-use and repair networks. In addition, consideration will be given within the Waste Prevention Programme as to how preparing for re-use activities might contribute towards Zero Waste Plan recycling targets.

5. RECYCLING AND COMPOSTING

5.1 Article 3 of the revised Waste Framework Directive defines **Recycling** as any recovery operation by which waste materials are reprocessed into products, materials or substances, whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels, or for backfilling operations. The same definition applies within the context of the Zero Waste Plan.

5.2 Article 11(1) of the revised Waste Framework Directive requires Member States to take measures that promote high quality recycling. In order to further this aim the Scottish Government intends to:

- Use a carbon metric to sit alongside the use of tonnage as a performance measure and target. This will encourage greater levels of recycling of materials that have the greatest environmental impact. Details on how the Scottish Government intends to progress with development of the carbon metric and how it will be used can be found at section 11 of this Annex.
- Introduce a general mandatory requirement for commercial and industrial waste producers to take steps to segregate/pre-sort and for waste collectors to separately collect food waste and recyclable waste such as paper, cardboard, metal, plastics and glass. The Scottish Government will consult separately on any new measures introduced to bring about this change. This is further explained in Annex C of the Zero Waste Plan.
- Take a whole system approach and define good practice for waste and resource collection systems to optimise capture of recyclates and ensure that the quality of materials is not compromised.
- Explore how legislative controls and/or other mechanisms might be used to set minimum standards of treatment where mixed waste treatment processes are used and how these minimum standards might be applied to recycling performance.

Scope of Scotland's Zero Waste Plan Recycling and Composting Targets:

5.3 When the announcement on Zero Waste was made to Parliament on 24 January 2008, the recycling and composting targets were applied to **municipal waste** and this was defined at the time as waste from households and commerce collected by or on behalf of local authorities. This was reflected in the consultation draft of the Zero Waste Plan.

5.4 As there has been a shift in focus under Zero Waste Policy, to dealing with all wastes and not just those managed by local authorities, the Scottish Government has now reviewed its position and has decided that it would be more appropriate to set recycling targets against waste collected from households. Separate targets will be developed in due course for commercial and industrial waste streams.

5.5 As a consequence, the domestic 40, 50, 60 and 70% Zero Waste recycling, composting and preparing for re-use, targets will now apply to **waste collected from households** rather than municipal waste collected by local authorities.

5.6 Article 11(2) of the Waste Framework Directive requires Member States to take the necessary measures to achieve a target of 50% by weight by 2020 of the preparing for re-use and the recycling of waste materials such as paper, metal, plastic and glass from households and possibly from other origins where the waste materials are similar. Whilst the measurement methodology for this target has yet to be agreed both at the UK level, and between the UK and the Commission, the achievement of 60% recycling of waste from households by 2020, coupled with the introduction of landfill bans (see Annex C), is expected to provide a sufficient degree of comfort that the 50% revised Waste Framework Directive target will be met.

5.7 Separate Zero Waste recycling and composting targets will be developed for industrial and commercial waste streams (targeting specific sectors where appropriate) once improvements in commercial and industrial waste data have been secured through forthcoming data collection regulations. However, in the meantime, the **Scottish Government will aspire to achieve an overall recycling and composting level of 70% and 5% (maximum) landfill for the total Scottish waste arisings by 2025.**

5.8 Article 11(2)(b) requires Member States to achieve 70% recycling and recovery by weight of non-hazardous construction and demolition waste excluding naturally occurring material. This will include backfilling operations using waste to substitute other materials. **The Scottish Government will aim to secure 70% recycling of construction and demolition waste by 2020 to contribute to achievement of the UK target.**

What is included in the measurement of the recycling target?

5.9 Where materials are collected from kerbside; recycling centres or points; or extracted through sorting, and processed into new products or materials, the weight of materials consigned to end-use reprocessor markets, appropriately adjusted to take account of any reject material, will count towards recycling performance.

5.10 Where bio-wastes (food and green waste) are collected and treated in open windrow, In-Vessel Composters (IVC) or Anaerobic Digestion (AD) facilities the inputs to treatment processes will continue to count towards recycling and composting targets where PAS 100 compost or as appropriate PAS 110 digestate is produced and subsequently used.

5.11 The position on bio-waste counting towards recycling is supported by the European Commission in its Green Paper on the management of Biowaste in the EU. The Green Paper states: “Biological treatment (including composting and anaerobic digestion) may be classified as recycling when compost (or digestate) is used on land or for the production of growing media.

5.12 Where PAS 100 or PAS 110 material is produced, the process input tonnage will be counted towards recycling/composting target performance with appropriate adjustments being made to deduct the input equivalent weight from any reject materials that are consigned to landfill or incineration.

5.13 However, where non-PAS 100/110 material is produced and used under registered exemption (irrespective of whether it is sourced from treatment of biowaste material or MBT/MHT outputs) it is **unlikely** that the material will be classified as recycling in future. This is due to the material still being classified as a waste. This represents a change in approach informed from recent ECJ judgements and ongoing discussion at the UK and EU level concerning the waste hierarchy and what the revised Waste Framework Directive is trying to achieve.

5.14 For a different reason, a similar position is likely to be adopted in moving forward in relation to use of incinerator bottom ash and use of aggregate replacement material. While utilisation of these materials may constitute “recovery” it is unlikely that they will be considered “recycling”.

5.15 In addition, a range of other processes that result in the recycling of commercial and industrial waste need to be defined.

5.16 Whilst there is scope for member states to adopt their own targets, standards and measurement methodologies the question arises as to whether Scotland should aim to establish a degree of consistency in measuring progress between EU and domestic targets. In order to inform the best approach **Scottish Government will undertake a review of how performance against domestic targets should be undertaken and will produce guidance by the end of 2010. This will be supplemented by guidance to be produced by SEPA on how local authorities record and report upon recycling/composting performance.**

6. RECOVERY TARGETS

6.1 In light of the change in approach and emphasis towards dealing with all wastes, and not just those wastes managed by local authorities, the Scottish Government intends to replace the 25% cap on local authority collected municipal waste treated in energy-from-waste plants.

6.2 The new approach will involve the introduction of a package of measures including:

- Landfill bans on mixed unsorted waste;
- Mandatory requirements being introduced to pre-sort recyclable materials;
- Setting a limit on the biodegradable content of waste that can be landfilled; and
- Restriction being placed on what can be incinerated.

6.3 The Scottish Government will consult separately on any new legislation it intends to introduce to give effect to the above noted measures. **Annex C to the Zero Waste Plan provides more detail on this.** In the interim period, the 25% cap on local authority collected municipal waste sent to energy-from-waste plants will continue to apply and local authorities should plan accordingly. Interim guidance on the 25% cap can be found at www.scotland.gov.uk/zerowasteplan.

7. LANDFILL DIVERSION TARGETS

7.1 Following discussion between the UK Government and the Commission concerning the scope of the UK definition of municipal waste and measurement of compliance against the Landfill Directive, agreement was reached to revise the 1995 baseline and targets. The revised baseline and targets for Scotland are shown in table 1.1 and it can be seen from this that the 2013 target has been met ahead of time but **by 2020 Scotland needs to reduce the landfilling of biodegradable municipal waste to 1.26 million tonnes. This requires the diversion of an additional 530,000 tonnes of biodegradable municipal waste.**

Table 1.1

	1995 Baseline	2008	2010	2013	2020
Landfill Target Reduction	100%		75%	50%	35%
Previous BMW Baseline (1995) and Targets	1.76		1.32	0.88	0.62
BMW landfill performance - previous definition		1.30			
Additional diversion required to meet target			0	0.42	0.68
Revised 1995 Baseline and Targets	3.60		2.70	1.80	1.26
BMW landfill performance - new definition		1.79			
Additional diversion required to meet target.			0	0	0.53

BMW: **Biodegradable Municipal Waste**

Figures are in millions of tonnes

7.2 The measurement of Biodegradable Municipal Waste will include European Waste Catalogue (EWC) Chapter 20 wastes; and some EWC Chapter 15 and 19 wastes (insofar as they are similar in nature and composition to waste from households). **SEPA will produce a methodology on the measurement of compliance against Landfill Directive targets by end of 2010.**

7.3 A summary of the Zero Waste Plan targets encompassing both domestic and EU targets is provided at section 13 of this Annex for ease of reference.

8. DATA AND REPORTING

8.1 Data is required for a number of reasons, including:

- To fulfil reporting requirements under the EU Waste Statistics Regulation.
- To monitor and report on progress towards meeting EU Landfill Directive targets on biodegradable municipal waste landfill diversion.
- To monitor and report on progress towards meeting the revised Waste Framework Directive (WFD), Article 11 targets, including the 2020 target to recycle 70% of construction and demolition waste.
- To monitor and report on the contribution all wastes can make in meeting Climate Change and Renewable Energy targets.
- To monitor progress towards Zero Waste plan recycling and composting targets.
- To help local authorities and businesses obtain reliable information on waste materials which could be prevented, reused, recycled or recovered.
- To inform future policy development designed to further reduce the amount of waste sent to landfill and increase resource utilisation.

- To inform effective planning for provision of waste treatment infrastructure and assist in building investor confidence.

8.2 Local authority progress towards the recycling/composting and other targets will continue to be recorded by SEPA using the WasteDataFlow system <http://www.wastedataflow.org/> and performance reports will be produced on a quarterly and annual basis and be available at http://www.sepa.org.uk/waste/waste_data/municipal_waste.aspx.

8.3 Waste data and trends (including commercial and industrial waste data) will be produced by SEPA and published in the form of Waste Data Digests http://www.sepa.org.uk/waste/waste_data/waste_data_digest.aspx together with associated key fact sheets, summaries and trends.

8.4 In moving forward with implementation of the Zero Waste Plan SEPA will focus attention, in particular, on improving the quality of commercial and industrial data. This will include making use of Regulations to be made under the Climate Change (Scotland) Act by October 2010, establishing a mandatory requirement for businesses receiving waste data requests from SEPA to complete them. This will be exercised in line with better regulation principles. However, in the short term Scottish Government will liaise with SEPA and the waste management industry to scope out improvements that could be secured using voluntary means.

8.5 SEPA will produce a revised Waste Data Strategy outlining the steps and timescales for improving commercial and industrial waste data by the end of 2010.

9. WASTE DATA REQUIREMENTS

9.1 In discussions with SEPA, the Scottish Government has identified the need to collect robust data on:

- Waste from Households;
- Commercial and Industrial Waste (including that collected by local authorities, but excluding construction and demolition waste); and
- Construction and Demolition Waste.

9.2 This will align data with the sources of waste that will be targeted by policies, campaigns, targets, landfill restrictions and other interventions designed to optimise resource utilisation in line with Zero Waste Plan aims and objectives. However, in order to manage the transition between old and new definitions for municipal waste SEPA will continue, in the short-term, to monitor and report “Municipal Solid Waste” recycling and “Biodegradable Municipal Waste” diversion from landfill as previously defined i.e. municipal waste managed by or on behalf of local authorities.

9.3 Future data for all waste streams shall be collected and published quarterly and/or as appropriate annually. Audits will be carried out on waste producers, local authorities and/or waste management facilities as necessary.

9.4 In the medium to long-term SEPA will move towards collecting and publishing information on the individual material streams (e.g. paper, glass) in Scottish waste. This data will be required to enable progress against Zero Waste Plan aims and objectives to be monitored as well as ensuring that revised Waste Framework Directive requirements are fulfilled.

9.5 Through improvements in the data collected, SEPA will aim to produce data that provides a better understanding of the flow of materials through the waste management system. This will assist with planning for future waste infrastructure needs.

9.6 SEPA will also produce, publish and maintain waste infrastructure maps and supporting local waste data facts to assist with waste planning and to help build investor confidence. These will be available at http://www.sepa.org.uk/waste/waste_infrastructure_maps.aspx

9.7 In addition, SEPA will, on behalf of Scottish Government, prepare Scotland's contribution to UK reporting on meeting the targets in accordance with Article 37 of the Waste Framework Directive as well as producing waste data returns to the Commission under the EU Waste Statistics Regulation.

9.8 A summary of the Scottish Government's data needs is provided at section 12.

10. COMPOSITIONAL ANALYSIS

10.1 Information on the composition of waste can be used by both national and local governments and by the waste management industry to inform waste management policy and practice.

10.2 During 2008-09 the Scottish Government arranged for WRAP (now Zero Waste Scotland) to undertake a macro level study of the composition of local authority collected municipal waste in Scotland. The final report which was published in April 2010 can be found at: <http://www.zerowastescotland.org.uk/document.rm?id=8938>. As progress is made on the journey towards Zero Waste the Scottish Government will arrange for further compositional analyses to be undertaken on a periodic basis.

10.3 It is important to note that the Scotland level compositional analysis of municipal waste collected by local authorities does not circumvent the need for individual authorities to undertake analysis to meet local information needs. Local authorities have a need to understand the impact of waste collection operational practice and other interventions on landfill diversion and recycling performance and this necessitates periodic bespoke compositional analysis to be undertaken to provide the necessary management information. Details of a standardised methodology for undertaking compositional analysis can be found at http://www.sepa.org.uk/waste/waste_publications/idoc.ashx?docid=7d7026d7-6715-4c95-bac2-128bada54a02&version=-1.

10.4 In moving forward on the journey towards Zero Waste the Scottish Government and its delivery partners will take a more holistic approach and focus attention on all wastes – not just those wastes managed by local authorities. In order to do so, better data and information on commercial and industrial waste and construction and demolition waste streams will be required, including information on the composition of those wastes.

10.5 Scottish Government will lay regulations under the Climate Change Act waste provisions which will enable SEPA to require waste producers, waste management companies and other waste holders to provide information on the wastes that they generate, hold or manage. In addition to this, the **Scottish Government will consider along with its Zero Waste Scotland Delivery Programme partner how information obtained by SEPA on commercial and industrial waste can be supplemented by compositional analysis.**

11. CARBON METRIC

11.1 The Zero Waste consultation exercise highlighted a general view that using waste tonnage as a basis for measuring recycling does not always promote waste prevention, reduction and re-use and does not focus recycling towards the waste material with greatest environmental impact. At the same time there are clear reasons to maintain the use of weight as a measure and target as it is universally understood and forms the basis for meeting EU waste directive requirements. The use of any new metric needs to be consistent with the Scottish Government's goal of valuing resource not waste, and prioritise the prevention, reuse and recycling of waste with the greatest environmental impact.

11.2 Developing a metric that truly reflects the environmental value or impact of recycling is challenging, as many variables need to be considered. During the consultation to the Zero Waste Plan some respondents suggested a new metric could be developed that uses greenhouse gas (GHG; CO₂ equivalent) emissions as a basis, linking in to the need to address climate change as a priority.

11.3 With the principles above in mind, the Scottish Government is developing a resource displacement carbon metric. Materials recycled in Scotland replace, in manufacturing, the use of materials from primary production processes that result in the emission of greenhouse gases into the atmosphere elsewhere in the world. The new metric will recognise that the production of different primary materials produce different quantities of such emissions and will value recycle accordingly. For example, a tonne of aluminium collected from the waste stream in Scotland will displace the need for primary production of aluminium in another part of the world.

11.4 Some recyclate can replace different materials, depending on the quality of the recyclate collected. The carbon metric will recognise that the different primary materials being replaced may have different environmental impacts, for example the production of virgin glass leads to more emissions than the production of the same weight of aggregate, therefore the metric will value the closed-loop recycling of glass more highly than the use of mixed glass cullet as an aggregate replacement, as the benefit of closed-loop recycling of glass is greater.

11.5 In order to calculate the new metric, the tonnage of each material arising in the waste stream, and the tonnage of each material recycled, will be weighted before the recycling percentage is calculated. Weightings will be derived from the greenhouse gas emissions that occur during the production of the virgin material that a tonne of recyclate would replace. Aluminium, whose production is the most carbon-intensive, has been allocated a weighting of 100, with other material weightings calculated relative to aluminium, using greenhouse gas emission figures. The greenhouse gas emission figures and the derived weightings can be seen in table 1. A key observation is that manufactured materials have a greater weighting, in particular, metals, glass, plastics and paper.

Table 1: Weighting Factors for the Carbon Metric ²

Material	GHG Emissions from Virgin Material attributed to Recyclate (kg CO₂e per tonne recyclate)	Weighting Factor (Max = 100)	Comments
Aluminium (cans and foil)	9132	100.0	
Mixed Cans	5700	62.4	
Ferrous Metals (inc steel cans)	4239	46.4	
Metals recovered from incineration residue	3740	41.0	
Other Scrap Metal	3700	40.5	
Mixed Plastics	1340	14.7	Values for separated plastics will be developed
Paper	1080	11.8	
Books	1080	11.8	
Mixed Paper and Card	1050	11.5	
Card	980	10.7	
Sorted Glass	838	9.2	To closed loop recycling

² The greenhouse gas emissions figures are derived from draft research being carried out by Zero Waste Scotland, and may be subject to change. Final figures and weightings will be published by the Scottish Government at the end of the development phase of the metric.

Material	GHG Emissions from Virgin Material attributed to Recyclate (kg CO₂e per tonne recyclate)	Weighting Factor (Max = 100)	Comments
Mixed Glass	36	0.4	To replace aggregate unless evidence is available otherwise
Wood	138	1.5	
Food Waste (to AD)	157	1.7	Currently as garden waste
Food Waste (composted)	24	0.3	
Garden Waste (to AD)	117	1.3	
Garden Waste (composted)	24	0.3	
Mixed Food and Garden Waste (to AD)	Not yet available	1.3	
Mixed Food and Garden Waste (composted)	Not yet available	0.3	
Aggregate (Rubble)	2.3	0.03	
Incineration residue (ash)	2.6	0.03	
Textiles and Footwear	Not yet available		
Furniture	Not yet available		
Plasterboard	Not yet available		
Soil	Not yet available		
WEEE	Not yet available		
Other Recyclable Materials e.g. mattresses, oils, batteries	0	0	It is not currently possible to quantify the presence of certain materials that arise in small quantities in the waste stream
Other Non-Recyclable Materials	0	0	As these materials are not recyclable their weighting is 0

11.6 The carbon-weighted recycling percentage will be calculated, using the weighting factors in table 1, in the following manner:

1. The tonnage of each material arising in the waste stream will be calculated using total waste arisings and waste composition data³;
2. The tonnage of each material arising is weighted by multiplying the tonnage by the largest weighting factor for that material (e.g. closed-loop recycling for glass or anaerobic digestion for food and garden wastes);
3. The tonnage of each material recycled is weighted by multiplying the tonnage recycled by the weighting factor appropriate to the recycling route for that material (e.g. mixed glass is weighted using the weighting where it replaces aggregate, while sorted glass is weighted for closed loop-recycling);
4. The final recycling figure is calculated as the sum of the weighted recycling figures divided by the sum of the weighted arisings figures, expressed as a percentage.

Table 2 below shows, as an example, the carbon-weighted metric applied to Scotland's municipal waste⁴ (2008/09) and compares this with the traditional tonnage-based recycling metric.

11.7 Figure 1 presents a graph of the data in table 2, summarised by broad material classes, and compares the carbon-weighted and tonnage-based metrics. "Recycling efficiency" indicates the percentage of each material that was recycled in Scotland in 2008/09. "Recycling potential" shows the potential contribution of each material to theoretical overall recycling performance achieved if the all materials that could be recycled were recycled with 100% efficiency⁵ and the effect of the weighting on the contribution of the key material groups to recycling potential. "Recycling performance 2008/09" shows the contribution of each material to Scottish recycling in 2008, using both the standard tonnage-based metric⁶ and the carbon weighted metric.

³ For municipal waste the material composition of the waste stream will be from the WRAP report "The Composition of Municipal Waste in Scotland"

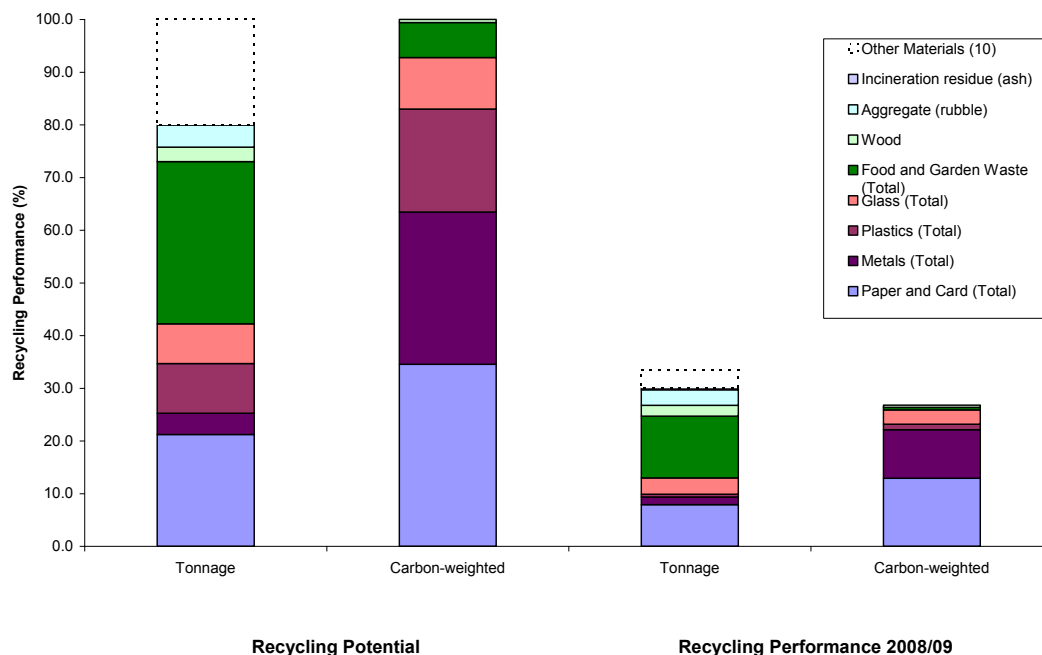
http://www.zerowastescotland.org.uk/msw_scotland.html unless a local report is available and its methodology accepted by SEPA.

⁴ This is municipal waste as previously defined, that is municipal waste managed by, or on behalf of, local authorities.

⁵ As recycling potential is calculated on the basis of arisings it assumes recycling is through the route with the maximum benefit (e.g. closed-loop recycling or anaerobic digestion) and that incineration does not occur.

⁶ Use of material specific data means that the overall recycling percentage varies from the recycling percentage published by SEPA.

Figure 1: Comparing Recycling Performance According to the Carbon-Weighted and Tonnage-Based Metrics



11.8 Scottish recycling performance in 2008/09 according to the tonnage-based metric in 2008/09 was 33%, but using a carbon-metric it was 27%. If, however, effort was prioritised toward the recycling of materials with the greatest benefits a different consequence of using the carbon-weighted metric can be seen. If even 90% of material in each of the three groups with the greatest benefit are recycled (that is the largest weighting factors: paper and card, metals and plastic) the recycling percentage achieved would be 87% using the carbon-metric, but require the collection of only 31% of total waste arisings by tonnage.

11.9 This metric is still under development and will need further work. The Scottish Government will arrange for a task and finish group comprising experts and practitioners to take forward development of the carbon metric.

11.10 After this development period Scottish Government would aim to report recycling performance in both weight and carbon metric terms. We would then look at what actions could be taken to increase performance against this metric. The data on the materials that make up Commercial and Industrial waste are not sufficiently developed to apply this metric to Commercial and Industrial wastes immediately, but it is the intention of the Scottish Government that the metric will be used for all Scottish waste streams by 2025.

Table 2: Comparison of Recycling Performance According to the Carbon-Weighted and Tonnage-Based Metrics

Material Stream	Municipal Waste Arisings (thousand tonnes)	Municipal Waste Recycled or Composted (thousand tonnes)	Current Recycling Efficiency (%)	Recycling Potential ⁷ (%)		Recycling in 2008/09 (%)	
				Tonnage	Carbon-weighted	Tonnage ⁸	Carbon-weighted
Paper	528	128		16.1	26.7	3.9	6.5
Mixed Paper and Card	#	103		#	#	3.1	5.1
Books	#	1		#	#	0.0	0.0
Card	170	28		5.2	7.8	0.9	1.3
Paper and Card (Total)	698	260	37.2	21.2	34.5	7.9	12.9
Ferrous (steel) Cans	#	5		#	#	0.1	0.9
Other Scrap Metal	69	33		2.1	12.0	1.0	5.6
Mixed Cans	63	6		1.9	16.9	0.2	1.6
Incineration ash (metal)	⁹	3		⁹	⁹	0.1	0.5
Non-ferrous (aluminium) cans	#	1		#	#	0.0	0.5
Metals (Total)	132	47	35.7	4.0	28.9	1.4	9.2
Plastics	310	17	5.5	9.4	19.6	0.5	1.1

⁷ This is the theoretical maximum achievable if 100% of all recyclable materials are recycled or composted by the route with the maximum benefit.

⁸ Use of material specific data means that the overall recycling percentage varies from the recycling percentage published by SEPA.

Certain sub-categories for which recycling data is collected by SEPA were not analysed separately in the municipal waste composition study, or are not applicable to the study of waste composition (most mixed categories, as the waste was sorted for the composition analysis, and incineration residues), and are not therefore applicable to waste arisings. These categories are books (included as paper), mixed paper and card (sorted), ferrous and non-ferrous cans (included as mixed cans), mixed glass (sorted) and mixed food and garden waste (sorted). as these wastes were sorted for the analysis of municipal waste composition.

⁹ There are no incineration residues in arisings, as no incineration has occurred at this point. As recycling potential is calculated on the basis of arisings incineration residues are not applicable, and are unlikely to represent the recycling route with the greatest benefit.

Scotland's Zero Waste Plan – Annex - A – Zero Waste Targets and Data Needs

Material Stream	Municipal Waste Arisings (thousand tonnes)	Municipal Waste Recycled or Composted (thousand tonnes)	Current Recycling Efficiency (%)	Recycling Potential ⁷ (%)		Recycling in 2008/09 (%)	
				Tonnage	Carbon-weighted	Tonnage ⁸	Carbon-weighted
Sorted Glass	248	66		7.5	9.8	2.0	2.6
Mixed Glass	#	36		#	#	1.1	0.1
Glass (Total)	248	102	41.2	7.5	9.8	3.1	2.7
Garden Waste (AD)	431	None		13.1	2.4	None	None
Garden Waste (composted)	Not best treatment method	322		Not best treatment method	Not best treatment method	9.8	0.4
Food Waste (AD)	581	None		17.7	4.2	None	None
Food Waste (composted)	Not best treatment method	Not reported separately until 2009/10		Not best treatment method	Not best treatment method	Not reported separately until 2009/10	Not reported separately until 2009/10
Mixed food and garden waste (AD)	#	None		#	#	None	None
Mixed food and garden waste (composted)	#	63		#	#	1.9	0.1
Food and Garden Waste (Total)	1,012	386	38.1	30.8	6.6	11.7	0.5
Wood	91	68	74.9	2.8	0.6	2.1	0.4
Aggregate (rubble)	138	97	70.6	4.2	0.0	3.0	0.0

Scotland's Zero Waste Plan – Annex - A – Zero Waste Targets and Data Needs

Material Stream	Municipal Waste Arisings (thousand tonnes)	Municipal Waste Recycled or Composted (thousand tonnes)	Current Recycling Efficiency (%)	Recycling Potential ⁷ (%)		Recycling in 2008/09 (%)	
				Tonnage	Carbon-weighted	Tonnage ⁸	Carbon-weighted
Incineration residue (ash)	⁹	11	N/A	⁹	⁹	0.3	0.0
Other Materials ¹⁰	659	111	N/A	20.1	0.0	3.4	0.0
Total Waste / Overall Percentage recycled	3,288	1,099	N/A	79.9	100.0	33.4	26.8

¹⁰ For the purpose of the carbon-weighted metric “other materials” are considered non-recyclable, although in reality some may be e.g. mattresses, oils, batteries. These recyclable materials cannot be included in carbon-weighted metric as their presence in municipal waste has not been adequately quantified. This position may be revised if additional data becomes available. Their contribution to current recycling performance according to the tonnage metric is bordered by a dotted line in figure 1. A similar section, bordered by a dotted line, is shown for recycling potential, however not all of the materials in this category are potentially recyclable, therefore the maximum recycling rate, according to the tonnage-based metric, would never reach 100%.

12. SUMMARY OF DATA REQUIREMENTS

12.1 Scottish Government's specific data requirements are summarised in the table below:

Total Scottish waste arisings.
Waste from households managed by, or on behalf of, Scottish local authorities. <ul style="list-style-type: none"> • Waste from households arising, split by waste management method and local authority. • Waste from household arisings, split by local authority, expressed in kg/capita/year.
Scottish waste arisings and waste management method, split by waste from households; commercial and industrial; and construction and demolition.
Scottish construction and demolition waste arisings, split by management method.
Scottish recycling and composting, split by waste from households; commercial and industrial (excluding construction and demolition); and construction and demolition.
Household recycling and composting rates, split by local authority – measured both in terms of tonnage and carbon.
Scottish waste incineration, split by waste from households; commercial and industrial; and construction and demolition (inputs to incinerators).
Scottish waste landfilled, split by waste from households; commercial and industrial; and construction and demolition.
Biodegradable municipal waste (new definition) landfilled in Scotland, split by waste from households and commercial and industrial.
Special waste produced in Scotland.
Waste imports and exports, split by management method.
Scottish packaging waste arisings.
Household recycling collection numbers and methods, split by local authority.

12.2 Data on the management of Scottish waste has been produced by SEPA to support the Zero Waste Plan. This has been published on the SEPA website at

http://www.sepa.org.uk/waste/waste_data/zero_waste_plan_data.aspx

13. SUMMARY TARGETS

13.1 A summary of the Zero Waste Plan targets is provided in the table below:

Target/Cap	Year	Derivation
40% recycling/composting and preparing for re-use of waste from households. ¹¹	2010	Scottish Government target.
No more than 2.7 million tonnes of biodegradable municipal waste to be sent to landfill. ¹²	2010	Article 5(2) of the EU Landfill Directive. ¹³
50% recycling/composting and preparing for re-use of waste from households ¹⁰	2013	Scottish Government target.
The preparing for re-use and the recycling of 50% by weight of waste materials such as paper, metal, plastic and glass from household waste and similar.	2020	Article 11(2)a of the EU Waste Framework Directive. ⁵
No more than 1.8 million tonnes of biodegradable municipal waste to be sent to landfill. ²	2013	Article 5(2) of the EU Landfill Directive. ³
60% recycling/composting and preparing for re-use of waste from households. ¹⁰	2020	Scottish Government target.
No more than 1.26 million tonnes of biodegradable municipal waste to be sent to landfill. ²	2020	Article 5(2) of the EU Landfill Directive. ³
70% recycling and preparing for re-use of construction and demolition waste. ¹⁰	2020	Article 11(2)(b) of the revised EU Waste Framework Directive. ¹⁴
No more than 5% of all waste to go to landfill.	2025	Scottish Government target
70% recycling/composting and preparing for re-use of all waste by 2025.	2025	Scottish Government target.

Scottish Government June 2010

¹¹ Target and measurement expressed in terms of both tonnage and, from 2013, using the carbon-weighted metric.

¹² Revised target derived from re-based 1995 BMW landfill figure of 3.6 million tonnes.

¹³ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31999L0031:EN:NOT>. Target performance measured as landfilling of EWC Chapter 15 (packaging ; selected categories that are similar in composition to household waste); Chapter 19 (selected categories that are similar in composition to household waste); and Chapter 20, all relative to a 1995 baseline.

¹⁴ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:312:0003:0003:EN:PDF>

ADDENDUM

Following a review of planning policy in 2014, the guidance in Annex B of the Zero Waste Plan was superseded, and local planners should now refer to [Scottish Planning Policy <http://www.scotland.gov.uk/Publications/2014/06/5823>](http://www.scotland.gov.uk/Publications/2014/06/5823) (with particular reference to pages 41-44) to guide them in their planning and delivery of waste management capacity.”

Scotland’s Zero Waste Plan – Annex – B – Role of land-use planning to deliver Zero Waste – FINAL

Annex - B

ROLE OF LAND-USE PLANNING TO DELIVER ZERO WASTE

1. AIM OF THE ANNEX

1.1 The planning system has a crucial role in delivering waste management facilities for **all** waste to ensure the objectives and targets of the Zero Waste Plan are met. Moving to zero waste means more facilities will be required to collect, sort, reuse, recycle and process waste. There will also be opportunities to harness heat and power generated from waste recovery processes. This annex provides the link between the Zero Waste Plan objectives, the National Planning Framework, Scottish Planning Policy, Planning Advice Note 63 (PAN 63) and information on roles and responsibilities.

2. ROLE OF LAND-USE PLANNING IN DELIVERING ZERO WASTE SCOTLAND

2.1 The planning system must support European Union Directives, noted in section 3, that require Member States to achieve a number of requirements and targets to move away from landfill and instead recover value and resources from **all** waste. Meeting those requirements and targets, and domestic targets set by Scottish Government will require action by the planning system to identify sufficient land allocations for more sustainable waste management infrastructure for **all** wastes.

2.2 Planning proactively for waste management is an opportunity to join-up significant environmental, energy and economic benefits. Circular 1/2009: Development Planning¹ expects waste management to be a principal topic of strategic development plans (SDPs) and that they may be site specific especially where there are no realistic alternative sites. For SDPs and local development plans (LDPs), planning authorities are required to have regard to the Zero Waste Plan. Additionally, Scottish Planning Policy (SPP),² states that development plans need to focus on site allocation at the local level, and take local responsibility for treatment and disposal to fulfil the need for waste management provision. It states that development plans must provide for the development of new waste management infrastructure covering **all** forms of waste, not just municipal waste, through policy, site allocations and action programmes in order to meet expected future waste infrastructure needs, drawing on data provided by SEPA. Local development plans should identify a plentiful supply of employment and industrial land as a network of sites suitable for waste management uses, consistent with SPP, to ensure private sector competition, as not all industrial sites will be developed for waste management uses.

¹ <http://www.scotland.gov.uk/Publications/2009/02/13153723/0>

² <http://www.scotland.gov.uk/Resource/Doc/300760/0093908.pdf>

2.3 The waste hierarchy is the bedrock of waste management policy and is reflected in SPP. Planning decision-making should, for **all** new developments, not just waste facilities, recognise the hierarchy's preference for prevention, reduction, reuse, recycling and energy recovery over waste disposal.

3. THE STATUTORY CONTEXT AND PLANNING REFORM

3.1 The revised EU Waste Framework Directive (WFD) [Directive 2008/98/EC]³ establishes the legislative framework for the handling of waste in the European Union. It sets out requirements in relation to waste management and planning. Article 16 (1) states:

“Member States shall take appropriate measures, in cooperation with other Member States where this is necessary or advisable, to establish an integrated and adequate network of waste disposal installations and of installations for the recovery of mixed municipal waste collected from private households, including where such collection also covers such waste from other producers, taking into account best available techniques.”

3.2 The WFD states that Member States must have a National Waste Management Plan or Plans. Article 28(3) (d) states that waste management plans must have:

“...sufficient information on the location criteria for site identification and on the capacity of future disposal or major recovery installations, if necessary”.⁴

3.3 In practice, the EC recognises that the WFD can be fulfilled by Scotland's tiered system of planning which includes national waste documents and development plans. The EC also recognises that the review of plans can incur time-lags in the light of changes to higher level plans. In any event local development plans must now be replaced every 5 years⁵. The National Waste Management Plan for Scotland Regulations 2007⁶ give the responsibility for preparing the National Waste Management Plan to the Scottish Ministers. For planning purposes the Zero Waste Plan, will constitute the National Waste Management Plan along with the following:

- The National Planning Framework.
- Scottish Planning Policy.
- Planning Advice Note 63 (including revised versions).

³ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:312:0003:0030:EN:PDF>

⁴ “Disposal” includes landfill sites and some incineration facilities. Annex II to the Waste Framework Directive gives a non-exhaustive list of recovery operations. This “includes incineration facilities dedicated to the processing of municipal solid waste only where their energy efficiency is equal to or above:

0,60 for installations in operation and permitted in accordance with applicable Community legislation before 1 January 2009.

0,65 for installations permitted after 31 December 2008.”

⁵ <http://www.scotland.gov.uk/Publications/2009/02/13153723/5>

⁶ http://www.opsi.gov.uk/legislation/scotland/ssi2007/ssi_20070251_en_1

- SEPA waste data sources: including Waste Data Digests, Local Waste Management Reports, Site Capacity and Infrastructure Reports and Maps.
- SEPA Thermal Treatment of Waste Guidelines 2009.

3.4 and will replace the following:

- The National Waste Plan and 11 Area Waste Plans 2003.
- Household Waste Prevention Action Plan (Scotland) 2007.
- Business Waste Framework for Scotland 2007.

4. ROLES

4.1 The Planning etc. (Scotland) Act 2006 introduced a fundamental and comprehensive reform of the planning system in Scotland, aimed at bringing about a more inclusive and efficient planning system, to support the Scottish Government's central purpose of sustainable economic growth.

4.2 The Scottish Planning Circular Series contains Scottish Government policy on the practical implementation of this legislation and associated procedures. Circular 1/2009: Development Planning and Circular 4/2009: Development Management Procedures outline the main responsibilities for planning authorities, in delivering a genuinely plan-led modernised planning system and efficient processes for development management. Other circulars provide support in a range of other relevant topic areas such as the Hierarchy of Developments (Circular 5/2009), EIA (Circular 8/2007) and SEA (Circular 1/2010).

4.3 Central to the ethos of planning reform is that efficient and effective stakeholder involvement is secured throughout the new planning system. Additionally, as a matter of good practice, planning authorities should seek to identify opportunities that provide the best solutions locally in delivering the objectives of the Zero Waste Plan. There are some basic expectations on planning authorities and other stakeholders, which should provide the basis for delivering zero waste through development plans and development management. These are outlined below:-

Role of Planning Authority (Development Plan)

4.4 Scottish Planning Policy (SPP) requires that all development plans must identify appropriate locations for **all** waste management facilities, allocating where possible specific sites and providing a policy framework which supports the development of these facilities. A strategic development plan (SDP) should reflect that requirement where neighbouring authorities work together to develop shared strategic waste infrastructure. A further role particularly for the spatial strategy and vision statements of local development plans is to facilitate and enable the prevention, reuse, recycling and recovery of waste from **all** types of development. Supplementary guidance may be used to provide further information or detail on policies and proposals in SDPs

and LDPs provided that these are specifically identified in the development plan.

4.5 It is crucial to the delivery of the Zero Waste Plan to ensure that sustainable waste management is fully considered in all new development. Development plans should include policies to require all new developments (including commercial, business, industrial and residential) to demonstrate that they can minimise the generation of waste during the construction and operational phases e.g. through the use of Site Waste Management Plans. The design of new developments to facilitate sustainable waste management can maximise recycling and recovery opportunities and enable efficient storage and collection of separate waste streams.

4.6 Identifying Potential Waste Management Sites: Modern waste management infrastructure is designed and regulated to high standards and is similar to other industrial processes. Subject to detailed site specific considerations, waste management facilities can be considered appropriate for sites allocated in development plans for employment and industrial use. Development plans must safeguard all active and consented waste management sites and identify appropriate locations for all waste management facilities, where possible on specific sites or supported by a policy framework to facilitate development.

4.7 Care should be taken to ensure that allocations for adjacent sites do not compromise waste handling operations. Where appropriate, sufficient land should also be identified to enable existing waste handling installations to expand without being constrained by adjoining land uses.

4.8 Every effort should be made to ensure that proposed waste management facilities for **all** wastes are consistent with neighbouring local authority approaches in order to provide adequate capacity. Where local authorities are working singly or in collaboration to address their waste responsibilities, this may be discharged in the development plan or through joint development plan approaches, with site allocations informed by evidence on waste data flows in and out of the plan area. The types, quantities and geographical destinations of imported and exported wastes are contained in SEPA's Area Waste Management Reports which are further outlined in section 4.19.

4.9 The following locational criteria should be considered by planning authorities and developers when identifying and assessing sites for waste management facilities to ensure that they support waste infrastructure investment and are in the most appropriate locations. More detailed guidance will be provided in PAN 63.

1. Potential Sites

Potential suitable sites for waste management activities include:

- Industrial areas
- Degraded, contaminated or derelict land
- Working and worked out quarries

- Sites that have the potential to maximise the potential for the re-use of waste heat through co-location with potential heat users
- Existing or redundant sites or buildings that can be easily adapted
- Existing waste management sites, or sites that were previously occupied by waste management facilities
- Sites accessible to railways, waterways or the trunk and principal road network junctions.

2. *Links to Transport Infrastructure*

Relevant considerations in the siting of installations will include access to the transport network, including road, rail and waterways. All decisions regarding the location of waste management infrastructure should take into consideration how wastes and end products are transported to and from the site, minimising unnecessary travel.

3. *Impact on Environment*

As with all other types of development, proposed waste management facilities should be located in sites where potential impacts on the human, built and natural environment can be minimised. There may be a requirement under the Environmental Impact Assessment (Scotland) Regulations 1999 for an Environmental Impact Assessment (EIA) to be prepared to assist in the consideration of any potential likely significant environmental impacts.

4. *Heat and Power Use*

Any sites identified specifically for energy from waste facilities (including combustion of biogas resulting from Anaerobic Digestion treatment) should allow links to be made to potential users of renewable heat and energy. Such schemes are particularly suitable in locations where there are premises nearby with a long-term demand for heat.

A heat plan should be provided by the applicant when planning permission is sought for energy from waste facilities. Sufficient space should be provided within the application site for any equipment required to export heat from the site, including space for future pipe work taking heat off-site. When new development is planned in the vicinity of an existing or consented energy from waste facility, developers and planning authorities should consider how best to ensure these new developments are designed and conditioned to use the heat, for example in district heating schemes. This is a requirement of the Climate Change (Scotland) Act 2009 (Chapter 3).

5. *Construction and Demolition Waste*

Development plans should identify suitable sites for the processing of all waste types, including construction and demolition wastes. Suitable sites for construction and demolition waste could include existing minerals workings or industrial sites. Opportunities may exist to recycle construction and demolition waste either close to where it

arises with mobile crushing plant on site or at a temporary or permanent processing site.

Role of Planning Authority (Development Management)

4.10 The planning system has an important role in supporting the achievements of the Zero Waste Plan through its influence on the location, layout and design of **all** new developments, not just waste management facilities and the provision of the required waste management installations.

4.11 Decisions on waste management facilities should be taken following liaison with local authority waste managers and contribute towards the delivery of the Zero Waste Plan.

Role of Local Authority (Waste Managers)

4.12 Local authority waste managers should be involved in the preparation of development plans and be consulted on relevant planning applications. Waste managers should advise on the existing provision in an area; likely future requirements for new facilities to deal with **all** waste arisings in relation to the Authority's own waste strategy; and also how developers can make provision for collection, segregation and storage of waste within new developments prior to treatment.

Role of Developers

4.13 Against the provisions of the development plan for the area, developers should refer to information contained within section 3.3 to help them identify the most appropriate locations for proposed waste management facilities, and how building design and layout of all new developments must take account of waste management. Applications should be supported by the information statutory consultees and decision takers require.

4.14 Developers should submit a Site Waste Management Plan (SWMP) as part of planning applications for all development types, not limited to but including waste management facilities. SWMPs provide construction businesses, their clients and designers with cost saving opportunities and a structured approach to waste management on site. More detailed guidance is provided in PAN 63.

4.15 Developers also have a responsibility to consult on their proposals in order to comply with statutory consultation requirements or informal engagement as outlined in PAN 81⁷.

⁷ Planning Advice Note 81 *Community Engagement – Planning With People*
<http://www.scotland.gov.uk/Publications/2007/03/09095010/0>

Role of Members of the public and community groups

4.16 Members of the public and community groups have an important role in the planning system and are encouraged to get involved in the development planning process and planning applications. When responding to plans and applications it is important that they ensure that responses are focused on planning issues as in this way they may be considered a material consideration. Responses should take in to consideration both the local and strategic waste management needs. SEPA have provided fact sheets on some of the key waste management and treatment processes required to meet Zero Waste objectives⁸ which may help in understanding plans and proposals.

Role of Planning Committees

4.17 Local authority councillors have an important role in planning. It is therefore vital that elected members involved in taking decisions on development plans and on planning applications under the new planning system, understand the role the planning system plays in relation to local and strategic waste management needs. The Improvement Service⁹ has programmes dedicated to elected member development.

Role of Scottish Environment Protection Agency (SEPA)

4.18 SEPA is a key agency and will engage with planning authorities on waste management early on in development plan preparation, and as a consultee on waste management planning applications. SEPA's role is to enable waste to be minimised and will provide an overview of all related waste issues from potential licensing issues and the mitigation of environmental impacts arising from waste management facilities.

4.19 In summary SEPA will provide:

1. Waste Data and Infrastructure Maps

SEPA collects and interprets waste management data for Scotland, and as such, will provide tailored advice to planning authorities and developers. SEPA publishes a wide range of information which should be used by planning authorities and developers when planning for waste. Full details will be in the forthcoming PAN 63, including:

- Area Waste Management Reports¹⁰.
- National Capacity database¹¹.
- Landfill capacity report¹².
- Waste Infrastructure Maps¹³.
- Annual waste data digest¹⁴.

⁸ http://www.sepa.org.uk/waste/information_resources/resources.aspx

⁹ <http://www.improvementservice.org.uk/elected-members-development/>

¹⁰ http://www.sepa.org.uk/waste/waste_data/waste_data_reports/waste_management_reviews.aspx

¹¹ http://www.sepa.org.uk/waste/waste_data_1/site_capacity_infrastructure.aspx

¹² http://www.sepa.org.uk/waste/waste_data_1/site_capacity_infrastructure.aspx

¹³ http://www.sepa.org.uk/waste/waste_infrastructure_maps.aspx

2. Assistance in preparation of Development plans

SEPA provides an independent assessment of development plans in a national and local context. SEPA has a duty to co-operate in the preparation of development plans, and hence the early engagement of SEPA is essential to enable waste management to be integral to the plan. Through this process of engagement, SEPA will ensure the development plan delivers the required waste management infrastructure and the objectives of the Zero Waste Plan by drawing attention to key issues, and recommending amendments where required. Where insufficient sites for waste management have been identified, or where the principles of sustainable waste management set out in the Zero Waste Plan are not clearly identified, SEPA will object to the development plan and assist the planning authority in resolving any issues.

3. Responses to Development Management Consultations

SEPA will engage proactively at pre-application stage with regard to waste management development proposals until development plans have been updated to reflect the Zero Waste Plan objectives. In the longer term SEPA's role in commenting on waste management planning applications, consistent with applications for all types of development proposals, will be proportionate to the quality of the information provided to support applications and to development plans which adequately implement the Zero Waste Plan objectives. However, SEPA will still comment as required by planning authorities on planning applications for major and national waste management proposals in order to continue their role in fulfilling Scotland's Zero Waste objectives. Further details on SEPA's role in planning for waste, is available on SEPA's website. SEPA will advise on matters they can control by licence or permit condition and subsequent monitoring and enforcement in order to provide clarity to planning authorities and developers and avoid duplication of controls. SEPA will assist the process by providing waste data, including:

- Waste types and quantities.
- Site infrastructure capacity.
- Treatment techniques.
- Processes and pollution controls.
- Emissions from the site to air, water or land.

SEPA will comment on layout and design of non-waste applications to minimise the generation of waste, and ensure that the necessary infrastructure for waste management is built into new developments.

¹⁴ http://www.sepa.org.uk/waste/waste_data_1/waste_data_digest.aspx

4. Public Education and Awareness

All stakeholders have a role to play in raising awareness and changing behaviour and attitudes relating to sustainable waste management. SEPA will continue to act in an advisory role regarding waste infrastructure, and take part in capacity building at each planning authority, and with the waste industry, to improve early public engagement with waste planning activities including development plans and development management applications.

5. Permits and Waste Management Plants

When dealing with waste management licensing and permitting applications, SEPA will consult with the Food Standards Agency, the local authority, the Health Board and any other person that the Scottish Ministers may direct to ensure that any health issues are properly considered and dealt with. Once the facility is operational, SEPA will monitor and enforce standards as necessary.

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Annex C

LANDFILL BANS AND SUPPORTING POLICIES

1. INTRODUCTION

1.1 The Zero Waste Plan indicates that the Scottish Government intends to put landfill bans and associated measures in place to deliver on the commitment to achieve a zero waste society. This Annex sets out how landfill bans have been considered; what they are expected to achieve; and how Scottish Government intends to put landfill bans and supporting measures into practice.

1.2 The purpose of banning certain waste from landfill is twofold: firstly, to ensure that materials which could have been recycled are not disposed of in landfill; and secondly, to protect the environment from the impacts of waste disposal in landfill.

2. BACKGROUND AND OVERVIEW OF RESEARCH FINDINGS

2.1 In 2009 the Scottish Government, along with other administrations, commissioned research on the feasibility of landfill bans as a policy approach. This report can be found at:

http://www.wrap.org.uk/wrap_corporate/publications/landfillban.html

2.2 The research was undertaken by Eunomia Research and Consulting and considered two approaches to landfill bans:

1. A ban on unsorted waste; and
2. A ban on biodegradable waste.

2.3 An important conclusion reached within the research was that landfill bans can be successful in achieving the desired outcomes when accompanied by a package of additional supporting measures.

2.4 The research also highlighted the importance of timing and sequencing when introducing landfill bans. Introducing a ban on biodegradable waste before, or even at the same time as a ban on unsorted waste, could lead to over supply of residual waste treatment facilities. Put simply, landfill bans alone will not lead to high reuse and recycling rates. It would result in a shift from landfill to residual waste treatments such as Mechanical Biological Treatment (MBT) and Energy from Waste (EfW) facilities.

2.5 The risk is that residual waste treatment prices fall and undermine the economics of Zero Waste Scotland policy aims which give prominence to waste prevention, re-use and closed-loop recycling activities which maximise value-chain opportunities.

2.6 EfW has an important role to play and can make a positive contribution to both renewable energy and climate change targets. However, in order to

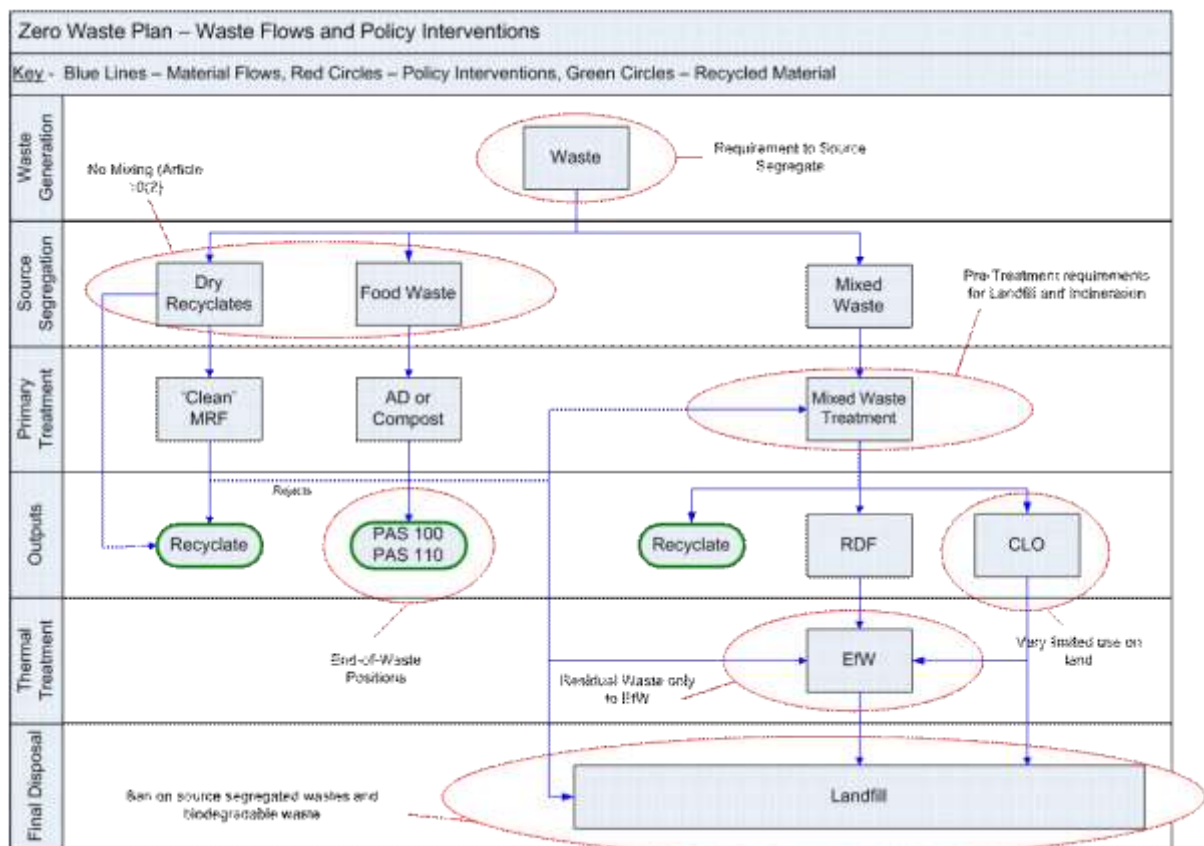
achieve the high levels of prevention, reuse and recycling outlined in the Zero Waste Plan it is imperative that materials that could be reused or recycled are not directed to mixed waste treatment facilities such as EfW facilities.

2.7 The Scottish Government considers that there is a need to adopt an approach that prevents valuable resource going to landfill, reduces Scotland’s climate change impact, and supports high re-use and recycling rates for **all** waste. Consequently, the Scottish Government intends to introduce regulatory changes that will drive the following:

1. Source segregation and separate collection of specific materials.
2. Placing restrictions and only allowing suitable waste types to be treated in energy from waste plants.
3. Ban specific materials from landfill.
4. Place a limit on the biodegradable content of waste which can be landfilled.

These actions should not be seen in isolation but as part of a package of complementary and supporting measures. The undernoted flow chart illustrates how waste materials flow through the waste management system – from waste production and sorting of materials through to intermediate treatment, recovery and disposal.

Figure 1 – Waste Flows and Policy Interventions



2.8 This Annex provides a high level outline explaining how the Scottish Government expects landfill bans and associated measures will work in practice. In the Autumn of 2010 Scottish Government intends to initiate a consultation on the introduction of landfill bans. This will include legislative proposals and the aim will be to put regulations in place in 2011.

3. SUMMARY OF REGULATORY CHANGES

Source segregation and separate collection of specific materials

3.1 The overall objectives of separate collection are:

- to increase the quantity of recyclable materials collected.
- to improve the quality of recyclable materials by minimising contamination.
- to support stable market demand for high quality, high value recyclable materials.

Intended Approach

3.2 The aim would be to take forward legislative measures to require source segregation and separate collection of priority wastes. This could be delivered through amendments to existing statutory mechanisms including Section 34 of the Environmental Protection Act 1990 and the associated Environmental Protection (Duty of Care) Regulations.

3.3 The amendments to the Duty of Care legislation would require (a) producers to segregate recyclable materials and for these to be separately collected; and (b) confirmation being provided on duty of care transfer notes that waste materials have been separately collected, or as appropriate, how they can be subsequently treated.

3.4 The intention is that a requirement be introduced to collect the undernoted wastes separately:

1. Food waste, from households and business sectors, such as commercial kitchens, hospitality sector, food retailers and manufactures.
2. Materials such as paper/card, metals, plastics, textiles and glass from all sources.

3.5 In taking forward any mandatory requirements to collect materials separately, Scottish Government will have regard to:

- practicalities and the likely timescales required to introduce treatment infrastructure such as Anaerobic Digestion facilities to treat the collected food waste; and
- whether differential sorting requirements are required for local authorities as collection authorities; private waste carriers;

commercial/industrial waste producers; and construction and demolition waste producers.

Restricting Inputs to Energy from Waste Facilities (Incineration, Gasification or Pyrolysis)

3.6 The objectives of this measure would be to:

- ensure that waste materials which could have been reused or recycled are not incinerated;
- complement the source segregation and landfill ban measures and ensure that waste management in Scotland does not simply move one step up the hierarchy from landfill to incineration; and
- replace the 25% energy from waste cap for local authority collected municipal waste with an approach that requires equivalent treatment standards for **all** waste streams and sectors (household, commercial and industrial waste), irrespective of which party collects the waste.

3.7 It is important to note that the purpose of this restriction is to conserve resources rather than adding to current stringent environmental protection measures. The existing Waste Incineration Directive standards and controls are designed to protect the environment and human health.

Intended Approach

3.8 Thermal Treatment plants are regulated under the Pollution Prevention and Control Regulations 2000 (PPC) by Scottish Environment Protection Agency (SEPA). Regulatory controls could be introduced to ensure that any waste being treated at energy from waste facilities does not include waste which could have been reused or recycled. This would require amendment of the Pollution Prevention and Control Regulations 2000 to give SEPA clear statutory powers to set and enforce appropriate PPC permit conditions limiting incinerator inputs to:

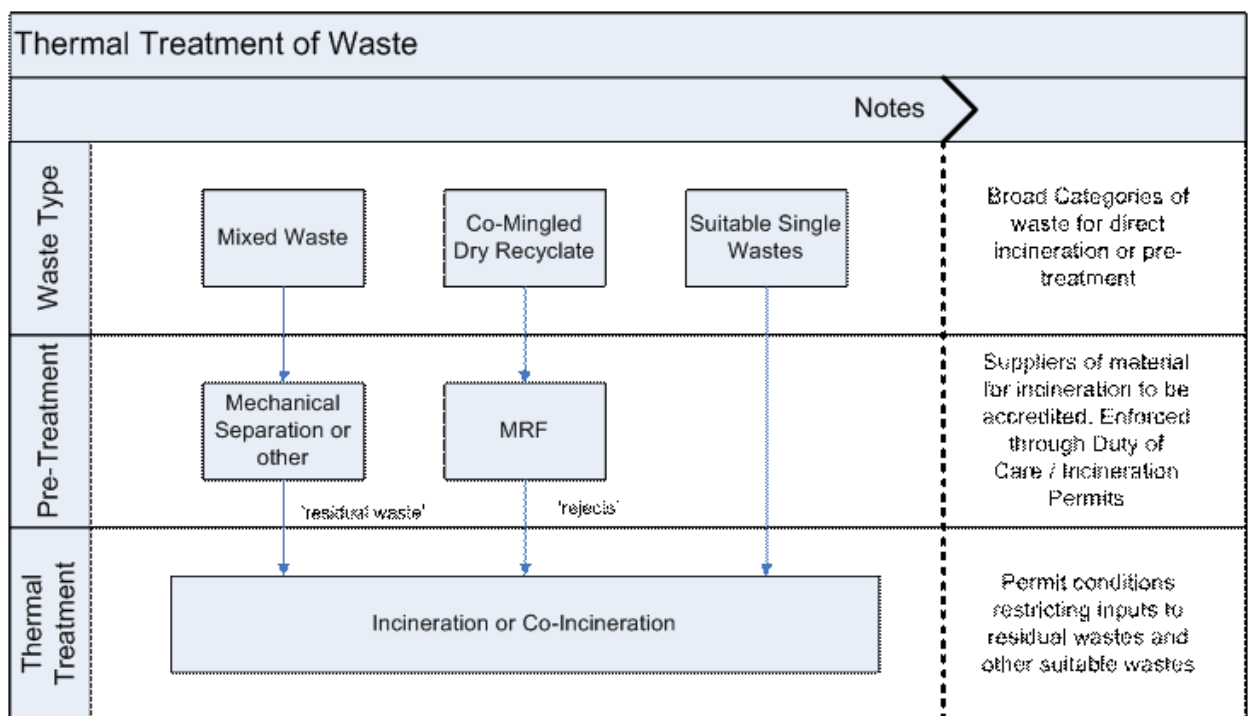
- Residual wastes i.e. waste remaining after all reasonable efforts have been made to separate out recyclable materials.
- Other suitable waste types where treatment in incinerators is justified on environmental, health or safety grounds. For example, it might be better to burn waste types such as treated wood, sewage sludge and waste oil and to recover heat and power.

3.9 To support the regulatory requirements consideration will be given to the establishment of an accreditation scheme whereby wastes could be certified to be residual. This would assist operators of EfW installations to ascertain whether the waste arriving at their gate had undergone sufficient pre-treatment to be considered residual. This work will be taken forward by Zero Waste Scotland and SEPA working with the industry.

3.10 In moving forward, the Scottish Government will decide whether a transition period should be allowed for existing waste incineration installations to comply. Flexibility would also need to be considered in situations where it would not be environmentally or economically practical to place restrictions but the onus would be placed firmly on the operator to provide evidence that this was justified.

3.11 A flow diagram illustrating how the residual/reject waste material will flow through the system to energy from waste facilities is shown at figure 2.

Figure 2 – Energy from Waste Policy Flow Chart



Ban specific materials from landfill

3.12 Landfill bans are designed:

- to recognise and conserve the resource value of priority waste streams such as plastic, paper, metal, food; and
- to protect the environment from the harmful effects of landfilling particular types of waste e.g. limit on biodegradability.

Intended Approach

3.13 Regulations could be introduced to:

- establish material and property based bans over the next 5 to 10 years.
- ensure the source segregation of recyclable waste streams is not undermined and that as much recyclable material is recovered from the mixed waste stream as possible.
- reduce the biodegradable content of waste to protect the environment from greenhouse gas emissions.

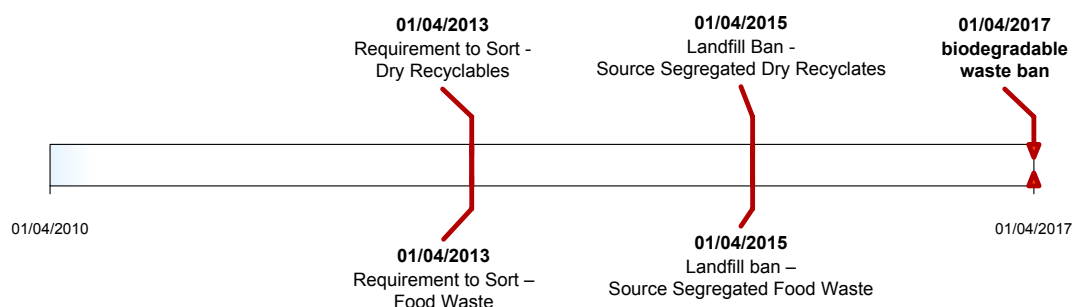
3.14 Under these proposals, it is envisaged that very little waste will be transported directly from producer to landfill. Source segregated materials will be diverted to appropriate end-use re-processor markets. The remaining waste will be pre-treated to extract the remaining recyclable materials, produce Refuse Derived Fuel (RDF) and reduce biodegradability of any residual waste that is landfilled. These flows are illustrated in Figure 1.

Landfill Bans - Material Bans - Source Segregated Wastes

3.15 The source segregation requirements set out in Section 3.1 - 3.5 provide a clear driver for waste recycling by delivering high quality materials onto the market. Thereafter, it is important that measures are introduced to ensure that materials are not subsequently remixed or disposed of to landfill. Such practice would undermine public confidence in recycling and zero waste policy.

3.16 The timeline for landfill bans must therefore be tied directly into the source segregation requirements detailed in section 3.1 – 3.5. It is considered that requiring source segregation of the key materials (e.g. food waste and dry recyclates) before the corresponding landfill ban comes into effect will give the industry time and confidence to develop the treatment infrastructure required. A possible timeline is illustrated in Figure 3 below.

Figure 3 – Example of matching material bans with source segregation requirements



Landfill Bans – Property Based Ban – Biodegradability

3.17 A ban on biodegradability, when matched with source segregation, performs two key functions;

- acts as a requirement to pre-treat **all** residual waste and unsorted waste (i.e. where source segregation is unreasonable); and
- protects the environment from the harmful effects of greenhouse gas emissions.

3.18 Such a ban would require that wastes are treated to reduce the biodegradability of the landfilled fraction, either by producing a residual waste stream for incineration (Refuse Derived Fuel) or by removing recyclable materials and biologically treating the remainder.

3.19 It is likely that Mechanical Biological Treatment (MBT) facilities will provide the bulk of this treatment. These processes are regulated by SEPA either under Pollution Prevention Control (PPC) or Waste Management Licensing (WML) Regulations. The biodegradability ban would be implemented after the material bans because it would have the most significant implications for infrastructure and landfill practice. This is also shown in Figure 3.

Intended Approach

3.20 The ban on biodegradable waste would be effectively implemented through the following measures:

1. A clear 'threshold' being established, in terms of respirometry, which, for the purposes of the measure, denotes the level at which waste is no longer to be considered as 'biodegradable'.
2. A certification scheme being introduced for MBT plants which seek to meet the threshold.

3. A requirement to specify on the Waste Transfer Notes whether waste had been pre-treated at authorised facilities or was otherwise deemed to satisfy requirements.
4. Landfill operators would be required to inspect Waste Transfer Notes to check that the waste is compliant. Any 'black bag' type waste would be rejected and directed to either incineration or accredited MBT plants.

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