Model of Waste Arisings and Waste Management Capacity

For the North East of England Waste Planning Authorities

July 2012

Report Produced for:
Newcastle City Council
Civic Centre
Barras Bridge
Newcastle Upon Tyne
NE99 2BN

Contact:
Helen Spoors

Report written by:
Peter Scholes, Deborah Sacks

Q.C. Checked by:
Deborah Sacks

Additional information:
Final Report

Executive Summary

Introduction

Each Waste Planning Authority (WPA) in the UK has an obligation to plan for sustainable waste management. All the local authorities in North East England are unitary councils and are, therefore, all expected to produce a Waste Plan in accordance with the Waste Framework Directive 2008. The WPAs in the North East of England comprise Durham and Northumberland (including the separate Northumberland National Park WPA), which prior to 2009 were upper-tier shire counties , and the ten geographically smaller and more urban authorities in two groupings of Tyne and Wear (Gateshead, Newcastle, North Tyneside, South Tyneside, Sunderland) and Tees Valley (Darlington Borough Council, Hartlepool Borough Council, Middlesbrough Council, Redcar and Cleveland Borough Council and Stockton-on-Tees Borough Council).

The Planning and Compulsory Purchase Act 2004 created the regional structures for the purposes of strategic planning. This scale is useful for planning for waste management since waste managers often move materials significant distances and across local authority boundaries to reach the right types of sorting, bulking, transfer, treatment and disposal facilities. The Localism Act 2011 has given the responsibility for strategic planning back to local authorities acting individually. However, section 110 of the Localism Act prescribes the "Duty to Co-operate" between local authorities. The duty is "to engage constructively, actively and on an on-going basis" and must "maximise the effectiveness" of all authorities concerned with plan-making. For matters such as waste planning, it is therefore important that local authorities can show that they have worked together in exchanging information and reaching agreement on where waste management facilities will be built. Developing a joint evidence base can be a key element of this work.

In developing this evidence base, the first key stage is to gain an understanding of how much waste requires management, and where it comes from. A detailed understanding of the materials that make up this waste stream allows a more sophisticated analysis of the types of facilities that are required in order to retrieve discarded materials from the waste stream and bring them back in to re-use subject to the appropriate re-manufacturing.

Understanding how much waste is generated relies on a variety of data sources of varying quality. Forecasting how much waste will be generated in the future is a process that involves estimating future behaviour of individuals and businesses and the markets within which they operate. This behaviour is influenced by a range of policy and fiscal drivers both locally, nationally and internationally. The use of different materials in manufacturing varies with the cost and availability of those materials. The readiness with which these materials are discarded is determined by the availability of systems for their collection and retrieval as well as the extent to which their value will cover the cost of these processes.

This report identifies the capacity of existing waste management facilities, together with some of those facilities that are in the planning stage and likely to come forward. The additional capacity that may be required for more sustainable management of waste is then calculated and the WPAs can use this information to support the identification of appropriate locations for the development of additional facilities.

Scope of this work

This study is intended to inform and support the preparation of local development plan documents by the Waste Planning Authorities involved in the study and needs to be robust and defendable at Examination.

Tonnages of waste requiring management up to 2020/21 are detailed in the Regional Spatial Strategy for North East England. These tonnages and the assumptions underlying them were revisited by consultants Entec on behalf of the Regional Planning Body and the findings were detailed in a report published in 2008.

Since the publication of the Entec study in 2008, more robust and up-to-date information on arisings of commercial and industrial waste has become available through a national commercial and industrial waste survey commissioned by Defra and the extension of this survey in North East England to provide robust information on arisings to Waste Planning Authority level within North East England. This emerging information indicates that arisings of commercial and industrial waste in North East England are significantly lower than previously thought. This, therefore, calls into question the robustness of the figures in the Regional Spatial Strategy and the 2008 Entec study as a basis of identifying future waste management facility needs in local development documents. Another issue is that the projections in both the Regional Spatial Strategy and the 2008 Entec Study only look forward to 2020/21 whereas the

local development plan documents currently under preparation require the projections to look forward to 2030.

Further work is, therefore, now needed to update the projections in light of the more up-to-date baseline information becoming available and to ensure the forecasts cover the same time period as the local development documents that are being prepared by the Waste Planning Authorities involved in this study.

The work required to generate this study therefore comprises of two key stages:

1. Provide forecasts of waste arisings for commercial and industrial waste and hazardous waste to 2030 using data from the recently published North East Commercial and Industrial (C&I) Waste Arisings Survey and the most up-to-date data on hazardous waste arisings; and

2. Undertake an assessment of current and planned waste management facility capacity in North East England and compare this to the forecast waste arisings to identify if there is a capacity gap.

The results of the recent North East Regional Survey of Commercial and Industrial Waste Arisings (2010) funded by the North East Sustainable Resources Board (NESRB) were used in this analysis. We would like to thank the NESRB for the use of their data in producing this report.

Conclusions – by Waste Planning Authority area

This report contains detailed forecast arisings, capacity data, analysis and conclusions for the North East Waste Planning Authority (WPA) areas; County Durham, Gateshead, Newcastle, North Tyneside, Northumberland, South Tyneside and Sunderland. The Tees Valley WPAs were not directly involved in this study, although arisings and capacity forecasts were generated for Tees Valley so that an analysis for all of North East England could be undertaken.

Conclusions – for North East England

Waste arisings

Aggregating arisings estimates for all the WPAs in North East England gives an overall waste arising of some 3.6 million tonnes per year, consisting of 1.48 million tonnes from municipal sources (2011 estimates) and 2.15 million from commercial and industrial sources (2011 estimates). Applying the growth methodologies explained in this report, it is estimated that these total waste arisings for North East England are anticipated to remain fairly constant over the forecast period to 2030.

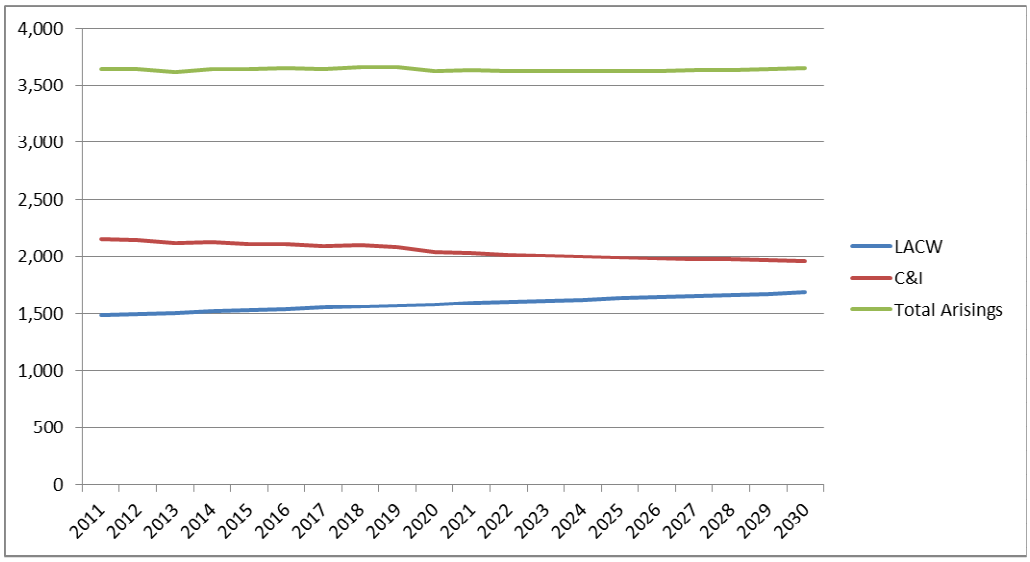


Figure 1: NE Regional Residual Waste Arisings Baseline Forecasts (tonnes x 1,000)

Recycling

Some 1.3 million tonnes of metallic and non-metallic recyclates (plastics, paper, glass etc) are currently produced within North East England. If the increased recycling scenarios applied in this work are delivered, this could increase to 1.7 million tonnes over the forecasting period, driven by increases in landfill tax in particular. Note that recycling would increase through an increased amount of waste diverted from landfill, which is the assumption used in the developed scenarios.

Assessing recycling capacity in North East England is not a simple exercise. The available arisings data is not robust enough to identify individual and mixed waste streams currently segregated particularly by businesses, and as a considerable proportion of segregated recyclates are transported directly to a recycler (who have no obligations to file returns with the Environment Agency) rather than through a transfer station or materials recycling facility (MRF), overall recycling capacity is difficult to assess and is outside of the scope of this work.

However, from the capacity data supplied, it appears that there is significant material recycling facility capacity in North East England.

Organic Recycling Capacity

Forecasting shows that some 344,000 tonnes of segregated organic waste is produced in North East England at present, increasing to around 500,000 tonnes if the recycling rates modelled in this work are achieved (assuming equal increases in recycling of solid waste recyclates and organic wastes such as garden and food wastes).

Comparing likely arisings to existing and planned facility capacities, at the current situation there appears to be some 600,000 tonnes of capacity in both windrow composting and anaerobic digestion. Long-term forecasts, particularly at high recycling

rates (50% Local Authority Collected Waste (LACW), 70% Commercial & Industrial Waste (C&I)), suggest a capacity surplus throughout the forecast period of around 100,000 to 178,000tpa. The WPAs should consider whether capacity is of the right type and in the right location when planning for future needs, as there is currently a concentration of capacity in County Durham and Northumberland.

Splitting these demand figures into waste and therefore technology types (as reported in section 5.1.2) suggests that there is sufficient long term windrow composting capacity across North East England to handle garden waste and similar materials, but a potential under capacity of around 86,000 to 121,000 tonnes per annum in anaerobic capacity for food waste.

Non-hazardous residual waste

Taking estimates of waste management fate for municipal and commercial and industrial sourced waste; currently some 2 million tonnes of residual waste is generated in North East England, of which 1.34 million tonnes is landfilled and 0.6 million tonnes is used to generate energy.

Using baseline forecasts, the total residual waste generated in North East England will potentially reduce to 1.9 million tonnes by 2030, or to less than 1.5 million tonnes if the recycling scenarios detailed in this study are achieved. In the baseline forecasts, due essentially to the procurement of alternative waste management facilities for municipal waste, across the forecast period, landfill reduces to just under 0.9 million tonnes with 0.9 million tonnes energy recovered, and 0.1 million tonnes using some other treatment technology.

The impact of the recycling and landfill diversion scenarios used can be summarised as follows:

Scenario	2030 Landfill Forecasts	2030 Energy Recovery and other technologies Forecasts
1: 50% LACW recycling by 2020	0.84 million tonnes	0.96 million tonnes
2: 50% LACW recycling by 2020, 60% C&I recycling by 2025	0.67 million tonnes	0.96 million tonnes
3: 50% LACW recycling by 2020, 70% C&I recycling by 2025	0.47 million tonnes	0.96 million tonnes
4: 50% LACW recycling by 2020 and 75% C&I diversion by 2020	0.60 million tonnes	1.2 million tonnes

Using the data supplied and forecast methodology explained in this report, the tipping point at which baseline residual waste exceeds capacity available to manage this waste

in North East England is around 2027; extended to 2030 if modelled recycling targets are achieved. However, the bulk of existing capacity to manage this residual waste is landfill. Estimates of existing landfill capacity in North East England were equivalent to 1.8 million tonnes per annum in 2011, decreasing to 0.24 million tonnes per annum by 2030. In the baseline forecasts this translates to a shortfall in capacity by 2021, extended to 2030 if recycling scenarios are achieved.

However, driven by targets for municipal waste recovery and increases in landfill tax, the direction of travel is away from landfill and to solutions further up the waste hierarchy such as energy recovery, MBT and autoclaves, examples of which already exist within North East England. Depending upon the scenario selected, the demand for such facilities could be between 0.9 and 1.1 million tonnes per annum by 2030, with, by 2014, some 1 million tonnes capacity existing (0.645 million tonnes in energy recovery, 0.437 million tonnes in other technologies). The suitability of such capacity will depend upon the waste streams being treated, and some of this capacity may be of the wrong technology and in the wrong place to have a regionally significant impact. All of the available energy recovery capacity is targeted at local authority collected waste (LACW), with a potential 0.3 million tonnes (by 2030) of commercial and industrial waste recovery capacity un-catered for.

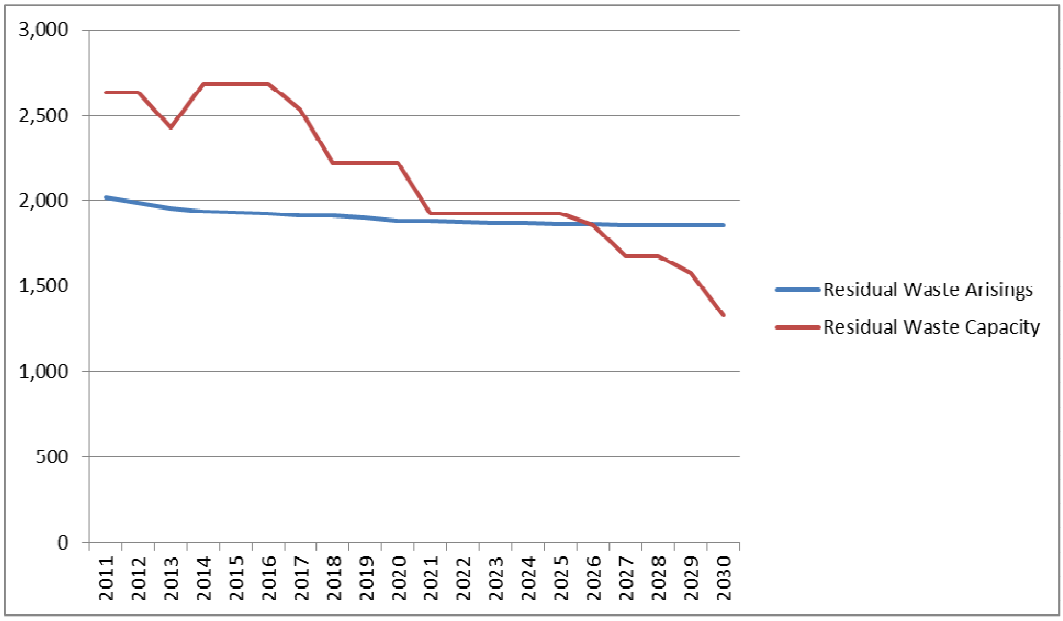


Figure 2: NE Regional Residual Waste Capacity v Arisings (baseline), all waste management methods (thousand tonnes)

Non-Hazardous Residual Waste (without Houghton Landfill)

Capacity implications of Houghton Landfill (Sunderland WPA) closure post 2012 have been modelled as presented in appendix 1.2.4. Loss of this capacity, modelled at 250,000 input tonnage per year, brings forward the tipping point at which baseline residual waste exceeds regional capacity from 2027 to around 2021; extended to 2027 (scenario 2) and 2029 (scenario 3) if modelled recycling targets are achieved.

As previously explained, the bulk of existing capacity is in landfill, which estimates equivalent to 1.8 million tonnes per annum in 2011 decreasing to 0.24 million tonnes per annum by 2030. In the baseline forecasts this translates to a shortfall of ca. 49,000tpa by 2018, increasing to ca. 312,000tpa by 2021. If recycling targets modelled in scenarios 1 and 3 are achieved, this will extend this shortfall until 2027, when a ca. 111,000tpa shortfall is identified.

Therefore, modelling suggests that loss of capacity at Houghton is likely to have a significant impact on regional residual waste capacity, resulting in a landfill capacity shortfall by 2018 and overall capacity shortfall by 2021, unless increased recycling rates are delivered.

Hazardous waste

North East England has considerable capacity for the treatment and disposal of hazardous wastes and imports such wastes from various parts of the UK. A significant amount of this capacity is concentrated in Tees Valley.

Using figures from the Environment Agency's hazardous waste interrogator for 2010, arisings for North East England (ignoring waste water and related treatment) are some 157,000 tonnes per annum. Using the forecasting methodology explained in this report, these arisings are not expected to change significantly over the forecast period.

These arisings figures are comparable to a regional hazardous landfill capacity of some 770,000 tonnes annually (2010 figures) and 122,000 tonnes of treatment capacity.

Although the disposal or treatment of hazardous waste on an overall basis is not easy to predict, as best mode of re-use of disposal will depend upon the chemical and physical nature of the hazardous material involved, there appears to be sufficient capacity in North East England to deal with the hazardous waste generated in North East England. The WPAs should, however, consider whether capacity is of the right type and in the right location when planning for future needs.

One area where there appears to be a of shortfall hazardous waste management capacity in North East England is in the incineration of wastes, where a demand of some 11,000 tonnes is indicated. However, such facilities are specialist and their investment is not only dependant on locally-derived waste but is also dependent upon waste imported from outside the local area for management. This material is, therefore, likely to continue to be exported to specialist facilities in other parts of the UK and does not necessarily have to be managed at the local level.

Conclusion

Whilst there appears to be broadly sufficient regional capacity for most of the waste streams considered in this report, at a regional level, assuming recycling, composting and recovery rates continue to increase as previously recorded, the WPAs should continue to monitor waste arisings, waste management capacity and the level of

economic growth and thus plan accordingly to support effective sustainable waste management facilities where appropriate. However, the impact of the loss of capacity at Houghton Landfill could produce an overall regional shortfall in the medium term, unless increased recycling and diversion targets are delivered.

QUALITY ASSURANCE

Report Title:	Model of Waste Arisings and Waste Management Capacity
Authors:	Peter Scholes, Deborah Sacks, Esther Areikin
Date:	23rd July 2012
File Reference:	T:\Consultancy\NE Gap Analysis Sept 11\REPORT\Final Report\VERY FINAL Houghton Amendment 140812\2012-08-14 NE Capacities Final Report.docx
Prepared For:	North East of England Waste Planning Authorities
Contact(s):	Helen Spoors, Waste Planner
Reference:	
Report Status:	Final Report

COMMERCIAL IN CONFIDENCE

Quality Approvals	**Name**	**Signature**
Project Director	Peter Scholes	
Quality Reviewer	Deborah Sacks	
Quality Review	**Date**	23-07-12

Urban Mines is Accredited under the Customer First Quality Assurance Standard (2012/14)

The content of this Report is for informational purposes only. Urban Mines assumes no liability for inaccurate or incomplete information, nor for any actions taken in reliance thereon. The information given should not be taken to imply any recommendation or endorsement by Urban Mines.

Urban Mines Ltd
The Cobbett Centre for Environmental Enterprise
Village Street, Norwood Green, Halifax, HX3 8QG
Tel: 01274 699400 **Fax:** 01274 699410
Email: info@urbanmines.org.uk **Web:** www.urbanmines.org.uk

CONTENTS

Appendices:

Table of Figures:

CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

North East of England Waste Planning Authorities

Model of Waste Arisings and Waste Management Capacity

1 Introduction

1.1 Background

Each Waste Planning Authority (WPA) in the UK has an obligation to plan for sustainable waste management. All the local authorities in North East England are unitary councils and are, therefore, all expected to produce a waste plan in accordance with the Waste Framework Directive 2008. The WPAs in the North East of England comprise Durham and Northumberland (including the separate Northumberland National Park WPA), which prior to 2009 were upper-tier shire counties, and the ten geographically smaller and more urban authorities in two groupings of Tyne and Wear (Gateshead, Newcastle, North Tyneside, South Tyneside, Sunderland) and Tees Valley (Darlington Borough Council, Hartlepool Borough Council, Middlesbrough Council, Redcar and Cleveland Borough Council and Stockton-on-Tees Borough Council).

The Planning and Compulsory Purchase Act 2004 created the regional structures for the purposes of strategic planning. This scale is useful for planning for waste management since waste managers often move materials significant distances and across local authority boundaries to reach the right types of sorting, bulking, transfer, treatment and disposal facilities. The Localism Act 2011 has given the responsibility for strategic planning back to local authorities acting individually. However, section 110 of the Localism Act prescribes the "Duty to Co-operate" between local authorities. The duty is "to engage constructively, actively and on an on-going basis" and must "maximise the effectiveness" of all authorities concerned with plan-making. For matters such as waste planning, it is therefore important that local authorities can show that they have worked together in exchanging information and reaching agreement on where waste management facilities will be built. Developing a joint evidence base can be a key element of this work.

In developing this evidence base, the first key stage is to gain an understanding of how much waste requires management, and where it comes from. A detailed understanding of the materials that make up this waste stream allows a more sophisticated analysis of the types of facilities that are required in order to retrieve discarded materials from the waste stream and bring them back in to re-use subject to the appropriate re-manufacturing.

Understanding how much waste is generated relies on a variety of data sources of varying quality. Forecasting how much waste will be generated in the future is a process that involves estimating future behaviour of individuals and businesses and the markets within which they operate. This behaviour is influenced by a range of policy and fiscal drivers both locally, nationally and internationally. The use of different materials in manufacturing varies with the cost and availability of those materials and the readiness with which these materials are discarded is determined by the availability of systems for their collection and retrieval as well as the extent to which their value will cover the cost of these processes.

This report identifies the capacity of existing waste management facilities, together with some of those facilities that are in the planning stage and likely to come forward. The additional capacity that may be required for more sustainable management of waste is then calculated and the WPAs can use this information to support the identification of appropriate locations for the development of additional facilities.

1.2 Scope of Work

This study is intended to inform and support the preparation of local development plan documents for each of the Waste Planning Authorities by providing robust information on the arisings of waste that require management and the gap between likely waste arisings and facility capacity in order to provide a basis for identifying future waste management facility requirements .

Tonnages of waste requiring management up to 2020/21 are detailed in the Regional Spatial Strategy for North East England. These tonnages and the assumptions underlying them were revisited by consultants Entec on behalf of the Regional Planning Body and the findings were detailed in a report published in 2008.

Since the publication of the Entec study in 2008, more robust and up-to-date information on arisings of commercial and industrial waste has become available through a national commercial and industrial waste survey commissioned by Defra and the extension of this survey in North East England to provide robust information on arisings to Waste Planning Authority level within North East England. This emerging information indicates that arisings of commercial and industrial waste in North East England are significantly lower than previously thought. This, therefore, calls into question the robustness of the figures in the Regional Spatial Strategy and the 2008 Entec study as a basis of identifying future waste management facility needs in local development documents. Another issue is that the projections in both the Regional Spatial Strategy and the 2008 Entec Study only look forward to 2020/21 whereas the local development plan documents currently under preparation require the projections to look forward to 2030.

Further work is, therefore, now needed to update the projections in light of the more up-to-date baseline information becoming available and to ensure the forecasts cover

the same time period as the local development documents that are being prepared by the Waste Planning Authorities involved in this study.

This study was intended to comprise of two key stages:

1. Provide forecasts of waste arisings for commercial and industrial waste and hazardous waste to 2030 using data from the recently published North East Commercial and Industrial (C&I) Waste Arisings Survey and the most up-to-date data on hazardous waste arisings; and to

2. Undertake an assessment of current and planned waste management facility capacity in North East England and compare this to the forecast waste arisings to identify the capacity gap.

Stage 1: Waste projections to 2030

Stage 1 of the study was intended to identify waste arisings for individual Waste Planning Authority areas by waste type and waste destination using the agreed baseline data. This was then used to forward forecast waste arisings to 2030 using the growth factors agreed with the individual Waste Planning Authorities involved in the study.

The Waste Planning Authorities provided economic growth forecasts and employee growth forecasts for their areas for use in this stage of the study. Where an individual Waste Planning Authority did not have growth forecasts that could be used in this stage of the study, economic growth forecasts were obtained from an agreed commercial source for that authority. The growth factors applied take into account legislative and policy impacts.

While the remit of the study is to provide forecasts for commercial and industrial waste and hazardous waste, the study was intended to also provide some commentary on the other waste streams.

The outputs of Stage 1 are:

- Waste arisings projections to 2030 for commercial and industrial waste and hazardous waste expressed on an annual basis for each of the Waste Planning Authorities involved in the study.
- Analysis of current waste capacity in North East England and future capacity requirements for each of the Waste Planning Authorities involved in the study and the Tees Valley sub-region, particularly taking into account that which is required to manage the Municipal Solid Waste stream that includes household waste.
- Detailed description of methodology, including the assumptions made and growth factors used.

- Commentary on arisings of agricultural, construction and demolition and low level radioactive wastes

Stage 2: Capacity gap analysis

Stage 2 of the study was intended to involve identifying the gap between forecast arisings and current and planned capacity by Waste Planning Authority. This will include information on how much waste could be managed by existing capacity and how much would need to be treated by new capacity.

For Stage 2 of the study, the Waste Planning Authorities provided information on current and planned waste management facilities in their areas. This would be augmented with details of licensed waste management facilities provided by the Environment Agency and the North East Sustainable Resource Board Resource Mapping Tool.

The analysis of the capacity gap includes and takes account of:

- Existing, planned, and proposed waste facilities and capacities;
- Recycling and recovery targets, both statutory targets and any aspirational local targets
- Self-sufficiency and proximity principle consequences
- Landfill trends
- Policy and legislative changes
- Consequences of household/municipal waste management on capacity availability for commercial and industrial waste

The outputs of Stage 2 are:

- An analysis of current waste capacity in North East England and future capacity requirements for each of the Waste Planning Authorities involved in the study and the Tees Valley sub-region.
- Detailed description of methodology, including the assumptions made and factors considered.
- Table of waste facilities and current/planned capacities to be provided in an appendix

1.3 Current position with plans in North East England

All planning authorities in North East England have responsibility for producing planning policies for all aspects of development in their area. Policies and sites for waste development are therefore being brought forward within the wider process of planning for housing, transport, environment and all other economic activity.

In February 2012, the position with Local Development Frameworks and Waste Plans in the authorities of North East England was as follows:

1.3.1 Durham

The Waste Local Plan was adopted in 2005 and covers the period to 2016. Most of the policies in this plan have been 'saved' while work on the County Durham Plan continues.

Consultation was carried out on the Core Strategy for the former Local Development Framework in the summer of 2011. The Preferred Options document for a single County Durham Plan will be consulted on in the autumn of 2012 with adoption planned for 2014.

Consultation was carried out in the summer of 2011 on the Towards a Waste Delivery Strategy for County Durham document which informed the approach to waste in the County Durham Plan and examined potential sites for new waste infrastructure.

The Municipal Waste Management Strategy for County Durham (MWMSCD) was adopted in 2006, with an Addendum adopted in 2010 as a transition document forming part of a wider Strategy review. The procurement process to let contracts for the management of Municipal Waste to deliver the targets set out in the MWMSCD remains ongoing.

1.3.2 Northumberland

The Northumberland Waste Local Plan was adopted in 2001. Most of the policies in the Waste Local Plan have been 'saved' until they are replaced by new-style local plan policies. Consultation on a "Core Strategy Issues and Options document will take place from May to August 2012, with adoption of a Core Strategy planned for 2014. The Northumberland Core Strategy will cover the area of Northumberland outside of the Northumberland National Park.

The Northumberland National Park Authority are the WPA for the National Park area. The National Park adopted their Core Strategy in March 2009 and this document includes a policy on waste management.

1.3.3 Gateshead and Newcastle-upon-Tyne

Gateshead and Newcastle Councils are working together to prepare a joint Core Strategy and Urban Core Area Action Plan. This will plan for the period to 2030 and consultation on the Draft Plans of both these documents closed in January 2012.

A Site Allocations and Development Management Policies document will be prepared by each authority which will identify key sites for a range of uses including waste management. A waste management and minerals technical paper has been prepared to support the Core Strategy and Urban Core Area Action Plan for Gateshead and Newcastle.

1.3.4 North Tyneside

The Core Strategy is currently under preparation. Consultation on the Preferred Options stage was carried out in summer 2010. This was followed in October 2011 by consultation on growth options, to identify the preferred level of future growth in housing and employment in the Borough.

The Core Strategy will provide the framework for management of waste and delivery of new facilities.

1.3.5 South Tyneside

A Core Strategy was adopted in June 2007 which included broad policies for waste management. A Development Management Policies DPD was adopted in December 2011 which also includes a waste policy, and details the most current up-to-date apportionments of the quantities of waste to be managed.

A Site Specific Allocations DPD has been found 'sound' at Examination in Public and is expected to be adopted by April 2012. This includes three waste allocations comprising existing LACW and C&I waste management capacity.

1.3.6 Sunderland

There is a South Tyne & Wear Waste Management Partnership Joint Municipal Waste Management Strategy which was adopted in October 2007. This was produced by Gateshead Council, South Tyneside Council and Sunderland City Council.

A Core Strategy is being prepared which has been subject to consultation over several stages. The Revised Preferred Options will be consulted upon in summer 2012.

A Site Allocations Development Plan Document will be prepared which will identify key sites for a range of uses including waste management.

1.3.7 Tees Valley Authorities

The Tees Valley Authorities comprise five local authorities: Darlington, Hartlepool, Middlesbrough, Redcar and Cleveland and Stockton-on-Tees. They have prepared a Joint Core Strategy containing the long term spatial vision for the area and strategic policies for waste and mineral developments and also a Minerals and Waste Policies and Sites DPD. Both documents are up to date and were adopted in September 2011.

2 Waste Arisings Model

2.1 Municipal Solid Waste (MSW) and Local Authority Collected Waste (LACW)

Even though the main focus of this study is commercial and industrial waste, as so many key facilities in North East England process waste from both municipal (i.e. household) and commercial and industrial (i.e. business) sources, a precise forecast of free capacities cannot be adequately delivered without also considering municipal waste arisings. Therefore, forecasts for municipal waste arisings were developed for each WPA area.

2.1.1 Definitions

The term 'municipal waste' has historically been used in waste policy to describe all waste which is managed by or on behalf of a local authority.

However, the Landfill Directive defines municipal waste as waste from households as well as other waste that, because of its nature or composition, is similar to waste from households. This includes a significant amount of waste that is generated by businesses and which is not collected by local authorities.

For planning purposes, it is important to know how much waste in total requires management. Local authorities have established systems for measuring the quantities of waste that they manage and this is reported to Defra through the WasteDataFlow reporting system which has been established since 2004. Data from this source is seen as robust and is the basis of much of the municipal waste figures presented in this report.

The remainder of waste arisings, whether similar to household waste or more homogeneous, is not measured through a systematic or robust system, but in periodic surveys that have been carried out to understand the quantities arising.

To ensure consistency with the terminology used by National Government, the term 'Local Authority Collected Waste' (LACW) will be used for the waste recorded by WasteDataFlow and the remainder of the non-hazardous waste to be examined will be referred to as Commercial and Industrial (C&I) waste. This terminology originates from Defra's response to the consultation on meeting the EU Landfill Diversion Targets in England in 2010 and ensures that LACW data is consistent with data on LACW in previous work.

Similar robust datasets are not available at this time for waste generated by construction, demolition and excavation operations (termed CD&E waste). Therefore the generation and disposal of such inert wastes is not covered by this study.

Municipal waste consists of waste which comes into the possession of, or under the control of, the local authority, with the exception of municipal construction and demolition waste. It can be subdivided into a number of components:

- Household waste (the main component) consists primarily of waste collected directly from households;
- Household waste (with the exception of inert construction waste) which is accepted and collected at household waste recycling centres/civic amenity sites;
- Other household waste (smaller components) such as litter and street cleaning waste; and
- Non-household waste. The main components of municipal waste classified as non-household include commercial waste collected by local authorities and inert construction materials accepted at household waste recycling centres.

Local authorities are required to make detailed returns to Defra concerning the quantity of waste arisings and how the materials are subsequently managed.

Therefore, when referring to municipal waste throughout this report, the LACW terminology is used.

2.1.2 Local Authority Collected Waste Forecast Methodology

Forecasts of LACW arisings have been calculated from the base year of 2011 to 2030.

Forecasts of changes in LACW arisings are largely taken from the forecasts that have been developed by local authorities, which in turn are largely based on forecasts of population growth or household growth.

Historically LACW arisings were forecast to increase steadily overall, but recent years have shown a reduction in total arisings. In addition, the proportion of LACW arisings that is recycled or sent for composting or treatment through anaerobic digestion has steadily increased.

This is likely to be at least partly as a result of increasing public awareness of the issues around waste reduction, re-use and recycling. There has been a significant amount of work being carried out in this area by local authorities as well as campaigns by national organisations and a growing awareness of the environmental impact of poor resource management. The “light-weighting” of packaging and other measures taken by the

manufacturers of consumer goods has been a significant contributor in reducing the weight of household waste arisings.[1]

The recession has also been cited as a factor in the reduction in LACW arisings, since consumption of goods generally has reduced since 2008. However, the graph below shows that tonnages arising have steadily reduced nationally since 2002/3.

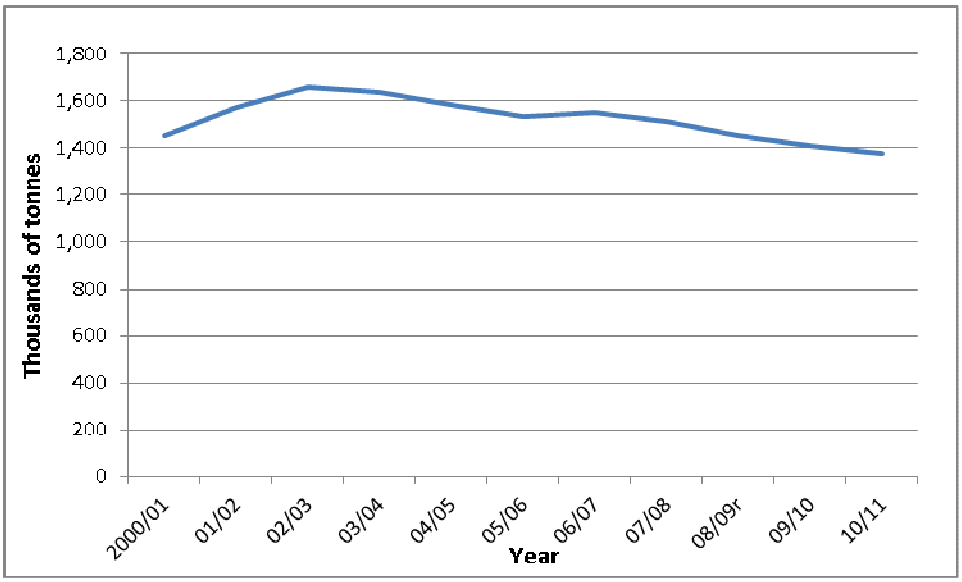


Figure 3: Total Local Authority Collected Waste Arisings in North East England, 2000/01 to 2010/11

(Source: Defra http://www.defra.gov.uk/statistics/environment/waste/wrfg23-wrmsannual/)

2.1.3 Local Authority Collected Waste Baseline Arisings Forecasts per Waste Planning Authority

The baseline arisings forecasts were produced for each WPA area using data supplied by each WPA. Either detailed forecasts were provided, or background data on which forecasts could be developed. The data sources and assumptions per WPA are summarised below. In most cases, population growth figures were used to develop long-term forecasts. Although there is clearly a link between population and the amount of waste produced, as noted above, despite population growth over recent years, total arisings have reduced. However, in this case it was thought that population growth figures used to calculate forecast arisings to 2030 are more likely to provide a "worst case" overall waste growth on which it would be sensible to build capacity gap analysis.

[1] Source: INCPEN, The Industry Council for Packaging and the Environment

WPA	Local Authority Collected Waste Arisings Source	Growth Forecast Source
County Durham	2010 arisings figures from WPA	Figures from DCC, 2011
Gateshead	Estimated Contract Waste, from local authority	Estimated Contract Waste, from local authority
Newcastle	Newcastle City Council Municipal Waste Management and the One Core Strategy (Sept 2011)	Including population forecasts from the One Core Strategy and proposal for waste management post 2012
North Tyneside	Projections to 2019 supplied by local authority	From 2020 assumed 0.64% population growth pa (based upon 2010 Core Strategy, growth by 25,500 to give 224,000
Northumberland (*)	Year on year forecasts supplied by the local authority from the waste management contract	Year on year forecasts supplied by the local authority
South Tyneside	Estimated Contract Waste, from local authority	Estimated Contract Waste, from local authority
Sunderland	Estimated Contract Waste, from local authority	Estimated Contract Waste, from local authority
Tees Valley (for Regional estimates)	Tees Valley Joint Minerals and Waste Development Plan Documents (3.2 arisings, 3.4 recovery and recycling)	Office of National Statistics (ONS) Forecast Population Change

(*) Includes the Northumberland National Park

Figure 4: LACW Arisings Data Source per WPA area

The resultant baseline forecasts for municipal waste arisings are presented from section 1 of this report for North East England as a whole, for the Tyne and Wear sub-region and for each WPA area. These arisings forecasts are summarised in Figure 5 below.

Year	County Durham	Gateshead	Newcastle	North Tyneside	Northumberland	South Tyneside	Sunderland	Region (inc Tees Valley)
2011	268,991	102,673	158,768	105,309	200,099	85,158	149,098	1,484,225
2012	270,555	103,020	159,536	105,988	202,230	85,766	150,353	1,494,515
2013	268,204	103,494	160,303	105,988	204,384	86,439	151,731	1,500,990
2014	267,558	106,392	161,071	105,988	206,560	87,541	155,813	1,514,779
2015	266,887	107,396	161,839	105,988	208,760	88,172	157,970	1,524,298
2016	268,402	108,329	162,435	105,988	210,983	89,161	160,148	1,535,750
2017	269,917	109,209	163,030	105,988	213,229	90,134	162,346	1,546,645
2018	271,432	110,126	163,626	105,988	215,500	91,057	164,564	1,557,715
2019	272,947	111,022	164,221	105,988	217,794	91,957	166,785	1,568,794
2020	274,462	111,714	164,817	105,988	220,113	92,717	168,868	1,579,419
2021	275,976	112,585	165,641	106,666	222,456	93,319	170,968	1,591,001
2022	277,491	112,951	166,465	107,349	224,825	93,521	172,271	1,600,879
2023	279,006	113,317	167,290	108,036	227,217	93,722	173,574	1,610,784
2024	280,521	113,683	168,114	108,727	229,637	93,924	174,606	1,620,451
2025	282,036	114,049	168,938	109,423	232,081	94,125	175,637	1,630,146
2026	283,551	114,414	169,921	110,124	234,551	94,327	176,669	1,640,030
2027	285,065	114,780	170,904	110,828	237,048	94,528	177,700	1,649,946
2028	286,580	115,146	171,888	111,538	239,571	94,730	178,732	1,659,892
2029	288,095	116,036	172,871	112,252	242,121	95,335	180,614	1,671,648
2030	289,610	116,932	173,854	112,970	244,698	95,944	182,511	1,683,460

Figure 5: Summary of baseline forecasts of Local Authority Collected waste arisings in all WPAs in North East England (tonnes)

2.2 Commercial and Industrial Waste (C&I Waste) Arisings Forecasts

2.2.1 Definition

Commercial and industrial (C&I) waste is waste generated from the following activities:

Industrial Sectors

1. Food, drink and tobacco businesses
2. Textiles/wood/paper/publishing businesses
3. Power and utilities companies
4. Chemical/non-metallic minerals manufacturing businesses
5. Metal manufacturing businesses
6. Machinery & equipment (other manufacturing) businesses

Commercial Sectors

7. Retail and wholesale
8. Hotels and catering
9. Public administration and social work
10. Education
11. Transport and storage
12. Other services

How these sectors relate to SIC[2] codes and descriptions are shown in appendix 12.

It does not include waste produced by agriculture or quarrying and mining activities. It also specifically excludes waste management and recycling businesses to avoid double counting.

Recent surveys of commercial and industrial waste have recorded waste type produced by businesses using the Substance Orientated Classification (SOC) of waste type. These are based upon the chemical and physical nature of the waste and can be summarised as follows:

- Animal and vegetable wastes
- Chemical waste
- Common sludges

[2] A Standard Industrial Classification (SIC) was first introduced into the UK in 1948 for use in classifying business establishments and other statistical units by the type of economic activity in which they are engaged. The classification provides a framework for the collection, tabulation, presentation and analysis of data, and its use promotes uniformity. The UK SIC system has been developed in association with the EU's classification system, NACE. The first four digits of each code are standardised across the EU, and subsequent digits are unique to each country. (Office of National Statistics)

- Discarded equipment
- Health care waste
- Metallic waste
- Mineral waste
- Mixed (ordinary) waste
- -Non-metallic waste

2.2.2 Data Sources

The key sources of data on waste arisings are the various national and regional commercial and industrial waste surveys which have been delivered for the Environment Agency, Defra and other bodies since 1998/99.

The main English national surveys delivered in 1998/99, 2002/3 and 2009 have surveyed businesses throughout the nation at a sampling rate which produces robust estimations of total arisings at both national and regional level. Businesses within North East England have been involved in these surveys, at a sampling rate appropriate to calculating a regional arising estimate.

In parallel with the 2009 national survey, the North East Sustainable Resources Board (NESRB) commissioned additional work which increased the sampling rate within the region substantially so that robust arisings estimates could be produced at regional and sub-regional level. This survey was delivered by Urban Mines in partnership with Gardiner & Theobald. The survey was designed to be delivered in a comparable manner to the Defra national survey, so that raw data could be combined to further improve reliability of the arisings estimates produced. The NESRB survey collected waste data from some 1,036 businesses in North East England in a statistically valid manner, between October and December 2010. This data was added to that collected from 276 businesses in North East England by the national survey to produce arisings estimates, per sector and business size, at regional and sub-regional level.

As shown in Figure 6, the survey revealed a 2009 waste arisings figure of 2.18 million tonnes for the whole of the region, with the chemicals manufacturing and retail and wholesale sectors producing the most waste.

The North East Sustainable Resources Board (NESRB) have kindly allowed for their data to be used in producing this regional and sub-regional waste capacity analysis.

Sector Group	Company Size (Number of employees)								% of Total
	1-4	5-9	10-19	20-49	50-99	100-249	250+	**Total**	
Food, drink and tobacco	182	535	1,867	16,198	13,887	72,274	29,725	**134,668**	6.2%
Textiles/wood/paper/publishing	5,399	4,287	12,937	3,361	8,907	56,963	107,261	**199,115**	9.1%
Power & utilities	1,235	1,922	1,891	13,237	11,912	137,194	3,996	**171,388**	7.9%
Chemical/non-metallic minerals manufacturing	2,417	3,138	1,845	115,444	24,319	163,036	28,476	**338,675**	15.6%
Metal manufacturing	1,606	1,394	9,704	22,272	7,703	27,187	137,319	**207,185**	9.5%
Machinery and equipment (other manufacturing)	2,287	2,355	4,822	14,048	14,072	24,821	42,661	**105,066**	4.8%
Retail and wholesale	39,604	47,549	65,971	53,598	38,328	31,708	47,066	**323,823**	14.9%
Hotels and catering	12,852	24,581	34,421	35,390	22,512	3,701	622	**134,080**	6.2%
Public administration and social work	4,952	9,746	11,345	34,166	18,543	32,821	24,562	**136,134**	6.3%
Education	664	821	6,241	19,360	12,746	43,112	11,671	**94,616**	4.3%
Transport and storage	3,370	2,004	7,339	4,973	9,816	42,041	16,881	**86,423**	4.0%
Other services	45,039	31,120	41,273	45,842	32,687	22,046	27,408	**245,414**	11.3%
Total	**119,606**	**129,453**	**199,656**	**377,889**	**215,432**	**656,905**	**477,646**	**2,176,587**	**100.0%**

Figure 6: C&I waste arisings for North East England by sector and size, 2009 (tonnes)

2.2.3 Arisings Methodology

The raw data from this survey was used to calculate estimates of waste arisings for each individual WPA within the region. To achieve this, business population data for each local authority area was obtained from the Office of National Statistics – the figures for 2010 were the most up to date available.

This data gives the number of businesses per sector and business size (measures as number of FTE employees) for each local authority area in the same structure as the data used for the original survey. Using averaged waste arisings per sector and business size, modelled arisings were therefore calculated, reproducing the same grossing methodology used in the original survey.

The results of this modelling are given per WPA from section 68 in this report, by waste management fate.

2.2.4 Forward Forecasts

Growth rates were applied to these modelled 2010 waste arisings estimates to project arisings forward to 2030.

A number of sources of growth data were used, depending upon the needs of the individual WPA areas.

To produce the baseline forecasts, economic growth figures were used per business sector, derived for either the region as a whole or for the individual WPA area. The growth figures and assumptions used are listed in the table below.

WPA	Growth Forecast Source
County Durham	Oxford Economics regional employment forecasts (from Spring 2011), applied per sector
Gateshead	St Chads work adjusting Cambridge Econometrics Employment Projections
Newcastle	St Chads work adjusting Cambridge Econometrics Employment Projections
North Tyneside	Oxford Economics regional employment forecasts (from Spring 2011), applied per sector
Northumberland	Oxford Economics regional employment forecasts (from Spring 2011), applied per sector
South Tyneside	Experian Total Employment by Industry (workplace based) (2010-2030
Sunderland	Oxford Economics regional employment forecasts (from Spring 2011), applied per sector
Tees Valley (for Regional estimates)	Oxford Economics regional employment forecasts (from Spring 2011), applied per sector

Figure 7: C&I Economic Growth Data Sources per WPA

The use of these growth figures (based upon employment forecasts per sector) assumes that mean waste arisings per employee does not change over the forecast period. To produce the baseline forecasts, it was also assumed that recycling and landfill diversion rates remained static.

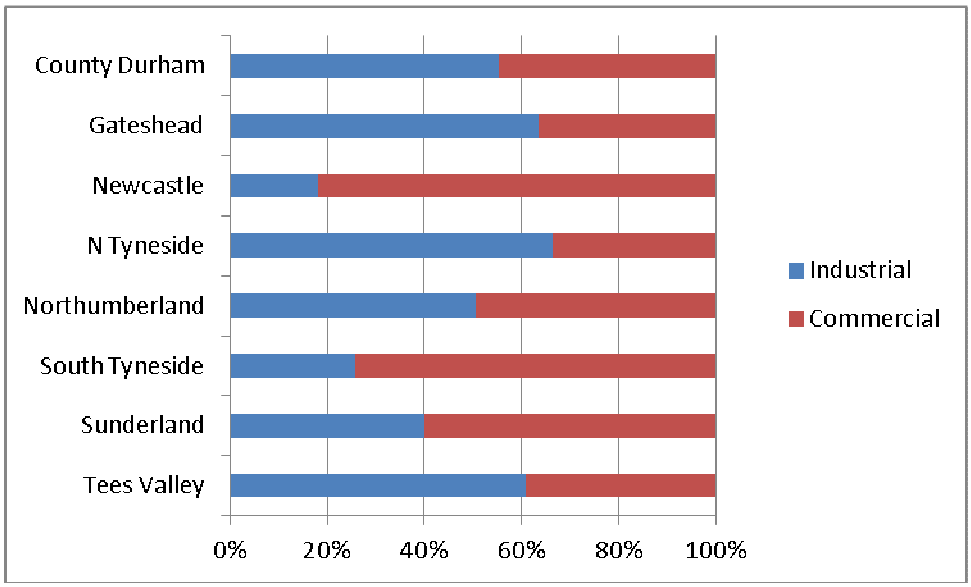
Comparing Growth Forecasts

Applying employment forecasts as identified above gives different results per WPA. This can be explained by differences in the forecasts themselves, and by the make-up of the commercial and industrial sectors in the given WPA:

- All of the forecasts used show commercial sector growth over the forecast period, varying from 6% to 10% over the period 2011 to 2030. However, there is less agreement for industrial employment. The Cambridge Econometrics growth figures used for Newcastle and Gateshead and those supplied by Oxford Economics show a decline in employment over the same period in industrial sectors of between 7% and 20%. However, the Experian forecasts for South Tyneside estimate a 39% employment growth over the same 2011-2030 period.

- The impact of these growth figures therefore varies per WPA depending upon the importance of the commercial or industrial sectors within that area. The plot below shows business population figures from the Office of National Statistics (ONS) for March 2011 (as local units). In comparison, Newcastle local authority area, for instance, shows dominance of the commercial sectors, with less than 20% of businesses being involved in industrial activities. Gateshead in contrast reports over 60% of business involved in industrial activities.

Figure 8: Proportion of businesses involved in Commercial and Industrial Activities, by WPA, in 2011 (source: ONS)



The forecast figures per WPA are summarised in Figure 9 below.

Year	County Durham	Gateshead	Newcastle	North Tyneside	Northumberland	South Tyneside	Sunderland	North East England (Inc. Tees Valley)
2011	383,670	247,667	201,600	201,661	210,586	56,903	178,386	2,151,709
2012	379,916	245,765	200,113	200,486	208,989	57,447	177,816	2,140,278
2013	378,679	241,695	201,523	194,430	207,835	58,226	176,492	2,112,543
2014	380,435	242,025	202,520	195,303	208,983	58,889	177,785	2,122,960
2015	377,493	238,762	202,055	194,954	208,210	59,345	178,002	2,111,078
2016	377,536	238,170	204,490	194,829	208,129	59,600	177,766	2,108,873
2017	373,398	235,354	204,457	193,827	206,622	60,100	176,710	2,093,885
2018	374,396	235,547	205,607	194,229	207,282	60,648	177,340	2,099,971
2019	372,236	234,050	206,692	193,384	206,121	61,065	175,610	2,083,291
2020	363,962	225,568	207,298	185,338	201,921	61,576	173,668	2,040,919
2021	364,908	225,576	208,300	183,636	200,836	62,055	172,945	2,034,440
2022	357,331	225,584	207,822	181,982	199,794	62,545	172,260	2,018,271
2023	355,462	225,593	208,249	180,375	198,793	63,047	171,612	2,009,019
2024	353,698	225,601	208,312	178,813	197,834	63,561	171,001	1,999,810
2025	349,216	225,609	209,196	177,297	196,914	64,087	170,425	1,988,997
2026	349,764	225,618	210,155	175,825	196,034	64,625	169,883	1,983,578
2027	348,283	225,626	211,335	174,397	195,193	65,176	169,377	1,976,635
2028	348,600	225,634	211,400	173,011	194,389	65,740	168,903	1,970,651
2029	349,249	225,642	212,345	171,666	193,623	66,317	168,463	1,966,154
2030	346,497	225,651	213,763	170,362	192,892	66,908	168,055	1,958,996

Figure 9: Summary of baseline forecasts of C&I Waste arisings in all WPAs in North East England (tonnes)

2.3 Hazardous Waste Arisings Forecasts

2.3.1 Definition

Waste is classified as "Hazardous Waste" if it has characteristics that make it harmful to human health, or to the environment, either immediately or over an extended period of time. The European Union Hazardous Waste Directive gives an extensive list of these wastes drawn up by the European Commission, because they possess one or more of the hazardous properties. This Directive has been implemented in UK national legislations by the Hazardous Waste Regulations 2005.

http://www.legislation.gov.uk/uksi/2005/894/contents/made

Hazardous waste is a sub-category of municipal waste, commercial and industrial waste and construction, demolition and excavation waste classed materials, as wastes within these categories can contain wastes that are hazardous.

Clinical waste can also be classified as a hazardous waste. There is very limited data on clinical waste arisings as it is not specifically identified through the last commercial and industrial waste survey for North East England (2009).

2.3.2 Estimating Arisings

Although the North East England Commercial and Industrial Waste Survey 2009 recorded which wastes produced by businesses were classified as hazardous, because the survey was designed to estimate total arisings from businesses rather than specifically hazardous waste production, the sample of hazardous waste producers was not large and significant enough to produce robust hazardous waste arisings forecasts for businesses in the region.

However, the Environment Agency, through their control of the movements and disposal or recovery of hazardous waste, has detailed records of hazardous waste arisings which can be accessed by the publication of their annual Hazardous Waste Interrogator dataset. For the purposes of this work, the 2010 figures were used.

The interrogator includes hazardous waste arisings from both municipal and commercial and industrial sources.

Arisings figures for 2010 were therefore generated using the interrogator. To produce forward forecasts of arisings, the mean growth factors used to produce the commercial & industrial waste arisings to 2030, were similarly applied to the 2010 hazardous waste figures to produce the baseline. The output arisings are summarised in the table following.

	County Durham	Gateshead	Newcastle	North Tyneside	Northumberland	South Tyneside	Sunderland	Tees Valley (for regional totals)	North East England
2011	22,267	16,282	5,813	10,375	21,243	4,508	6,340	72,126	158,953
2012	22,049	16,212	5,814	10,315	21,082	4,551	6,319	71,966	158,307
2013	21,977	15,920	5,846	10,003	20,965	4,613	6,272	70,237	155,834
2014	22,079	16,009	5,920	10,048	21,081	4,666	6,318	70,598	156,719
2015	21,909	15,718	5,968	10,030	21,003	4,702	6,326	70,086	155,742
2016	21,911	15,712	6,016	10,024	20,995	4,722	6,318	69,667	155,365
2017	21,671	15,364	6,024	9,972	20,843	4,762	6,280	69,136	154,053
2018	21,729	15,401	6,054	9,993	20,910	4,805	6,303	69,298	154,492
2019	21,603	15,054	6,045	9,949	20,792	4,838	6,241	68,139	152,663
2020	21,123	14,867	6,023	9,535	20,369	4,878	6,172	66,791	149,758
2021	20,985	14,717	6,036	9,448	20,259	4,916	6,146	66,210	148,718
2022	20,852	14,571	6,050	9,363	20,154	4,955	6,122	65,648	147,716
2023	20,723	14,431	6,066	9,280	20,053	4,995	6,099	65,104	146,751
2024	20,599	14,295	6,081	9,200	19,957	5,036	6,077	64,578	145,822
2025	20,480	14,164	6,098	9,122	19,864	5,077	6,057	64,069	144,929
2026	20,365	14,037	6,115	9,046	19,775	5,120	6,038	63,577	144,072
2027	20,254	13,914	6,133	8,972	19,690	5,164	6,019	63,101	143,248
2028	20,147	13,796	6,152	8,901	19,609	5,208	6,003	62,642	142,458
2029	20,044	13,683	6,172	8,832	19,532	5,254	5,987	62,198	141,701
2030	19,945	13,573	6,192	8,765	19,458	5,301	5,973	61,771	140,977

Figure 10: Summary of forecasts of hazardous waste arisings in all WPAs in North East England (tonnes)

2.4 Inert Waste

Waste arising from the construction industry comprises mainly inert materials such as soils, stone, concrete, brick and tile. Because of their weight, these elements make up the majority of tonnage.

However, there is no reliable data source for inert waste, since most of it is either managed on site where it arises, or is managed at sites that are exempt from the permitting regime administered by the Environment Agency.

Operations carried out at these facilities are considered to be low risk activities and, therefore, do not require significant monitoring by the Environment Agency. Permits issued by the Environment Agency are recorded in the National Waste Interrogator (NWI), which is the main source of information on operational waste management facilities. While many of these facilities are, therefore, recorded in the National Waste Interrogator, there is little detail available about the types and quantities of inert waste managed there.

Inert wastes are also managed at sites that are exempt from Environment Agency permitting and it is not possible to obtain information on the quantities of wastes managed at these sites.

Waste that is managed at permitted sites is recorded by the Environment Agency, and landfill sites are included amongst these. It is therefore possible to obtain data on how much construction and demolition (C&D) waste is disposed at landfills, by extracting data for either 'inert waste' or 'Chapter 17' waste. Chapter 17 refers to the List of Wastes derived from the European Waste Catalogue.

The main information recorded in the NWI is the inputs of inert material into landfill. Non-hazardous landfill sites typically require between 10% and 20% of their inputs to be inert material for engineering and capping non-inert material. In addition, some landfill sites are permitted to take inert material only. Inert material can also be used for landscaping and land spreading.

A comparison of inert waste sent to landfill with available capacity at appropriate landfill sites is shown below:

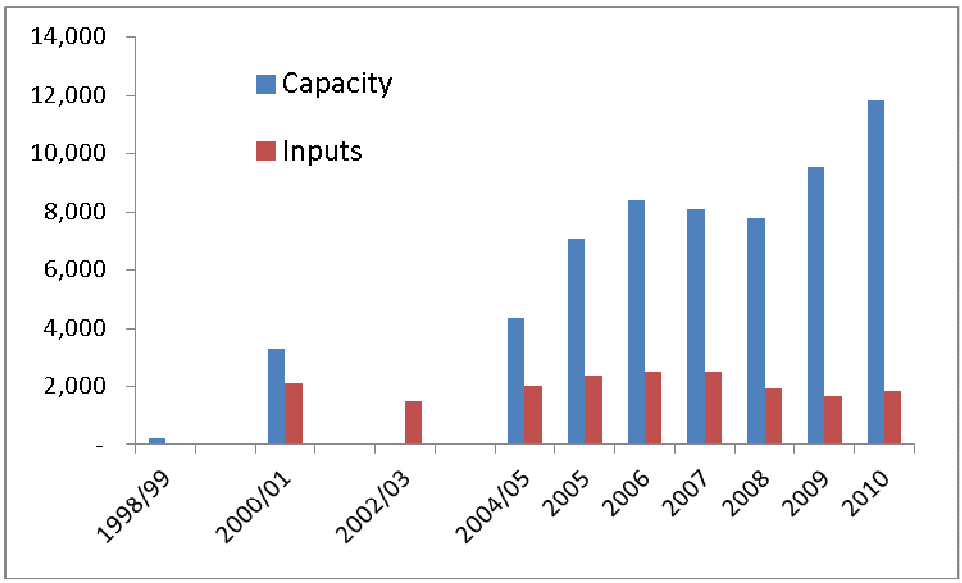


Figure 11: Inert waste capacity and inputs (North East England, in thousands of cubic metres)

Source: Environment Agency

Data on the management of inert waste is incomplete, because most of this material is managed in sites that are exempt from permitting by the Environment Agency. Exemptions from permitting are granted when the risk associated with a particular waste management activity is regarded as low, either because small quantities of material is being managed, or because the material is inert and does not pose significant risks to the environment or to human health. The only data on quantities of inert wastes that is systematically collected is that which is sent to landfill, although the material that is used for engineering purposes at non-hazardous landfill sites are not necessarily recorded as inert. The view locally is that generally speaking there has been a shortage of this type of material in recent years, and that this has implications regarding the need for any additional inert landfill capacity to come forward. This view seems to be corroborated by the industry. Inert waste that is treated on site and re-used, either on the same site, or elsewhere, is not recorded in any single database.

The capacity of inert waste management facilities is also very difficult to measure, because of differences in the intensity of its use. Some mobile crushing equipment is only used occasionally and other plants are hired out for more intensive use. It is therefore impossible to assess how much material is arising from the construction industry and what proportion is sent to landfill.

2.5 Agricultural Waste

The Environment Agency website describes agricultural waste as any substance or object from premises used for agriculture or horticulture, which the holder discards, intends to discard or is required to discard. It is waste specifically generated by agricultural activities. However, waste which came from a farm shop or a vegetable packing plant, for example, would not be agricultural waste and would be classed as commercial and industrial waste (a farm shop is "Retail and Wholesale" sector and a vegetable packing is "Food and Drink manufacture" sector). Some examples of agricultural waste are:

- empty pesticide containers;
- old silage wrap;
- out of date medicines and wormers;
- used tyres;
- surplus milk.

Since 2006, agricultural waste has been subject to the same controls that have applied to other sectors for many years. On 15 May 2006, uncontrolled burning or tipping of waste on farms became illegal.

Agricultural waste mainly comprises organic material that is managed on site. The Environment Agency have tried to get some quantitative data on this but it is out dated (from 2001), and acknowledged as being very weak. A small proportion will be wastes such as plastics and metals which are managed within the usual C&I waste systems.

2.6 Radioactive waste

Radioactive waste is any material that is either radioactive itself or is contaminated by radioactivity and for which no further use is envisaged. Most radioactive waste is produced from nuclear power stations and the manufacture of fuel for these power stations. This is referred to as "nuclear waste."

Radioactive waste also arises from nuclear research and development sites. Some also arises from Ministry of Defence sites and medical, industrial and educational establishments. This is sometimes referred to as "non-nuclear waste".

This waste stream is divided into four categories as follows:

1 High Level Wastes (HLW)

These are highly radioactive materials that generate substantial amounts of heat. HLW is the product from reprocessing spent nuclear fuel at Sellafield in Cumbria. It arises as highly radioactive nitric acid, which is converted into glass within stainless steel containers in a process called vitrification which is carried out at Sellafield. If declared a waste, spent fuel can also be categorised as HLW.

2 Intermediate Level Wastes (ILW)

These are wastes with radioactivity levels that are higher than for Low Level Waste, but which do not require heating to be taken into account in the design of management facilities. ILW is sufficiently radioactive to require shielding and containment. It arises mainly from the reprocessing of spent fuel and from operations and maintenance at nuclear sites, including fuel casing and reactor components, moderator graphite from reactor cores, and sludges from the treatment of radioactive effluents.

3 Low Level Waste (LLW)

These are radioactive wastes other than that suitable for disposal with ordinary refuse. Radiation levels do not exceed 4 gigabecquerels per tonne of alpha activity, or 12 gigabecquerels per tonne of beta or gamma activity. (A Becquerel is the unit of radioactivity, representing one disintegration per second.) Unlike HLW and ILW, LLW does not normally require shielding during handling or transport. LLW consists largely of paper, plastics and scrap metal items that have been used in hospitals, research establishments and the nuclear industry. As nuclear plants are decommissioned, there will also be large volumes of this type of waste arisings in the form of soils, concrete and steel. LLW represents about 90% by volume of UK radioactive wastes but contains less than 0.0003% of the radioactivity.

4 Very Low Level Waste (VLLW)

This is a sub-category of LLW, consisting of the same sorts of materials, and divided into Low Volume ("dustbin loads") and High Volume ("bulk disposal"). Low volume VLLW can be disposed of to unspecified destinations with municipal, commercial or industrial waste. High volume VLLW can be disposed of to specified landfill sites and controlled as specified by the environmental regulators.

The policy on management of radioactive waste is being developed jointly by the Environment Agency and the Office for Nuclear Regulation which is an agency of the Health and Safety Executive (HSE). Radioactive waste is not classified as "hazardous waste" by the Environment Agency and no data on arisings and their destinations is held by the EA, as there is a different regime for its regulation.

Most material can be disposed of at non-hazardous waste management facilities, such as landfill or thermal treatment facilities. Unfortunately, at present, waste producers of low volume VLLW do not have to identify which landfill site or incinerator is used for disposal of this material.

EDF operate a site at Hartlepool where there are two operating Advanced Gas-Cooled Reactors (AGR) that commenced operation in 1983. It is expected that the station will continue generating electricity up to 2014.

The Nuclear Decommissioning Authority UK Radioactive Waste Inventory 2010 (http://www.nda.gov.uk/ukinventory/) gives the quantities of radioactive waste to be managed in North East England as of 1 April 2010. These are actually totals of waste that site operators reported as present on the site on that date. Annual waste generation figures are not available and probably depend on decommissioning work. All volumes are in cubic metres, rounded to 3 significant figures as follows:

ILW Current volume: 310 m^3
LLW Current volume: 37m^3

This material all comes from the Hartlepool power station operated by EDF Energy.

A survey of LLW from "non-nuclear" sources such as universities and hospitals gives a figure of 3,460 m^3 for ILW and 4,100 m^3 for LLW (Data collection on solid low-level waste from the non-nuclear sector), DECC http://www.decc.gov.uk/en/content/cms/meeting_energy/nuclear/radioactivity/waste/low/low.aspx).

3 North East Waste Management Capacity

3.1 Introduction

The capacity of waste management facilities throughout North East England, and particularly the WPA areas involved in this study were collated from the individual WPA areas themselves using information from planning consents and applications, supported by permit data supplied by the Environment Agency.

This data included both existing operational and non-operational facilities, as well as significant facilities in planning, and covered the following main facility types, i.e.:

- Landfill
- Incineration and energy recovery
- Other residual waste technologies (e.g. mechanical biological treatment (MBT) and autoclaves).
- Waste Transfer Stations
- Materials Recycling Facilities (MRF)
- Composting and other organic recycling plants (e.g. anaerobic digestion)

Summaries of the data supplied are provided in the WPA analysis sections starting at section 1.

3.2 Data Sources and Assumptions Made

3.2.1 Sources of Capacities Data

Key data on waste facilities within North East England were supplied by the WPAs with supporting data from the Environment Agency. This included, where available, details of existing and proposed facilities and their operational or planned capacities.

Problems with permitted capacity data

Where operating capacities were not available, EA permitted capacity data was used. This can cause problems as the EA capacity data supplied is based more on the amount the operator wanted to pay for their waste management licence rather than the operating annual capacity of the site, and, therefore, the capacity detailed in the licence tends to be at the top end of the charging bands. Therefore, many sites give EA capacities of 74,999 tonnes, 24,999 tonnes and 4,999 tonnes and it is likely that such figures used are over estimates of actual operational capacities.

Converting void space to tonnes

Where landfill capacities were supplied as remaining void space in cubic metres (m^3), these were converted into annual capacities using a conversion factor of 0.85. Converting capacities into tonnage is not a trivial matter, as there can be considerable variance in the types of material landfilled, its intrinsic density, and whether compaction was used or not. For instance, each cubic metre of inert waste (such as construction rubble) will weigh significantly more than a cubic metre of typical un-compacted household residual waste. Hence a conversion factor for inert waste of 1.5 tonnes per cubic metre is commonly used. Void in tonnes was then converted into annual capacities using 2010 (or 2009 if 2010 data was not available) tipping rates from EA returns.

Research into similar factors used by established governmental bodies or research institutes did not reveal a consistent methodology in this area, with figures of 0.8 to 1.0 tonnes per cubic metre commonly used. The figure 0.85 is recommended by the PPS10 Companion Guide.

3.2.2 North East Regional Capacities

Landfill

Environment Agency summary data for 2010 shows a regional landfill capacity of some 42.6 million tonnes, with the most significant holdings in Tees Valley and Tyne and Wear.

Landfill Type	Sub-Region				Total for North East England
	Durham	Northumberland	Tees Valley Authorities	Tyne & Wear	
Hazardous Merchant	0	0	6,892	0	**6,892**
Hazardous Restricted	0	0	0	0	**0**
Non Hazardous with SNRHW cell	2,934	1,252	2,589	0	**6,774**
Non Hazardous	1,926	374	5,594	9,245	**17,140**
Non Hazardous Restricted	0	0	0	0	**0**
Inert	5,891	3,000	0	2,943	**11,834**
Total	**10,751**	**4,626**	**15,075**	**12,188**	**42,640**

Figure 12: Landfill Capacity in the North East England 2010 (thousands of cubic metres)

Source: Environment Agency (Permitting data) Note: SNRHW Stable Non-Reactive Hazardous Waste

Using these figures, there is therefore approximately ten years remaining capacity of non-hazardous landfill remaining in North East England.

	Durham	Northumberland	Tees Valley Authorities	Tyne & Wear	Total for North East England
Hazardous	0	0	65	0	65
Non-Hazardous	30	4	10	10	10
Inert	12	96	0	13	16

Figure 13: Remaining landfill void in North East England in years, based on Environment Agency landfill void space and landfill annual inputs 2010

It can be seen from the graph below, that historically there has been ample non-hazardous landfill capacity in North East England. This situation is now changing and additional permissions will need to be granted for non-hazardous landfill if the current pattern of waste management activity is to continue unchanged.

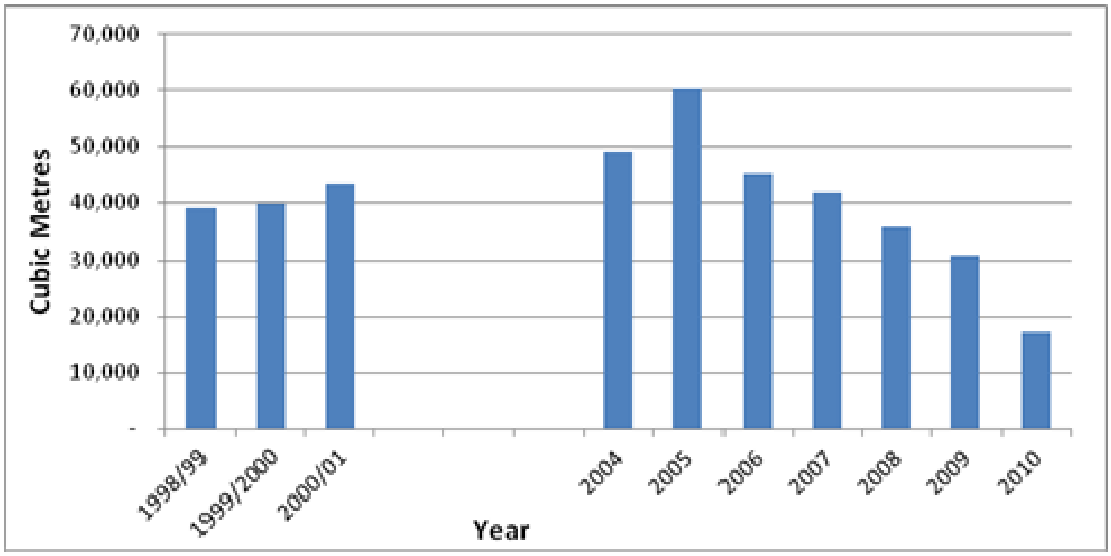


Figure 14: Non-hazardous landfill capacity in North East England from 1998/99 to 2010 (in thousands of cubic metres)

Source: Environment Agency

Major landfills within North East England, which have been included in this analysis, include:

WPA Area	Landfill	Calculated End Date (*)
County Durham	Joint Stocks Coxhoe	
County Durham	Aycliffe East	
Gateshead	Blaydon Quarry Landfill Site	2026
Gateshead	Path Head Landfill Site	2017
Northumberland	Ellington Road Landfill Site	>2030
Northumberland	Seghill Landfill Site	2012
Sunderland	Houghton Quarry Landfill Site	2029 (2012 without extension)
Tees Valley	Teesport - No 2	2025
Tees Valley	Cowpen Bewley Landfill Site	2020
Tees Valley	Port Clarence Landfill	2016
Tees Valley	Seaton Meadows Landfill	>2030

(*) Calculated from supplied remaining void figures, using 0.85 to convert from m^3 to tonnes (see later notes)

Figure 15: Key Landfills in the Study Area

Energy from Waste

The Haverton Hill complex of energy recovery facilities, which is located in Stockton on Tees in the Tees Valley area and operated by SITA, represent regionally significant facilities with capacities available for Local Authority Collected Waste recovery from the Tees Valley authorities (with the exception of Darlington), Northumberland, the South Tyne and Wear Authorities (South Tyneside, Gateshead and Sunderland) and North Tyneside. This is one of the reasons why Tees Valley arisings and facilities have been included in the analysis although they are not directly involved in this study.

Other specialist incineration capacity within North East England has not been included in this analysis (e.g. the wood waste energy recovery facility at Wilton) as the source data is of insufficient detail to isolate arisings for such material streams. Insufficient data is available on agricultural sources such as forestry wastes, such specialist facilities rely on significant imports from other parts of the UK.

3.2.3 Key Facilities (for the Study)

From the full list of facilities supplied by the WPAs and the EA, a list of locally and regionally significant sites was generated upon which the capacity gap analysis was based. Based on the life expectancy of individual facilities (either calculated from residual void space or expected construction dates), this data was developed in to a forecast capacity per year from 2011 to 2030, to match the arisings forecasts.

The forecasts and capacities generated are summarised in appendix 1.

4 Capacity Gap Analysis

By direct comparison of forecast arisings and capacities data, areas of under or over capacity were identified, on both a WPA and a regional basis. The results of this modelling and analysis are given in detail in the appendices of this report, for the individual WPA areas, for North East England, and the Tyne and Wear sub-region.

These comparisons were carried out using the baseline data as supplied and modelled, with a number of developed scenarios which may have an impact on future arisings and future waste management capacity requirements.

4.1 Baseline Case and Developed Scenarios

The arisings and capacity requirement figures were produced for each WPA area using the following assumptions and developed scenarios:

4.1.1 Baseline Case

These figures took the arisings figures supplied by the WPA in question or derived from the North East Commercial and Industrial Waste Arisings Survey and applied growth factors as previously described. The baseline figures therefore assume no change from the baseline data i.e. no change in recycling rates or landfill diversion from the data supplied.

However, it is likely in reality that both LACW and C&I recycling and recovery rates will increase in the next few years, driven by increases in landfill tax. These increases were therefore modelled into four scenarios:

4.1.2 Increased Recycling

Scenario 1: LACW Recycling Rates of 45% by 2015, 50% by 2020.

Arisings forecasts were modified to reflect recycling rates of 45% by 2015, 50% by 2020. For these calculations, recycling rates were taken as the sum of recycling and composting volumes (including re-use and anaerobic digestion treatment) as a % of the total LACW waste arisings, and it was assumed that any increase in recycling was reflected in a reduction in landfilled volumes rather than any other residual waste treatment technology. These targets are used within North East England as well as nationally. The impact this had on forecast arisings varied depending upon the recycling starting point of the data supplied per WPA area as these targets were already built into baseline forecasts in some WPA areas.

The LATS regime for local authorities terminates at the end of 2013/14. There has been no indication from the Government regarding revisions to diversion targets to

accommodate commercial and industrial waste since it does not appear to be perceived as a long-term issue. There is an acknowledgement that the effect of landfill tax rising by £8 per year has taken over from LATS as the primary driver for diversion. National Performance Indicators have now been removed for waste although they continue in practice, as all local authorities use them as a benchmark and reference tool. However, there are no specific targets deriving from the National Indicators, other than to meet the 50% recycling target by 2020 as detailed in the EU Waste Framework Directive.

This target will apply to "municipal waste" in accordance with the new definition, which in practice is likely to mean all mixed wastes. However, Government has not yet identified a system for monitoring this target.

The arisings forecasts for commercial and industrial waste for each WPA area are based upon the results of the recent regional commercial and industrial waste arisings survey and apply a range of economic forecast growth figures to generate forecasts for 2011 to 2030. These assume a constant recycling rate of around 50% and a landfill diversion rate of round 62%

It is anticipated that as landfill tax continues to increase, so will recycling rate although the financial viability of incremental changes in recycling and markets for the material recycled will be a restraining factor.

English national C&I waste surveys in the last 14 years have shown incremental increases in recycling rate between surveys as summarised below:

	1998-99	2002-3	2009
Land disposal	46.8%	40.8%	23.5%
Land recovery	2.1%	2.4%	4.5%
Re-used	5.9%	9.0%	2.8%
Recycled & Composted	**30.1%**	**33.2%**	**49.2%**
Thermal	2.2%	3.7%	5.7%
Transfer	1.9%	2.1%	1.7%
Treatment	5.8%	3.8%	4.8%
Unrecorded	5.3%	5.0%	7.7%
	100.0%	100.0%	100.0%

Figure 16: Commercial and industrial waste arisings in England by waste management route (as % of total waste arisings)

England does not have statutory C&I recycling targets. However, the Welsh Assembly has a target for C&I recycling of 70% by 2025. We have, therefore, used this target and a mid-point of 60% to gauge the impact of increased C&I recycling on waste management requirements in North East England. Note these are two separate recycling scenarios and not two points on a progressive increase in recycling over time.

Therefore, two additional scenarios were developed:

Scenario 2: As scenario 1 but with C&I recycling at 60% by 2025.

Scenario 3: As scenario 1 but with C&I recycling at 70% by 2025.

These scenarios also assumed preferential diversion from landfill for recycling and composting, and calculated the recycling rate as the quantities of material sent for recycling, re-use, composting and anaerobic digestion, as a proportion of the total waste arisings.

The impact on arisings was modelled using these 3 increased recycling scenarios and the impact on free capacity within the region and individual WPAs assessed.

4.1.3 Increased Landfill Diversion

Increases in recycling rates assume drivers in terms of both landfill tax increases and local authority recycling targets. For C&I waste, there are no such recycling targets, any diversion from landfill fuelled by increases in landfill tax, is just as likely to increase the use of residual waste recovery technologies as well as increased recycling. To assess this impact, a fourth scenario was developed, taking the scenario 1 estimates for LACW arisings (i.e. recycling rates of 45% by 2015, 50% by 2020) and for C&I wastes a 75% landfill diversion rate by 2020 (i.e. no change in C&I recycling rates from baseline), ie analogous to the national strategy target of 75% landfill diversion target for municipal waste.

Scenario 4: As scenario 1 but with C&I landfill diversion at 75% by 2020

These calculations assumed diversion of waste from landfill to energy recovery, although it is acknowledged that there are other technologies for residual waste recovery and treatment too.

For all these scenarios, capacity gap analysis was performed for each WPA and conclusions developed. These are reported later in this report.

5 Analysis and Conclusions

5.1 By Waste Type

5.1.1 Recyclates

Recyclate volumes were obtained from the baseline forecasts and from three scenarios where increased recycling rates were used. A considerable volume of waste material generated in North East England is already recycled.

Baseline forecasts for both recycling from municipal and commercial and industrial waste (C&I) sources, summarised in tables Figure 21 and Figure 22, show that currently some 900,000 tonnes of C&I waste and 371,000 tonnes of municipal waste is recycled. Note that for C&I wastes, recycling tonnages overall decline over the forecast period; this is due to a decline in overall arisings attributed to a forecast decline in industrial activities in the WPA areas as previously described. Applying the increased recycling scenarios described above, increasing LACW recycling to 50% by 2020 increases the regional arisings to 577,000 tonnes (scenario 1) and C&I recycling to 70% by 2020 (scenario 3) to 1.14 million tonnes (shown in tables in Figure 23 and Figure 25).

How does this compare to current recycling capacities?

Assessing the required capacities for recycling within North East England and each WPA area is not easy with the current data available. As highlighted by the diagram below, much of the recyclate segregated by both local authorities and businesses for recycling, are transported directly to the recycler. The lack of obligation for such facilities to report input data means that the amount of waste which is recycled by this route cannot be accurately determined.

This situation is the same for mixed recyclates. Although WasteDataFlow for municipal waste reporting does contain some data on recyclates collected mixed at the kerbside, the C&I survey data does not have this level of detail. Therefore, the available data is not sufficient at this time to determine a comprehensive required capacity or capacity gaps for this type of facility.

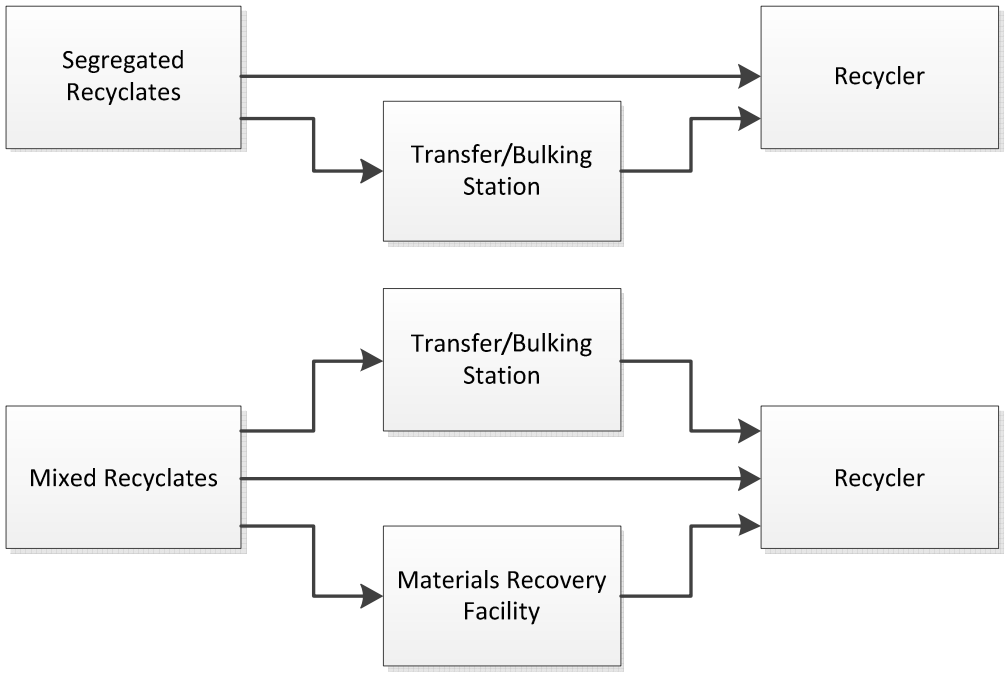


Figure 17: Routes of Recycling

Recycling from Mixed Recyclate and Mixed Waste Streams

It is clear that both transfer stations and material recycling facilities (MRFs) have an important role to play in separating materials for recycling.

From the capacity data supplied, there is significant MRF volume in North East England, with typical facilities operated by waste management companies or skip companies. In the C&I survey data, recorded destinations (fate) were recorded as final destination. Therefore, all materials going to MRFs would be entered as 'recycling' as would material going directly from the waste producer to the waste recycler. This is one reason why the level of detail in the C&I forecasts is not sufficient to accurately predict recycling capacities required to deal with mixed recyclate streams.

MRF Capacity	Non-Operational	Operational	Total
County Durham	114,000	590,000	704,000
Northumberland	283,000	283,000	566,000
South Tyneside	24,000	165,500	189,500
Sunderland	6,900	629,998	636,898
Totals	427,900	1,668,498	2,096,398

Figure 18: Material Recycling Facility capacity in the study WPA areas, from individual site data (source WPAs, EA)

The delineation between facilities described as MRFs and transfer stations is getting increasingly confused, as transfer station operators often separate recyclate materials for recycling from their input streams, rather than just bulking for transport to other facilities.

Based upon the individual site data supplied by the WPAs and the EA, there is considerable transfer station capacity within the WPA areas involved in this study – some 4.4 million tonnes of operational capacity (classified by the Environment Agency as "A11 – household, commercial and industrial waste transfer stations" and excluding household waste recycling centres (HWRCs)).

Non Hazardous Waste Transfer Station Capacity	Non-Operational	Operational	Total
County Durham LACW	0	411,499	411,499
County Durham C&I	15,000	439,935	454,935
Gateshead	605,637	605,637	1,211,274
Newcastle	184,675	184,675	369,350
North Tyneside	87600	457119	544,719
Northumberland	189,870	189,870	379,740
South Tyneside	0	110,000	110,000
Sunderland	0	1,977,453	1,977,453
Total	1,082,782	4,376,188	5,458,970

Figure 19: Waste Transfer Station capacity in the study WPA areas, from individual site data (source WPAs, EA)

To estimate the potential recycling capacity of waste transfer stations (WTS) the following top level assumptions have been made:

- 10% of material handled by each WTS is from C&I sources
- Recycling rates from this waste of 30% and 70% have been modelled as below:

WPA Area	Capacity	As LACW	As C&I	30 % Recycling		70% recycling	
				LACW	C&I	LACW	C&I
County Durham LACW	411,499	370,349	41,150	111,105	12,345	259,244	28,805
County Durham C&I	439,935		439,935		131,981		307,955
Gateshead	605,637	545,073	60,564	163,522	18,169	381,551	42,395
Newcastle	184,675	166,208	18,468	49,862	5,540	116,345	12,927
North Tyneside	457,119	411,407	45,712	123,422	13,714	287,985	31,998
Northumberland	189,870	170,883	18,987	51,265	5,696	119,618	13,291
South Tyneside	110,000	99,000	11,000	29,700	3,300	69,300	7,700
Sunderland	1,977,453	1,779,708	197,745	533,912	59,324	1,245,795	138,422
Total	**4,376,188**	**3,542,628**	**833,560**	**1,062,788**	**250,068**	**2,479,839**	**583,492**

Figure 20: Potential Recycling Capacities - Waste Transfer Stations

Environment Agency reporting does adequately cover one type of recycling and recycler in the aggregation of returns from metal recyclers and scrap yards, particularly associated with the recycling of metals from vehicle dismantling and disposal. However, as the data available from the C&I survey did not focus on end-of-life vehicle (ELV) processing in particular, the level of confidence of the ELV arisings data collected in the survey is such that adequate arisings estimates and comparisons to capacity cannot be made.

Year	County Durham	Gateshead	Newcastle	North Tyneside	Northumberland	South Tyneside	Sunderland	North East England (inc Tees Valley)
2011	68,443	25,361	44,421	31,418	58,567	19,508	34,350	371,055
2012	80,115	26,589	45,843	31,620	64,123	20,664	36,292	397,236
2013	85,091	27,854	47,264	31,637	64,806	22,119	38,271	412,035
2014	86,773	30,432	48,686	31,654	67,175	25,059	43,421	431,196
2015	88,437	31,060	50,107	31,671	67,891	25,360	44,536	440,061
2016	90,074	31,672	50,245	31,688	68,614	25,772	45,670	447,737
2017	91,724	32,271	50,382	31,705	72,811	26,182	46,824	458,913
2018	93,387	32,888	50,520	31,722	73,587	26,579	47,997	466,704
2019	95,063	33,496	50,657	31,740	74,370	26,966	49,322	474,651
2020	96,752	33,727	50,795	31,758	75,162	27,210	49,975	481,425
2021	97,286	34,018	51,049	31,961	75,963	27,404	50,633	487,371
2022	97,820	34,140	51,303	32,166	76,772	27,467	51,041	492,777
2023	98,354	34,263	51,557	32,372	77,589	27,530	51,449	498,193
2024	98,888	34,385	51,811	32,579	80,281	27,594	51,772	505,400
2025	99,422	34,507	52,065	32,787	81,136	27,657	52,095	510,771
2026	99,956	34,629	52,368	32,997	81,999	27,720	52,419	516,201
2027	100,490	34,751	52,671	33,208	84,799	27,784	52,742	523,569
2028	101,024	34,874	52,974	33,421	85,702	27,847	53,065	529,041
2029	101,558	35,171	53,277	33,635	86,614	28,037	53,655	535,092
2030	102,092	35,470	53,579	33,850	89,525	28,228	54,250	543,151

Figure 21: Baseline recyclate from local authority collected waste forecasts (tonnes)

Year	County Durham	Gateshead	Newcastle	North Tyneside	Northumberland	South Tyneside	Sunderland	North East England (inc Tees Valley)
2011	156,694	109,944	96,998	67,196	85,805	29,182	85,789	901,085
2012	155,161	109,099	96,283	66,805	85,154	29,461	85,515	896,356
2013	154,656	107,293	96,962	64,787	84,684	29,860	84,878	885,541
2014	155,373	107,439	97,441	65,078	85,151	30,201	85,500	889,953
2015	154,172	105,991	97,217	64,961	84,837	30,434	85,604	885,074
2016	154,189	105,728	98,389	64,920	84,803	30,565	85,491	884,375
2017	152,499	104,478	98,373	64,586	84,190	30,822	84,983	878,238
2018	152,907	104,563	98,926	64,720	84,458	31,103	85,286	880,876
2019	152,024	103,899	99,448	64,438	83,985	31,317	84,454	874,147
2020	148,646	100,133	99,740	61,757	82,274	31,578	83,520	857,194
2021	149,032	100,137	100,222	61,190	81,832	31,824	83,172	854,785
2022	145,937	100,141	99,992	60,639	81,407	32,075	82,843	848,310
2023	145,174	100,144	100,197	60,103	81,000	32,333	82,531	844,725
2024	144,453	100,148	100,228	59,583	80,609	32,596	82,237	841,131
2025	142,623	100,152	100,653	59,078	80,234	32,866	81,960	836,940
2026	142,847	100,155	101,114	58,587	79,875	33,142	81,700	834,957
2027	142,242	100,159	101,682	58,111	79,533	33,425	81,456	832,367
2028	142,371	100,163	101,713	57,649	79,205	33,714	81,229	830,088
2029	142,636	100,167	102,168	57,201	78,893	34,010	81,017	828,479
2030	141,512	100,170	102,851	56,767	78,595	34,313	80,821	825,818

Figure 22: Baseline forecast recyclate from commercial and industrial waste Sources in tonnes (assuming no increase in recycling rate)

Year	County Durham	Gateshead	Newcastle	North Tyneside	Northumberland	South Tyneside	Sunderland	North East England (inc Tees Valley)
2011	69,303	24,077	43,000	31,217	44,574	18,601	32,444	371,055
2012	68,443	25,403	44,421	32,550	58,567	19,829	34,350	397,236
2013	80,115	27,113	45,843	33,622	62,890	21,734	37,055	395,320
2014	85,091	28,015	47,264	34,915	67,299	23,092	38,420	420,621
2015	86,773	29,478	48,686	36,855	71,794	24,444	43,421	448,554
2016	88,437	31,106	50,107	38,794	76,377	26,126	44,536	477,343
2017	90,074	31,850	50,245	39,656	78,906	26,744	45,670	490,777
2018	91,724	32,579	50,921	40,518	81,479	27,354	46,824	503,790
2019	93,387	33,317	52,242	41,381	84,099	27,945	47,997	515,920
2020	95,063	33,811	53,574	42,243	86,765	28,362	49,322	530,163
2021	96,752	34,716	54,915	43,105	89,479	29,177	49,975	544,815
2022	97,286	34,987	55,189	43,381	90,431	29,363	50,633	548,148
2023	97,820	35,101	55,464	43,658	91,394	29,426	51,041	551,493
2024	98,354	35,215	55,739	43,938	92,367	29,489	51,449	555,103
2025	98,888	35,329	56,013	44,219	93,350	29,552	51,772	558,401
2026	99,422	35,443	56,288	44,502	94,344	29,614	52,095	561,764
2027	99,956	35,556	56,616	44,787	95,348	29,677	52,419	565,469
2028	100,490	35,670	56,943	45,073	96,363	29,740	52,742	568,860
2029	101,024	35,784	57,271	45,362	97,389	29,802	53,065	572,786
2030	101,558	36,061	57,598	45,652	98,425	29,987	53,655	577,067

Figure 23: Increased recyclate from local authority collected waste forecasts (tonnes) – scenario 1 45% recycling in 2015, 50% in 2020

(Scenario 1 LACW recyclate volumes and baseline C&I volumes same for scenario 4)

Year	County Durham	Gateshead	Newcastle	North Tyneside	Northumberland	South Tyneside	Sunderland	North East England (inc Tees Valley)
2011	158,624	111,230	98,196	68,739	86,866	29,416	86,388	912,206
2012	158,981	111,652	98,660	69,873	87,261	29,934	86,710	918,395
2013	160,368	111,058	100,553	69,250	87,826	30,579	86,658	918,003
2014	163,024	112,466	102,254	71,056	89,365	31,170	87,890	933,500
2015	163,662	112,189	103,219	72,420	90,084	31,655	88,596	939,279
2016	165,579	113,148	105,678	73,865	91,098	32,036	89,076	949,449
2017	165,641	113,032	106,875	74,968	91,480	32,552	89,141	953,670
2018	167,966	114,348	108,698	76,610	92,816	33,099	90,055	967,353
2019	168,869	114,836	110,500	77,756	93,335	33,578	89,767	970,805
2020	166,945	111,846	112,055	75,939	92,452	34,112	89,357	962,168
2021	169,214	113,021	113,834	76,647	92,967	34,632	89,567	969,919
2022	167,497	114,196	114,808	77,349	93,491	35,163	89,791	972,938
2023	168,408	115,372	116,280	78,046	94,025	35,705	90,030	979,152
2024	169,350	116,548	117,554	78,739	94,568	36,257	90,284	985,265
2025	168,559	117,143	119,309	81,402	95,280	36,821	90,449	987,836
2026	168,823	117,147	119,856	80,726	94,854	37,100	90,162	985,435
2027	168,108	117,152	120,529	80,070	94,447	37,416	89,893	982,317
2028	168,261	117,156	120,566	79,433	94,058	37,740	89,642	979,564
2029	168,575	117,160	121,105	78,816	93,687	38,071	89,408	977,606
2030	167,246	117,165	121,914	78,217	93,334	38,410	89,192	974,404

Figure 24: Increased recyclate from commercial and industrial waste Sources in tonnes – scenario 2 60% recycling by 2025

Year	County Durham	Gateshead	Newcastle	North Tyneside	Northumberland	South Tyneside	Sunderland	North East England (inc Tees Valley)
2011	160,645	112,687	99,470	69,974	87,995	29,776	87,430	923,826
2012	162,985	114,544	101,190	72,327	89,502	30,659	88,787	941,513
2013	166,354	115,324	104,375	72,821	91,170	31,682	89,749	952,254
2014	171,042	118,163	107,374	75,838	93,848	32,657	92,042	979,394
2015	173,607	119,214	109,605	78,388	95,667	33,529	93,792	996,333
2016	177,515	121,557	113,433	81,021	97,795	34,294	95,303	1,017,862
2017	179,414	122,727	115,922	83,274	99,236	35,209	96,362	1,032,931
2018	183,748	125,437	119,095	86,122	101,709	36,163	98,337	1,058,208
2019	186,521	127,232	122,258	88,411	103,284	37,048	98,994	1,072,244
2020	186,123	125,119	125,158	87,285	103,280	38,000	99,496	1,072,652
2021	190,364	127,623	128,317	89,013	104,814	38,943	100,673	1,091,102
2022	190,091	130,126	130,571	90,718	106,349	39,903	101,859	1,104,128
2023	192,757	132,630	133,393	92,401	107,884	40,881	103,055	1,120,665
2024	195,442	135,134	135,988	94,064	109,422	41,877	104,260	1,137,005
2025	196,562	136,667	139,130	94,969	111,160	42,922	105,477	1,152,340
2026	196,960	136,672	139,832	94,180	110,664	43,283	105,189	1,149,674
2027	196,126	136,677	140,617	93,415	110,189	43,652	104,875	1,146,037
2028	196,305	136,682	140,660	92,672	109,735	44,030	104,582	1,142,825
2029	196,670	136,687	141,289	91,952	109,302	44,416	104,310	1,140,540
2030	195,121	136,692	142,232	91,254	108,890	44,812	104,057	1,136,804

Figure 25: Increased recyclate from commercial and industrial waste Sources in tonnes – scenario 3 70% recycling by 2025

5.1.2 Organic Waste

Similarly, segregated organic waste forecasts (e.g. vegetation from gardens and food waste) were compared to available capacities over the 2011 to 2030 forecast period, using baseline forecasts and the three scenarios with increased recycling.

These results again are presented at a WPA and regional level in the appendices.

Baseline forecasts consisted of material sent for composting (windrow composting and in-vessel composting), anaerobic digestion and land spread. These forecasts show composted organic arisings for composting to be around 152,000 tonnes from LACW sources and 192,000 tonnes from commercial and industrial sources as shown in tables in Figure 27 and Figure 28. Baseline forecasts show LACW arisings to potentially reach 250,000 tonnes per annum by 2030, and C&I waste decreasing slightly to 170,000 tonnes.

Forecasts based upon increased recycling scenarios show this requirement could be as high as 266,000 tonnes per annum LACW and 232,000 tonnes per annum C&I waste by 2030.

The majority of LACW collected organic wastes at present is garden and similar waste collected for windrow composting. The capture of such materials from kerbside collections and household waste recovery centres is considered to be relatively high. In the future, increases in capture of organic materials are likely to focus on food waste collection to minimise the volume of biodegradable waste being sent to landfill.

A Review of Municipal Waste Component Analyses published by Defra in 2009, estimated municipal waste in 2006-7 to consist of 17.8% food wastes and 15.8% garden and other organic wastes.

The collection of organic materials from commercial and industrial waste producers can be ascertained from the data collected by the regional survey undertaken by Urban Mines in 2010. This showed of the identified organic wastes, 57% was described as “animal waste of food preparation and products” coming mainly from food manufacturers, hotels and catering, and office based businesses, and 43% as “other animal and vegetable waste”.

Applying these ratios to likely demand at high recycling rates (i.e. figures generated using scenario 3) for both LACW and C&I sourced wastes, gave estimates of (in tonnes x 1,000):

	2015	2020	2025	2030
Food Wastes	238	273	273	273
Garden & other wastes	194	224	224	225

Figure 26: Estimated annual Organic Waste arisings for recycling, in tonnes x 1,000, for North East England 2015 to 2030

Comparison to Available Capacities

The capacity of key sites in North East England for organic waste recycling, amount to 599,000 tonnes per annum. Of this capacity, some 152,000 tonnes per annum is anaerobic digestion (AD), the rest (272,000 tonnes per annum) windrow and in-vessel composting.

Comparison of overall demand figures suggests a capacity surplus of around 100,000-178,000tpa throughout the forecast period.

Using the estimated proportions of individual waste types suggests:

- Sufficient windrow composting capacity to meet demand to 2030, even with increased recycling rates
- A shortfall in AD capacity (assuming this is the preferred technology for food waste recycling) of 86,000 tpa to 121,000 tpa.

These figures are presented in detail in appendix 1.2.4 and the figures presented for each individual WPA.

Although there appears to be sufficient compost capacity within North East England, capacity is concentrated in County Durham and Northumberland, hence potentially distant from the main population areas.

Year	County Durham	Gateshead	Newcastle	North Tyneside	Northumberland	South Tyneside	Sunderland	North East England (inc Tees Valley)
2011	28,635	11,540	22,686	7,208	13,469	8,139	15,209	152,727
2012	33,519	12,054	23,372	7,255	14,747	8,691	16,721	163,746
2013	35,601	13,821	24,059	7,258	14,904	10,171	20,674	175,423
2014	36,304	16,523	24,745	7,262	15,449	12,634	27,376	190,775
2015	37,000	17,198	25,431	7,266	15,613	13,154	28,647	196,340
2016	37,685	17,880	25,431	7,270	15,779	13,751	29,964	201,339
2017	38,376	18,573	25,431	7,274	16,745	14,365	31,328	207,220
2018	39,072	19,292	25,431	7,278	16,923	14,991	32,739	212,406
2019	39,773	20,399	25,431	7,282	17,103	15,875	34,933	219,026
2020	40,479	20,539	25,431	7,286	17,285	16,024	35,417	222,243
2021	40,703	20,716	25,558	7,333	17,469	16,142	35,904	225,158
2022	40,926	20,790	25,685	7,380	17,655	16,180	36,215	227,715
2023	41,149	20,864	25,812	7,427	17,843	16,219	36,525	230,275
2024	41,373	20,938	25,940	7,474	18,463	16,257	36,771	233,201
2025	41,596	21,012	26,067	7,522	18,659	16,295	37,017	235,705
2026	41,820	21,086	26,218	7,570	18,858	16,333	37,263	238,236
2027	42,043	21,160	26,370	7,619	19,502	16,372	37,509	241,213
2028	42,266	21,234	26,522	7,668	19,709	16,410	37,755	243,754
2029	42,490	21,415	26,674	7,717	19,919	16,530	38,190	246,676
2030	42,713	21,597	26,825	7,766	20,589	16,652	38,630	250,063

Figure 27: Baseline composting from local authority collected waste sources in tonnes (assuming no increase in recycling rate)

Year	County Durham	Gateshead	Newcastle	North Tyneside	Northumberland	South Tyneside	Sunderland	Region (inc Tees Valley)
2011	38,087	17,103	5,048	20,618	20,594	1,318	11,197	191,768
2012	37,714	16,971	5,011	20,498	20,438	1,330	11,162	190,754
2013	37,591	16,690	5,046	19,879	20,325	1,348	11,079	187,724
2014	37,766	16,713	5,071	19,968	20,437	1,364	11,160	188,634
2015	37,474	16,488	5,059	19,932	20,362	1,374	11,173	187,465
2016	37,478	16,447	5,120	19,920	20,354	1,380	11,158	187,008
2017	37,067	16,252	5,119	19,817	20,207	1,392	11,092	185,525
2018	37,166	16,266	5,148	19,858	20,271	1,404	11,132	185,998
2019	36,952	16,162	5,175	19,772	20,158	1,414	11,023	184,158
2020	36,131	15,576	5,190	18,949	19,747	1,426	10,901	179,969
2021	36,224	15,577	5,216	18,775	19,641	1,437	10,856	179,148
2022	35,472	15,578	5,204	18,606	19,539	1,448	10,813	177,475
2023	35,287	15,578	5,214	18,442	19,441	1,460	10,772	176,423
2024	35,112	15,579	5,216	18,282	19,347	1,472	10,734	175,402
2025	34,667	15,579	5,238	18,127	19,257	1,484	10,698	174,162
2026	34,721	15,580	5,262	17,977	19,171	1,497	10,664	173,452
2027	34,574	15,580	5,292	17,831	19,089	1,509	10,632	172,575
2028	34,606	15,581	5,293	17,689	19,010	1,522	10,602	171,876
2029	34,670	15,582	5,317	17,551	18,935	1,536	10,575	171,260
2030	34,397	15,582	5,352	17,418	18,864	1,549	10,549	170,345

Figure 28: Baseline composting from commercial and industrial waste sources in tonnes (assuming no increase in recycling rate)

Year	County Durham	Gateshead	Newcastle	North Tyneside	Northumberland	South Tyneside	Sunderland	North East England (inc Tees Valley)
2011	28,635	11,559	22,686	7,468	13,469	8,273	15,209	152,727
2012	33,519	12,292	23,372	7,714	14,463	9,141	17,072	163,809
2013	35,601	13,900	24,059	8,010	15,477	10,619	20,755	179,527
2014	36,304	16,005	24,745	8,455	16,511	12,324	27,376	197,727
2015	37,000	17,223	25,431	8,900	17,565	13,552	28,647	211,902
2016	37,685	17,981	25,431	9,098	18,146	14,270	29,964	219,422
2017	38,376	18,750	25,703	9,296	18,738	15,008	31,328	226,425
2018	39,072	19,544	26,298	9,494	19,341	15,762	32,739	234,163
2019	39,773	20,590	26,895	9,692	19,954	16,697	34,933	243,030
2020	40,479	21,141	27,494	9,889	20,578	17,182	35,417	249,737
2021	40,703	21,306	27,631	9,953	20,797	17,296	35,904	251,696
2022	40,926	21,375	27,769	10,016	21,018	17,334	36,215	253,302
2023	41,149	21,444	27,906	10,080	21,242	17,372	36,525	254,911
2024	41,373	21,513	28,044	10,145	21,468	17,410	36,771	256,135
2025	41,596	21,582	28,181	10,210	21,697	17,448	37,017	257,685
2026	41,820	21,651	28,345	10,275	21,928	17,486	37,263	259,264
2027	42,043	21,720	28,509	10,341	22,161	17,524	37,509	260,517
2028	42,266	21,789	28,673	10,407	22,397	17,562	37,755	262,100
2029	42,490	21,957	28,837	10,474	22,635	17,680	38,190	264,053
2030	42,713	22,126	29,001	10,541	22,876	17,799	38,630	265,678

Figure 29: Increased composting from local authority collected waste forecasts (tonnes) – scenario 1 45% recycling in 2015, 50% in 2020

(Scenario 1 LACW recyclate volumes and baseline C&I volumes same for scenario 4)

Year	County Durham	Gateshead	Newcastle	North Tyneside	Northumberland	South Tyneside	Sunderland	North East England (inc Tees Valley)
2011	38,568	17,314	5,036	20,806	20,842	1,339	11,280	194,103
2012	38,556	17,303	5,110	21,092	20,849	1,328	11,276	194,134
2013	38,643	17,368	5,134	21,439	20,944	1,352	11,318	195,444
2014	38,980	17,276	5,233	21,248	21,079	1,381	11,311	194,606
2015	39,625	17,495	5,321	21,802	21,449	1,408	11,472	197,864
2016	39,780	17,452	5,372	22,221	21,621	1,429	11,564	198,947
2017	40,246	17,601	5,499	22,664	21,865	1,447	11,626	200,768
2018	40,262	17,583	5,562	23,003	21,956	1,470	11,635	201,460
2019	40,827	17,788	5,657	23,507	22,277	1,495	11,754	204,258
2020	41,046	17,864	5,750	23,858	22,402	1,516	11,717	204,521
2021	40,579	17,398	5,831	23,301	22,190	1,540	11,663	202,009
2022	41,130	17,581	5,924	23,518	22,313	1,564	11,690	203,278
2023	40,713	17,764	5,975	23,733	22,439	1,588	11,720	203,549
2024	40,934	17,947	6,051	23,947	22,567	1,612	11,751	204,498
2025	41,163	18,130	6,117	24,160	22,698	1,637	11,784	205,458
2026	40,971	18,222	6,209	24,977	22,868	1,663	11,806	205,562
2027	41,035	18,223	6,237	24,769	22,766	1,675	11,768	204,712
2028	40,861	18,224	6,272	24,568	22,669	1,690	11,733	203,664
2029	40,899	18,224	6,274	24,373	22,575	1,704	11,700	202,826
2030	40,975	18,225	6,302	24,183	22,486	1,719	11,670	202,086

Figure 30: Increased composting from commercial and industrial waste sources in tonnes – scenario 2 60% recycling by 2025

Year	County Durham	Gateshead	Newcastle	North Tyneside	Northumberland	South Tyneside	Sunderland	North East England (inc Tees Valley)
2011	38,568	17,314	5,036	20,806	20,842	1,339	11,280	194,103
2012	39,047	17,529	5,176	21,470	21,120	1,345	11,412	196,607
2013	39,616	17,818	5,266	22,193	21,482	1,384	11,589	200,364
2014	40,435	17,940	5,432	22,344	21,882	1,431	11,714	201,867
2015	41,574	18,381	5,588	23,270	22,525	1,475	12,014	207,591
2016	42,198	18,545	5,704	24,052	22,961	1,514	12,242	211,031
2017	43,148	18,909	5,903	24,860	23,472	1,549	12,439	215,234
2018	43,609	19,091	6,033	25,551	23,818	1,590	12,577	218,203
2019	44,663	19,513	6,198	26,425	24,411	1,633	12,835	223,442
2020	45,337	19,792	6,362	27,128	24,789	1,673	12,921	225,892
2021	45,240	19,463	6,513	26,782	24,789	1,716	12,986	225,205
2022	46,271	19,853	6,678	27,312	25,157	1,759	13,140	228,676
2023	46,205	20,242	6,795	27,835	25,525	1,802	13,295	230,995
2024	46,853	20,631	6,942	28,352	25,894	1,846	13,451	234,053
2025	47,505	21,021	7,077	28,862	26,263	1,891	13,608	237,101
2026	47,777	21,259	7,240	29,140	26,680	1,938	13,767	239,794
2027	47,874	21,260	7,277	28,898	26,561	1,955	13,730	238,830
2028	47,672	21,261	7,318	28,663	26,447	1,971	13,689	237,608
2029	47,715	21,262	7,320	28,435	26,338	1,988	13,650	236,631
2030	47,804	21,263	7,353	28,214	26,234	2,006	13,615	235,768

Figure 31: Increased composting from commercial and industrial waste sources in tonnes – scenario 3 70% recycling by 2025

5.1.3 Non-Hazardous Residual Waste

Based on the baseline arisings forecasts and the four scenarios described earlier, calculated residual waste quantities per year for 2011 to 2030 were generated and compared to forecast residual waste capacities for each individual WPA, the Tyne and Wear sub-region and North East England.

This focussed on three main facility types:

- Landfill
- Energy Recovery
- Other technologies e.g. mechanical biological treatment (MBT), autoclave etc.

The results of this modelling, plus the conclusions developed from analysis of the results, are described per WPA in the appendix.

Note that for all of the increased recycling scenarios (note in terms of recycling rates these are taken to include the recycling of dry recyclates such as metals and plastics, and the composting of organic wastes such as garden waste and food waste), it was assumed that recycling would displace landfill first, followed by energy recovery if landfill quantities reduced to zero. It is recognised that there are other alternative technologies for the recovery or treatment of residual waste, but to simplify outputs energy recovery was highlighted in this case. Increases in the recycled volume are distributed between recycling, reuse, and composting in the same ratio as these activities already occurred.

5.1.4 Hazardous Waste

Summary data from the Environment Agency for 2010, shows 6,892,000 tonnes capacity of hazardous landfill within North East England, all within Tees Valley. This compares to an input of 68,788 tonnes in 2010 from all over the UK as well as North East England, suggesting a 100 year capacity availability.

Study of the waste types disposed of and treated within North East England in 2010 shows a complex range of materials, reflecting not only the management of typical hazardous wastes, but also specialist wastes associated with the considerable chemical industry in Tees Valley in particular. The main waste types that require management are organic chemicals, oil and oil/water mixtures, hazardous waste from the construction industry including asbestos and waste water.

Hazardous waste forecasts as previously described were therefore compared to available capacity per WPA area and regionally. Although this can give a baseline view of capacity issues, more detailed analysis would be required to match up waste type of

disposal, treatment or reuse method, as the chemical and physical nature of hazardous wastes varies so considerably.

5.1.5 Construction, Demolition and Excavation Wastes

Quantities of waste arising from the construction industry are notoriously difficult to measure. Significant quantities of materials are recycled and re-used on the site where they arise and, therefore, do not enter the waste stream. Material that is removed from site is often managed at facilities where the waste management activity is exempt from the environmental permitting system. This means that quantities of waste handled are not reported and the data on this waste stream is therefore very poor.

The quantities of waste taken to landfill at inert sites are recorded and the table below shows the quantity received by waste planning authorities in North East England in 2010:

WPA	Tonnes
Durham	716,808
Northumberland	46,796
South Tyneside	263,765
Sunderland	72,200

One of the main drivers behind the sustainable management of construction, demolition and excavation waste (CDEW) is the geographical proximity of suitable sites to which it can be taken. Because the material is bulky and has a low value, it is not economic to transport it over any significant distances. If there is a landfill site where the material can be deposited closer than a facility where it can be treated, the landfill site is likely to be used in preference.

Sites for the treatment of inert wastes are often based at quarries or landfill sites and for this reason will ultimately be time-limited due to the temporary nature of quarries and landfill sites. There is, therefore, a need to ensure that there is a broad distribution of appropriate sites to support the proper management of this type of waste.

5.1.6 Low Level Radioactive Waste

Waste Planning Authorities where there are nuclear installations, either for power generation or for the defence industry need to provide for the management of waste arising from these facilities. In North East England, there is an existing nuclear power station located in Hartlepool - the waste from this facility is identified in the information supplied by the Nuclear Decommissioning Authority as described in

section 2.6. The approach of the Nuclear Decommissioning Authority is generally to seek "intermediate storage" facilities on site for waste arising from the decommissioning of nuclear power stations. Intermediate storage is anticipated to be for a period of approximately fifty years, prior to ultimate disposal in a deep geological storage facility that is planned to be constructed.

Low Level Radioactive Waste arising from hospitals and educational establishments can usually be disposed of at non-hazardous facilities, including non-hazardous landfill and energy from waste facilities. The quantities of waste arising in this waste stream were surveyed in 2008 and the table below shows the volumes that arose in 2008 in each Waste Planning Authority Area:

Authority	Quantity arising (cubic metres)
Durham	4,253
Gateshead	26
South Tyneside	0.1
Sunderland	1
Darlington	0.25
Redcar and Cleveland	0.1
Other North East authorities areas	No arisings reported

Figure 32: Low Level Radioactive Waste Arisings per WPA in 2008

However, these figures must be treated with caution, in that there is no explanation of the anomalously high figure for Durham, and arisings would be expected, for instance for a city like Newcastle with a number of hospitals and universities. There is no additional data from the original work to interrogate to explain these anomalies, so we would suggest if more robust figures are required, a local survey is considered.

Advice from the Planning Inspectorate is that policies on the management of this waste stream are unlikely to be needed unless there is specific interest in the development of facilities from operators in the area. The quantities of waste involved are relatively small and this material can usually be managed at non-hazardous waste management sites unless there is a specific prohibition against doing so.

5.2 By WPA

5.2.1 North East England

Results of the modelling of waste production, fate and capacity, are given in the appendix section 1 page 68.

Waste Arisings

Aggregating arisings estimates for all the WPAs in North East England gives an overall waste arising of some 3.6 million tonnes per year, consisting of 1.48 million tonnes from municipal sources (2011 estimates) and 2.15 million from commercial and industrial sources (2011 estimates). Applying the growth methodologies explained in this report, this total waste arisings remains fairly constant over the forecast period to 2030.

Recycling

Some 1.3 million tonnes of metallic and non-metallic recyclates (plastics, paper, glass etc) are currently produced within North East England. If the increased recycling scenarios applied in this work are delivered, this could increase to 1.7 million tonnes over the forecasting period, driven by increases in landfill tax in particular. Note that recycling would increase through an increased amount of waste diverted from landfill, which is the assumption used in the developed scenarios.

Assessing regional recycling capacity is not a simple exercise. The available arisings data is not robust enough to identify individual and mixed waste streams currently segregated particularly by businesses, and as a considerable proportion of segregated recyclates are transported directly to a recycler (who have no obligations to file returns with the Environment Agency) rather than through a transfer station or materials recycling facility (MRF). Overall recycling capacity is difficult to assess and is outside of the scope of this work.

However, from the capacity data supplied, it appears that there is significant material recycling facility volume in the region.

Organic Recycling Capacity

Forecasting shows that some 344,000 tonnes of segregated organic waste is produced in the region at present, increasing to around 500,000 tonnes if the recycling rates modelled in this work are achieved (assuming equal increases in recycling of solid waste recyclates and organic wastes such as garden and food wastes).

Comparing likely arisings to regional capacities, currently, there appears to be some 600,000 tonnes of regional capacity in both windrow composting and anaerobic digestion capacity. Long term forecasts, particularly at high recycling rates i.e. 50% LACW, 70% C&I, suggest a surplus windrow capacity of some 95,000-100,000tpa. The WPAs should consider whether this capacity is of the right type and in the right location when planning for future needs.

Splitting these demand figures into waste and therefore technology types (as reported in section 5.1.2) suggests that there is sufficient regional long term windrow capacity to handle garden waste and similar materials, but a potential under capacity of around 86,000 tpa to 121,000 tpa in anaerobic capacity for food waste.

Non-Hazardous Residual Waste

Taking estimates of waste management fate for municipal and commercial & industrial sourced waste; currently some 2 million tonnes of residual waste is generated regionally, of which 1.34 million tonnes is landfilled, and 0.6 million tonnes is energy recovered.

Using baseline forecasts; total residual waste will potentially reduce to 1.8 million tonnes by 2030, or less than 1.5 million tonnes if recycling scenarios are achieved. In the baseline forecasts, due essentially to procurement of alternate waste management facilities for municipal waste, across the forecast period, landfill reduces to just under 0.9 million tonnes with 0.9 million tonnes energy recovered, and 0.1 million tonnes using some other treatment technology.

Impact of the recycling and landfill diversion scenarios can be summarised as follows:

Scenario	2030 Landfill Forecasts	2030 Energy Recovery and other technologies Forecasts
1: 50% LACW recycling by 2020	0.84 million tonnes	0.96 million tonnes
2: 50% LACW recycling by 2020, 60% C&I recycling by 2025	0.67 million tonnes	0.96 million tonnes
3: 50% LACW recycling by 2020, 70% C&I recycling by 2025	0.47 million tonnes	0.96 million tonnes
4: 50% LACW recycling by 2020 and 75% C&I diversion by 2020	0.60 million tonnes	1.2 million tonnes

Figure 33: Impact of the recycling and landfill diversion scenarios on residual waste arisings

Using the data supplied and forecast methodology explained in this report, the tipping point at which baseline residual waste exceeds regional capacity, is around 2027; extended to 2030 if modelled recycling targets are achieved.

However, the bulk of existing capacity is in landfill, which estimates equivalent to 1.8 million tonnes per annum in 2011 decreasing to 0.24 million tonnes per annum by 2030. In the baseline forecasts this translates to a shortfall by 2021, extended to 2030 if recycling scenarios are achieved.

However, driven by LACW targets and increased landfill tax, the direction of travel is away from landfill and to solutions further up the waste hierarchy such as energy recovery, MBT and autoclaves, examples of which already exist within North East England. Depending upon the scenario selected, the demand for such facilities could be between 0.9 and 1.1 million tonnes by 2030, with, by 2014, some 1 million tonnes

capacity already existing (0.645 million tonnes in energy recovery, 0.437 million tonnes in other technologies). The suitability of such capacity will depend upon the waste streams being treated, and some of this capacity may be of the wrong technology and in the wrong place to have a regionally significant impact. All of the available energy recovery capacity is targeted at LACW, with the potential for 0.3 million tonnes (by 2030) of C&I energy recovery capacity un-catered for.

Non-Hazardous Residual Waste (without Houghton Landfill)

Capacity implications of Houghton Landfill (Sunderland WPA) closure post 2012 have been modelled as presented in appendix 1.2.4. Loss of this capacity, modelled at 250,000 input tonnage per year, brings forward the tipping point at which baseline residual waste exceeds regional capacity from 2027 to around 2021; extended to 2027 (scenario 2) and 2029 (scenario 3) if modelled recycling targets are achieved.

As previously explained, the bulk of existing capacity is in landfill, which estimates equivalent to 1.8 million tonnes per annum in 2011 decreasing to 0.24 million tonnes per annum by 2030. In the baseline forecasts this translates to a shortfall of ca. 49,000tpa by 2018, increasing to ca. 312,000tpa by 2021. If recycling targets modelled in scenarios 1 and 3 are achieved, this will extend this shortfall until 2027, when a ca. 111,000tpa shortfall is identified.

Therefore, modelling suggests that loss of capacity at Houghton is likely to have a significant impact on regional residual waste capacity, resulting in a landfill capacity shortfall by 2018 and overall capacity shortfall by 2021, unless increased recycling rates are delivered.

Hazardous Waste

The North East region has considerable capacity for the treatment and disposal of hazardous wastes and imports such wastes from various parts of the UK.

Taking figures from the Environment Agency's Hazardous Waste Interrogator for 2010, regional arisings (ignoring waste water and related treatment) are some 157,000 tonnes per annum, which using the forecasting methodology explained in this report, we do not expect to change significantly over the forecast period.

This compares to a regional hazardous landfill capacity of some 770,000 tonnes annually (2010 figures) and 122,000 tonnes of treatment capacity.

Although the disposal or treatment of hazardous waste on an overall basis is not easy to predict, as best mode of re-use or disposal will depend upon the chemical and physical nature of the hazardous material involved, there appears to be sufficient regional capacity to deal with regionally generated hazardous waste. However, this may not be of the correct type or in the right place for specific local demand.

One area where there appears to be a shortfall is in the incineration of wastes, where a demand of some 11,000 tonnes is indicated. However, such facilities are specialist and

their investment is not only dependant on locally-derived waste as this is transported across local authority boundaries. This material is likely to continue to be exported to specialist facilities in other parts of the UK and does not necessarily have to be managed at the local level.

Summary

Whilst there appears to be broadly sufficient regional capacity for most of the waste streams considered in this report, at a regional level, assuming recycling, composting and recovery rates continue to increase as previously recorded, the WPAs should continue to monitor waste arisings, waste management capacity and the level of economic growth and thus plan accordingly to support effective sustainable waste management facilities where appropriate. However, the impact of the loss of capacity at Houghton Landfill could produce an overall regional shortfall in the medium term, unless increased recycling and diversion targets are delivered.

5.2.2 County Durham

Results of the modelling of waste production, fate and capacity, are given in the appendix section 2, page 90.

Waste Arisings

Based upon municipal waste (LACW) arisings forecasts supplied by the WPA (based upon 50% recycling and 75% landfill diversion by 2020) and modelled commercial and industrial waste (C&I) arisings, current total arisings in the WPA area are estimated to be some 653,000 tonnes. Using the baseline growth methodology explained in the report, this is forecast to remain fairly constant throughout the forecast period, with LACW increasing by an estimated 21ktpa over the forecast period (to 290ktpa) and C&I decreasing by 38ktpa to 346ktpa. The baseline decline for C&I arisings is attributed to the relative importance of industry in the WPA area (ONS business population data for March 2010 shows in County Durham 55% of all businesses to be industrial, 45% commercial. This compares, for instance, to 18% industrial and 82% commercial in Newcastle upon Tyne. The impact of C&I forecasts is discussed in section 2.2.4).

Recycling

Some 225,000 tonnes of metallic and non-metallic recyclates (plastics, paper, glass etc.) are currently produced within the WPA. If the increased recycling scenarios mentioned in this report are delivered, this could increase to 297,000 tonnes over the forecasting period, driven by increases in landfill tax in particular.

Assessing recycling capacity is not a simple exercise. The available arisings data is not robust enough to identify individual and mixed waste streams currently segregated particularly by businesses, and as a considerable proportion of segregated recyclates are transported directly to a recycler (who have no obligations to file returns with the Environment Agency) rather than through a transfer station or materials recycling

facility (MRF), overall recycling capacity is difficult to assess and is outside of the scope of this work.

Organic Recycling Capacity

Forecasting shows that some 68,000 tonnes of segregated organic waste is produced in County Durham at present, increasing to 90,000 tonnes if commercial & industrial waste recycling rates reach 70% (assuming equal increases in recycling of solid waste recyclates and organic wastes such as garden and food wastes). Comparing likely arisings to local capacities, currently, there is some 385,000 tonnes of local capacity, in both composting (233 ktpa) and anaerobic digestion (152 ktpa) capacity, providing sufficient capacity for local needs while excess capacity is available for use of other neighbouring WPAs.

Non-Hazardous Residual Waste

Total residual arisings are modelled to be around 361,000 tonnes currently. Under baseline conditions, this volume declines to around 315,000 tpa over the forecast period to 2030.

The models generated suggest a current non-hazardous waste capacity gap of around 40,000 tpa in the county. Even though LACW arisings are forecast to increase over the planning period to 2030, C&I arisings are forecast to decrease, reducing the gap to zero by 2016-17. However, when examining capacity gap per technology type, figures suggest that currently landfill demand exceeds available capacity by over 120,000 tonnes, declining to 56,000 tonnes by 2015-16 and 10,000 tonnes by 2020-21 as demand decreases.

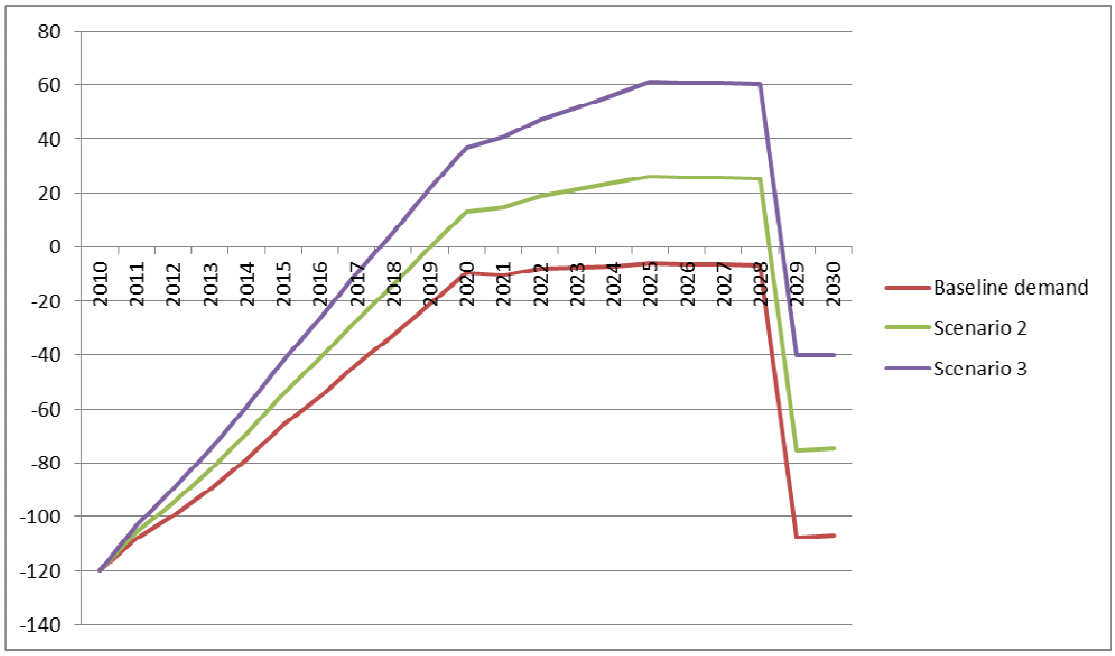


Figure 34: Balance Landfill Capacity to Demand, County Durham (tonnes x 1,000)

With local landfill and treatment capacity, a current estimate of 40,000 tpa residual waste capacity shortfall is transformed to a slight excess capacity by the middle (2017-18, 1,000 tonnes) and end (2028-29, 10,000 tonnes) of the forecast period, peaking at 12,000 tonnes in 2025-26. If LACW and C&I recycling targets are achieved (i.e. modelled scenarios 1 to 3), this excess capacity develops much sooner (2013-14, 6,000 tonnes at 70% C&I recycling rate by 2025) and is more extensive over the forecast period (to 79,000 tonnes by 2025-26). This assumes non-LACW residual waste uses the free capacity of 127ktpa at the Aycliffe MBT facility, with an additional 33ktpa being LACW from Darlington.

	2010-2011	2015-2016	2020-2021	2025-2026	2029-2030
Baseline	-40	-2	9	12	-91
60% C&I Recycling (scenario 2)	-40	9	31	44	-59
70% C&I Recycling (scenario 3)	-40	22	55	79	-24
75% C&I Landfill diversion (scenario 4)	-40	-2	9	12	-91

Figure 35: Residual Waste Under/Over Capacity County Durham (tonnes x 1,000)

As landfill diversion of LACW residual waste increases towards the target of 75% by 2020, this diverts at least 60-65 ktpa of material to other procured residual waste treatment technology – we have assumed for this model energy recovery capacity although other technologies are also appropriate. This is in addition to the C&I residual waste.

Baseline forecasts suggest that over the forecast period, the shortfall in energy recovery capacity (91,000 tpa by 2030) is more than balanced by a free capacity of over 100,000 tonnes in MBT. However, this assumes that the 2 technologies are able to process the same material types which may not always be the case. If recycling and landfill diversion scenario targets are achieved, the forecasts suggest that this demand for residual waste treatment could increase to 111,000 tonnes (scenario 3) or 156,000 tonnes (scenario 4), which is more than available local MBT capacity.

	2010-2011	2015-2016	2020-2021	2025-2026	2029-2030
Baseline	80	64	18	18	17
60% C&I Recycling (scenario 2)	80	64	18	18	17
70% C&I Recycling (scenario 3)	80	64	18	18	17
75% C&I Landfill diversion (scenario 4)	80	41	-30	-28	-30

Figure 36: EfW and Residual Waste Treatment Under/Over Capacity County Durham (tonnes x 1,000)

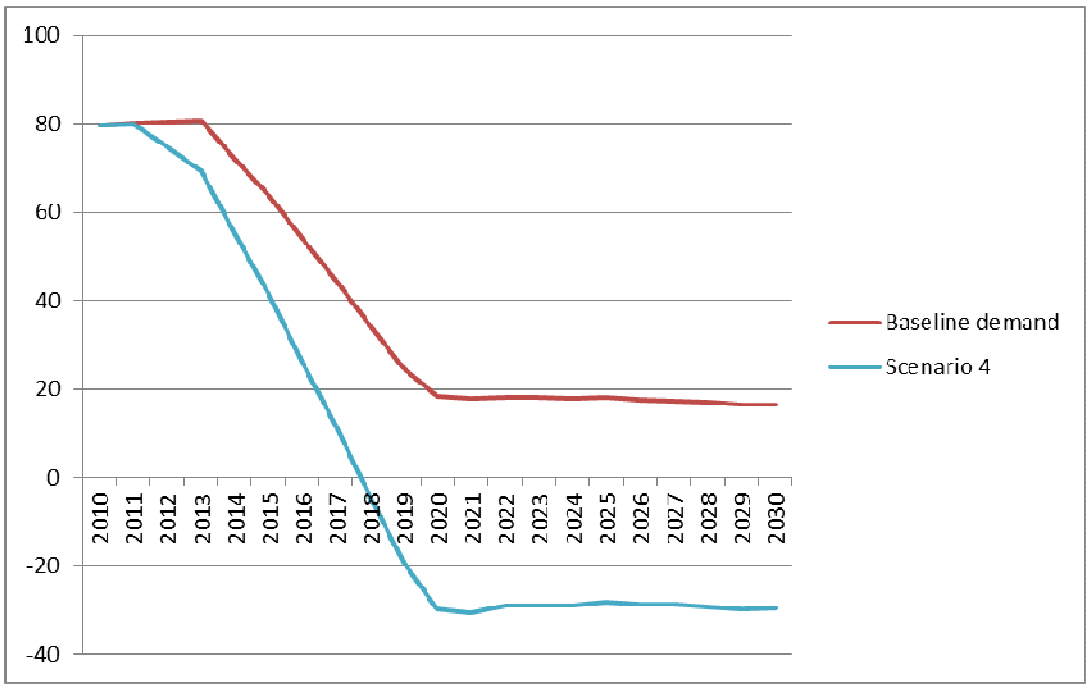


Figure 37: Surplus Capacity 2010-2030 Residual Waste Treatment Capacity (EfW+MBT, tonnes x 1,000)

Baseline and increased recycling forecasts suggest a lack of available landfill capacity varying from 120,000 tpa (2010-11) to 8,000 tpa (2022-23) on baseline forecasts, to an excess of capacity by 2018-19 if 70% C&I recycling is achieved (by 2025). Achieving 75% C&I landfill diversion by 2020 (scenario 4) also produces a positive landfill requirement by 2019-20. However, it is likely that the availability of MBT capacity within the WPA area, and the increases in landfill tax, as well as landfill capacity within the Tees Valley areas, will alleviate this shortfall to some extent.

	2010-2011	2015-2016	2020-2021	2025-2026	2029-2030
Baseline	-120	-66	-10	-6	-108
60% C&I Recycling (scenario 2)	-120	-54	13	26	-75
70% C&I Recycling (scenario 3)	-120	-42	37	61	-40
75% C&I Landfill diversion (scenario 4)	-120	-44	38	40	-61

Figure 38: Landfill Under/Over Capacity County Durham (tonnes x 1,000)

Hazardous Waste

Taking figures from the Environment Agency's Hazardous Waste Interrogator for 2010, WPA arisings (ignoring waste water and related treatment) are some 16,000 tonnes per annum, which using the forecasting methodology explained in this report, we do not expect to change significantly over the forecast period.

This compares to a local hazardous treatment capacity of some 10,000 tonnes annually (2010 figures) and some 34,000 tonnes of transfer capacity. Although there is no hazardous landfill in the WPA area, there is considerable capacity in nationally

significant sites in the Tees Valley sub-region, and at a regional scale there appears to be significant hazardous waste treatment and landfill capacity.

5.2.3 Northumberland

Results of the modelling of waste production, fate and capacity, are given in the appendix section 3, page 108.

Waste Arisings

Based upon local authority collected waste (LACW) arisings forecasts supplied by the WPA and modelled commercial and industrial (C&I) arisings, current total arisings in the WPA area are some 411,000 tonnes. Using the baseline growth methodology explained in the report, this is likely to increase to 438,000 tonnes during the forecast period.

Non-Hazardous Residual Waste

Total residual arisings are modelled to be around 231,000 tonnes per year currently. With considerable local landfill capacity, there is overall sufficient capacity to deal with this waste until landfill closure reduces available capacity below the tipping point in 2013. The closure of the Seghill Landfill Site by 2013 will, therefore, have a marked impact on Northumberland's ability to deal with its own residual waste, amounting to a shortfall in residual waste management capacity of around 25,000 to 30,000 tonnes each year.. It is anticipated that this waste will be sent to Path Head landfill in Gateshead and Ellington Road landfill in Northumberland. Although the energy from waste facility at Haverton Hill in Tees Valley will manage a significant portion of LACW waste, there is presently no similar capacity for C&I material locally.

Modelling increases in recycling rates for both LACW and C&I wastes does alleviate this situation and with 50% LACW recycling and 70% C&I recycling this shortfall is eradicated.

Recycling

Some 147,000 tonnes of metallic and non-metallic recyclates (e.g. plastics, paper and glass.) are currently produced within the WPA. If the increased recycling scenarios mentioned in this report are delivered, this could increase to 208,000 tonnes over the forecasting period, driven by increases in landfill tax in particular.

Assessing recycling capacity is not a simple exercise. The available arisings data is not robust enough to identify individual and mixed waste streams currently segregated particularly by businesses, and as a considerable proportion of segregated recyclates are transported directly to a recycler (who have no obligations to file returns with the Environment Agency) rather than through a transfer station or materials recycling facility (MRF), overall recycling capacity is difficult to assess and is outside of the scope of this work.

Within Northumberland, there is a materials recycling facility (MRF) capacity of 283,000 tonnes per year and a transfer station capacity of 189,000 tonnes per year.

Organic Recycling Capacity

Forecasting shows that some 34,000 tonnes of segregated organic waste is produced in Northumberland at present, increasing to some 49,000 tonnes if commercial and industrial waste recycling rates reach 70% (assuming equal increases in recycling of solid waste recyclates and organic wastes such as garden and food wastes).

Comparing likely arisings to local capacities, currently, there is some 144,000 tonnes local capacity in windrow composting with little existing or planned anaerobic digestion capacity. Therefore, although there appears to be sufficient composting capacity in the county to deal with arisings, it is recognised that the currently small local AD capacity could be developed to improve performance and local provision for particularly food waste treatment.

Hazardous Waste

Taking figures from the Environment Agency's Hazardous Waste Interrogator for 2010, arisings of hazardous waste from Northumberland(ignoring waste water and related treatment) are around 21,000 tonnes per annum. Based on ,the forecasting methodology in this report, the amount of arisings produced in Northumberland on an annual basis is not expected to change significantly over the forecast period.

This compares to a local hazardous transfer capacity of some 30,000 tonnes per year (2010 figures, some of this being combined with hazardous waste treatment) with little operational landfill capacity, including a licence for a yet undeveloped SNRHW cell. Although there is little hazardous landfill in the WPA area, there is considerable capacity in nationally significant sites in Tees Valley, and at a regional scale there appears to be significant hazardous waste treatment and landfill overcapacity.

5.2.4 Tyne and Wear

Results of the modelling of waste production, fate and capacity, are given in the appendix section 4, page 129.

Waste Arisings

Arisings, made up from baseline forecasts from each individual WPA area, amount to 601,000 tonnes of LACW plus 886,000 tonnes of C&I totalling 1.48 million tonnes by 2011 estimates. Under baseline conditions this increases to 1.5 million tonnes by 2030.

Recycling

Around 544,000 tonnes of recyclates are generated within the sub-region, rising to 580,000 tonnes by 2030 (baseline) or up to 742,000 tonnes by 2030 if recycling rates forecast in scenario 3 are achieved.

Organics Recycling

Volumes of organic waste subject to composting, AD, landspread and other recycling or re-use treatment amount to an estimated 120,000 tonnes in 2011 rising to potentially 190,000 tonnes of LACW and C&I if composting rates in scenario 3 are achieved. Local capacity amounts to some 100,000 tpa.

Using the methodology applied at regional level, some 100,000 tonnes of this 190,000 tonnes arising could be food waste suitable for anaerobic digestion, of which no local capacity exists at this time. There appears to be sufficient excess capacity of windrow composting in both Northumberland and County Durham to take increases in green waste arisings, and some potential anaerobic digestion capacity in County Durham.

Non Hazardous Residual Waste

Forecasts suggest that some 823,000 tonnes of residual waste was disposed of or treated in Tyne & Wear in 2011. Baseline forecasts suggest this will decrease to 785,000 tonnes by 2030, or 595,000 tpa if LACW and C&I recycling scenarios are achieved.

Capacity consists of just over 1 million tonnes in 2011, decreasing to 548,000 by 2030 as landfill capacity is filled. Forecasts suggest that Tyne & Wear will have sufficient residual waste disposal and treatment capacity to deal with its arisings until 2029.

5.2.5 Gateshead

Results of the modelling of waste production, fate and capacity, are given in the appendix section 5 page 148.

Waste Arisings

Based upon LACW arisings forecasts supplied by the WPA and modelled C&I arisings, current total arisings in the WPA area are some 352,000 tonnes. Using the baseline growth methodology explained in the report, this is likely to remain fairly constant throughout the forecast period.

Recycling

Some 128,000 tonnes of metallic and non-metallic recyclates (plastics, paper, glass etc.) are currently produced within the WPA. If the increased recycling scenarios mentioned in this report are delivered, this could increase to 162,000 tonnes over the forecasting period, driven by increases in landfill tax in particular.

Assessing recycling capacity is not a simple exercise. The available arisings data is not robust enough to identify individual and mixed waste streams currently segregated particularly by businesses, and as a considerable proportion of segregated recyclates are transported directly to a recycler (who have no obligations to file returns with the Environment Agency) rather than through a transfer station or materials recycling

facility (MRF), overall recycling capacity is difficult to assess and is outside of the scope of this work.

There is around 600,000 tonnes of annual transfer station capacity within the Gateshead WPA area.

Organic Recycling Capacity

Forecasting shows that some 29,000 tonnes of segregated organic waste is produced in Gateshead at present, increasing to some 42,000 tonnes if commercial & industrial waste recycling rates reach 70% (assuming equal increases in recycling of solid waste recyclates and organic wastes such as garden and food wastes).

Comparing likely arisings to local capacities, currently there is some 75,000 tonnes capacity in windrow composting capacity in the WPA area. However, as some 20,000 tonnes of the demand could be food waste (by 2030) there appears to be a lack of local anaerobic digestion capacity. It is noted that there is some capacity at the regional scale, particularly in County Durham.

Non-Hazardous Residual Waste

Total residual arisings are modelled to be around 187,000 tonnes currently. With considerable local landfill and treatment capacity, there is overall sufficient capacity to deal with this waste throughout the forecast period, even taking landfill closures into account. This is certainly the case as local LACW and C&I recycling rates increase. Note that future capacities include provision for LACW export to the Haverton Hill energy from waste facility in Tees Valley.

As increases in landfill tax divert further tonnages away from landfill, alternative facilities within the WPA include the autoclave at Derwenthaugh. There is a lack of energy recovery capacity both within the WPA and regionally, particularly for commercial and industrial waste, although the Derwenthaugh facility should be able to take a considerable proportion of this material.

Hazardous Waste

Taking figures from the Environment Agency's Hazardous Waste Interrogator for 2010, WPA arisings (ignoring waste water and related treatment) are some 16,000 tonnes per annum, which using the forecasting methodology explained in this report, we do not expect to change significantly over the forecast period.

This compares to a local hazardous landfill capacity of some 25,000 tonnes annually (2010 figures) and some 168,000 tonnes of transfer capacity. In addition to the hazardous landfill in the WPA area, there is considerable capacity in nationally significant sites in the Tees Valley sub-region, and at a regional scale there appears to be significant hazardous waste treatment and landfill overcapacity.

5.2.6 Newcastle

Results of the modelling of waste production, fate and capacity, are given in the appendix section 6, page 170.

Waste Arisings

Based upon LACW arisings forecasts supplied by the WPA and modelled C&I arisings, current total arisings in the WPA area are some 360,000 tonnes. Using the baseline growth methodology explained in the report, this is likely to increase to 388,000 tonnes by the end of the forecast period.

Recycling

Some 143,000 tonnes of metallic and non-metallic recyclates (plastics, paper, glass etc.) are currently produced within the WPA. If the increased recycling scenarios mentioned in this report are delivered, this could increase to 229,000 tonnes over the forecasting period, driven by increases in landfill tax in particular.

Assessing recycling capacity is not a simple exercise. The available arisings data is not robust enough to identify individual and mixed waste streams currently segregated particularly by businesses, and as a considerable proportion of segregated recyclates are transported directly to a recycler (who have no obligations to file returns with the Environment Agency) rather than through a transfer station or materials recycling facility (MRF), overall recycling capacity is difficult to assess and is outside of the scope of this work.

There is around 184,000 tonnes of annual transfer station capacity within the Newcastle WPA area.

Organic Recycling Capacity

Forecasting shows that some 28,000 tonnes of segregated organic waste is produced in Newcastle. Forecasts based on the C&I arisings estimates and LACW forecasts provided by the WPA suggest this will not increase over the forecast period.

Comparing likely arisings to local capacities, at the current situation there is some 25,000 tonnes capacity in windrow composting capacity in the WPA area.

Non-Hazardous Residual Waste

Total residual arisings are modelled to be around 191,000 tonnes currently rising to 239,000 tonnes by 2030. With little local residual waste treatment, recovery or landfill capacity, there is a significant shortfall over the whole of the forecast period amounting to some 40,000 tonnes. However facilities in neighbouring authorities (e.g. Gateshead,

Sunderland) do have the capacity to take some of this waste as shown by the overall overcapacity balance in the Tyne & Wear region for most of the forecast period. The anticipated City Council procurement of additional treatment capacity will also impact on this.

Hazardous Waste

Taking figures from the Environment Agency's Hazardous Waste Interrogator for 2010, WPA arisings (ignoring waste water and related treatment) are some 6,000 tonnes per annum, which using the forecasting methodology explained in this report, we do not expect to change significantly over the forecast period.

This compares to a local hazardous treatment capacity of some 15,000 tonnes annually (2010 figures) and some 185,000 tonnes of transfer capacity. Although there is no hazardous landfill in the WPA area, there is considerable capacity in nationally significant sites in the Tees Valley sub-region, and at a regional scale there appears to be significant hazardous waste treatment and landfill overcapacity.

5.2.7 North Tyneside

Results of the modelling of waste production, fate and capacity, are given in the appendix section 7, page 191.

Waste Arisings

Based upon LACW arisings forecasts supplied by the WPA and modelled C&I arisings, current total arisings in the WPA area are some 307,000 tonnes. Using the baseline growth methodology explained in the report, this is forecast to fall during the forecast period to 283,000 tonnes in 2030 (see report body for assumptions used in predicting waste arisings in North Tyneside).

Recycling

Some 113,000 tonnes of metallic and non-metallic recyclates (plastics, paper, glass etc.) are currently produced within the WPA. If the increased recycling scenarios mentioned in this report are delivered, this could increase to 137,000 tonnes over the forecasting period, driven by increases in landfill tax in particular.

Assessing recycling capacity is not a simple exercise. The available arisings data is not robust enough to identify individual and mixed waste streams currently segregated particularly by businesses, and as a considerable proportion of segregated recyclates are transported directly to a recycler (who have no obligations to file returns with the Environment Agency) rather than through a transfer station or materials recycling facility (MRF), overall recycling capacity is difficult to assess and is outside of the scope of this work.

There is around 457,000 tonnes of annual transfer station capacity within the North Tyneside WPA area.

Organic Recycling Capacity

Forecasting shows that some 28,000 tonnes of segregated organic waste is produced in North Tyneside at present, increasing to some 39,000 tonnes if commercial & industrial waste recycling rates reach 70% (assuming equal increases in recycling of solid waste recyclates and organic wastes such as garden and food wastes).

Comparing likely arisings to local capacities, currently there are no local organics capacities in windrow composting or anaerobic digestion in the WPA area, with no planned facilities.

Non-Hazardous Residual Waste

Total residual arisings are modelled to be around 181,000 tonnes currently. Of this, 45,000 tpa of LACW waste is recovered at the third line at the Haverton Hill energy recovery plant in Tees valley.

With no local landfill and treatment capacity, North Tyneside relies upon facilities in other WPAs to process its LACW and C&I residual waste. There appear to be no plans or proposed facilities at this time to mitigate this situation, although likely future increases in recycling rates are likely to reduce this shortfall to some 110,000 tonnes.

Hazardous Waste

Taking figures from the Environment Agency's Hazardous Waste Interrogator for 2010, WPA arisings (ignoring waste water and related treatment) are some 10,000 tonnes per annum, which using the forecasting methodology explained in this report, we do not expect to change significantly over the forecast period.

This compares to a local hazardous treatment capacity of some 75,000 tonnes annually (2010 figures). Although there is no hazardous landfill in the WPA area, there is considerable capacity in nationally significant sites in the Tees Valley sub-region, and at a regional scale there appears to be significant hazardous waste treatment and landfill overcapacity.

5.2.8 South Tyneside

Results of the modelling of waste production, fate and capacity, are given in the appendix section 8, page 212.

Waste Arisings

Based upon LACW arisings forecasts supplied by the WPA and modelled C&I arisings, current total arisings in the WPA area are some 142,000 tonnes. Using the baseline growth methodology explained in the report, this is forecast to increase to 163.000 tonnes by 2030.

Recycling

Some 48,000 tonnes of metallic and non-metallic recyclates (plastics, paper, glass etc.) are currently produced within the WPA. If the increased recycling scenarios mentioned in this report are delivered, this could increase to 75,000 tonnes over the forecasting period, driven by increases in landfill tax in particular. Assessing recycling capacity is not a simple exercise. The available arisings data is not robust enough to identify individual and mixed waste streams currently segregated particularly by businesses. As a considerable proportion of segregated recyclates are transported directly to a recycler (who have no obligations to file returns with the Environment Agency) rather than through a transfer station or materials recycling facility (MRF), overall recycling capacity is difficult to assess and is outside of the scope of this work. However, it is noted that there is around 165,000 tonnes of annual MRF capacity, and 110,000 tonnes of annual transfer station and 25,000 tonnes of household waste recycling centre capacity within the South Tyneside WPA area, which exceeds the borough's arisings.

Organic Recycling Capacity

Forecasting shows that some 9,000 tonnes of segregated organic waste is produced in South Tyneside at present, increasing to some 20,000 tonnes if commercial & industrial waste recycling rates reach 70% (assuming equal increases in recycling of solid waste recyclates and organic wastes such as garden and food wastes). When comparing likely arisings to local capacities, there is a shortfall as there is no significant existing or planned organic recycling capacity, in windrow composting or anaerobic capacity, in the WPA area. But it is noted that there is some capacity at the regional scale, particularly in County Durham.

Non-Hazardous Residual Waste

Total residual arisings are modelled to be around 84,000 tonnes currently.

With no local landfill or treatment capacity, this represents a considerable shortfall, although the contract to send LACW residual waste to the new facility at Haverton Hill (modelled into the figures) will have a significant impact on this deficit. There is no EfW capacity for commercial and industrial waste arisings.

However, the figures for the Tyne & Wear sub-region do show that there is sufficient landfill and treatment capacity in adjoining WPAs, to deal with sub-regional commercial and industrial residual waste arisings forecast, although no energy recovery capacity available. Increases in recycling will mitigate this.

Hazardous Waste

Taking figures from the Environment Agency's Hazardous Waste Interrogator for 2010, WPA arisings (ignoring waste water and related treatment) are some 4,000 tonnes per annum, which using the forecasting methodology explained in this report, we do not expect to change significantly over the forecast period.

This compares to a local hazardous treatment capacity of some 22,000 tonnes annually (2010 figures) although this capacity is specifically for ship breaking and repair. Although there is no local hazardous landfill capacity, there is considerable capacity in nationally significant sites in the Tees Valley sub-region, and at a regional scale there appears to be significant hazardous waste treatment and landfill over-capacity.

5.2.9 Sunderland

Results of the modelling of waste production, fate and capacity, are given in the appendix section 9, page 233.

Waste Arisings

Based upon LACW arisings forecasts supplied by the WPA and modelled C&I arisings, current total arisings in the WPA area are some 327,000 tonnes. Using the baseline growth methodology explained in the report, this is forecast to increase to 351,000 tonnes over the forecast period.

Recycling

Some 116,000 tonnes of metallic and non-metallic recyclates (plastics, paper, glass etc.) are currently produced within the WPA. If the increased recycling scenarios mentioned in this report are delivered, this could increase to 158,000 tonnes over the forecasting period, driven by increases in landfill tax in particular.

Assessing recycling capacity is not a simple exercise. The available arisings data is not robust enough to identify individual and mixed waste streams currently segregated particularly by businesses, and as a considerable proportion of segregated recyclates are transported directly to a recycler (who have no obligations to file returns with the Environment Agency) rather than through a transfer station or materials recycling facility (MRF), overall recycling capacity is difficult to assess and is outside of the scope of this work.

There is around 629,000 tonnes of MRF and 2.0 million tonnes of transfer annual capacity within the Sunderland WPA area.

Organic Recycling Capacity

Forecasting shows that some 26,000 tonnes of segregated organic waste is produced in Sunderland at present, increasing to some 52,000 tonnes if commercial & industrial waste recycling rates reach 70% (assuming equal increases in recycling of solid waste recyclates and organic wastes such as garden and food wastes).

Comparing likely arisings to local capacities, there is no significant existing or planned organic recycling capacity, in windrow composting or anaerobic capacity in the WPA area.

Non-Hazardous Residual Waste

Total residual arisings are modelled to be around 181,000 tonnes currently. Based on WPA supplied forecasts and apportionment of C&I waste arisings, this is forecast to reduce to 166,000 tonnes by 2030.

With considerable local landfill capacity and access to the new energy from waste plant at Haverton Hill in Tees Valley, residual waste capacity exceed arisings until 2029, although there is still energy recovery shortfall attributed to C&I generated residual wastes.

As recycling rates increase, this excess capacity increases to some 230,000 tonnes (by 2020, at 50% LACW and 70% C&I recycling rates)

However, modelling requirements without the Houghton landfill extension (i.e. capacity ceases in 2012) shows a significant shortfall in available local landfill capacity of some 50-60,000 tonnes, even when recycling and landfill diversion targets are modelled. This will have an impact at sub-regional and regional level too.

Hazardous Waste

Taking figures from the Environment Agency's Hazardous Waste Interrogator for 2010, WPA arisings (ignoring waste water and related treatment) are some 6,000 tonnes per annum, which using the forecasting methodology explained in this report, we do not expect to change significantly over the forecast period.

This compares to a local hazardous transfer capacity of some 1.2 million tonnes annually (2010 figures). Although there is no hazardous landfill capacity in the WPA areas, there is considerable capacity in nationally significant sites in the Tees Valley sub-region, and at a regional scale there appears to be significant hazardous waste treatment and landfill overcapacity.

1. Forecasts - North East England

1.1. Baseline Waste Arisings Forecasts

Regional Municipal Waste (LACW) Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	371	397	412	431	440	448	459	467	475	481	487	493	498	505	511	516	524	529	535	543
Composting	153	164	175	191	196	201	207	212	219	222	225	228	230	233	236	238	241	244	247	250
Landfill	424	433	472	690	708	709	705	705	704	708	709	710	711	710	710	711	710	711	712	712
Energy Recovery	539	502	444	205	181	174	167	159	152	144	145	146	148	149	151	152	154	155	157	159
Other	0	0	0	0	0	5	10	16	21	27	26	26	25	25	25	24	24	23	23	22
Total Arisings	1,486	1,497	1,503	1,517	1,526	1,538	1,549	1,560	1,571	1,581	1,593	1,603	1,613	1,622	1,632	1,642	1,652	1,662	1,674	1,685
% Recycling	**35.2%**	**37.5%**	**39.1%**	**41.0%**	**41.7%**	**42.2%**	**43.0%**	**43.5%**	**44.2%**	**44.5%**	**44.7%**	**44.9%**	**45.2%**	**45.5%**	**45.7%**	**45.9%**	**46.3%**	**46.5%**	**46.7%**	**47.1%**

Regional Commercial & Industrial Wastes (C&I) Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	901	896	886	890	885	884	878	881	874	857	855	848	845	841	837	835	832	830	828	826
Composting	192	191	188	189	187	187	186	186	184	180	179	177	176	175	174	173	173	172	171	170
Energy Recovery	184	183	180	181	180	180	178	179	177	173	172	170	169	168	167	166	165	164	163	163
Landfill	802	798	788	792	788	787	782	784	778	763	761	755	752	748	745	743	741	739	737	735
Treatment	72	72	71	71	71	71	70	70	70	68	68	68	67	67	66	66	66	66	66	65
Total	2,152	2,140	2,113	2,123	2,111	2,109	2,094	2,100	2,083	2,041	2,034	2,018	2,009	2,000	1,989	1,984	1,977	1,971	1,966	1,959
Recycling & Reuse	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.9%**

Total Regional Arisings (LACW + C&I) (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	1,272	1,294	1,298	1,321	1,325	1,332	1,337	1,348	1,349	1,339	1,342	1,341	1,343	1,347	1,348	1,351	1,356	1,359	1,364	1,369
Composting	344	355	363	379	384	388	393	398	403	402	404	405	407	409	410	412	414	416	418	420
Energy Recovery	608	617	652	871	888	889	884	884	881	880	881	880	880	878	877	877	875	875	876	874
Landfill	1,341	1,300	1,232	997	969	961	948	943	930	906	906	901	899	898	895	895	894	894	894	893
Treatment	72	72	71	71	71	76	81	86	91	95	94	93	93	92	91	90	90	89	88	88
Total	3,638	3,637	3,616	3,640	3,637	3,647	3,643	3,660	3,654	3,622	3,627	3,621	3,622	3,622	3,621	3,626	3,629	3,633	3,640	3,644
Recycling rate	**44.4%**	**45.3%**	**45.9%**	**46.7%**	**47.0%**	**47.2%**	**47.5%**	**47.7%**	**47.9%**	**48.1%**	**48.1%**	**48.2%**	**48.3%**	**48.5%**	**48.5%**	**48.6%**	**48.8%**	**48.9%**	**48.9%**	**49.1%**

1.2. Non-Hazardous Residual Waste Arisings and Capacities

1.2.1. Baseline

From these baseline forecasts, Regional Residual Waste Baseline Forecasts are (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Energy Recovery	608	617	652	871	888	889	884	884	881	880	881	880	880	878	877	877	875	875	876	874
Landfill	1,341	1,300	1,232	997	969	961	948	943	930	906	906	901	899	898	895	895	894	894	894	893
Treatment	72	72	71	71	71	76	81	86	91	95	94	93	93	92	91	90	90	89	88	88
Total Residual	**2,021**	**1,989**	**1,955**	**1,939**	**1,928**	**1,926**	**1,913**	**1,914**	**1,902**	**1,882**	**1,881**	**1,875**	**1,872**	**1,867**	**1,864**	**1,863**	**1,859**	**1,858**	**1,858**	**1,855**

Regional Residual Waste Capacity Forecasts (from key residual waste facilities) (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	390	390	390	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645
Landfill	1,804	1,804	1,604	1,604	1,604	1,604	1,454	1,144	1,144	1,144	844	844	844	844	844	774	594	594	494	244
Treatment	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437
Total Residual	2,631	2,631	2,431	2,686	2,686	2,686	2,536	2,226	2,226	2,226	1,926	1,926	1,926	1,926	1,926	1,856	1,676	1,676	1,576	1,326

Difference Regional Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-218	-227	-262	-225	-243	-243	-238	-239	-236	-235	-236	-235	-235	-232	-232	-232	-230	-230	-230	-229
Landfill	463	504	372	607	635	643	506	201	214	238	-62	-57	-55	-54	-51	-121	-300	-300	-400	-649
Treatment	365	365	366	366	366	361	356	351	346	342	343	344	344	345	346	347	347	348	349	349
Total	610	642	476	747	758	760	624	313	324	345	45	51	54	59	63	-6	-183	-181	-282	-529

Negative figures indicate a capacity shortfall
From these baseline forecasts:

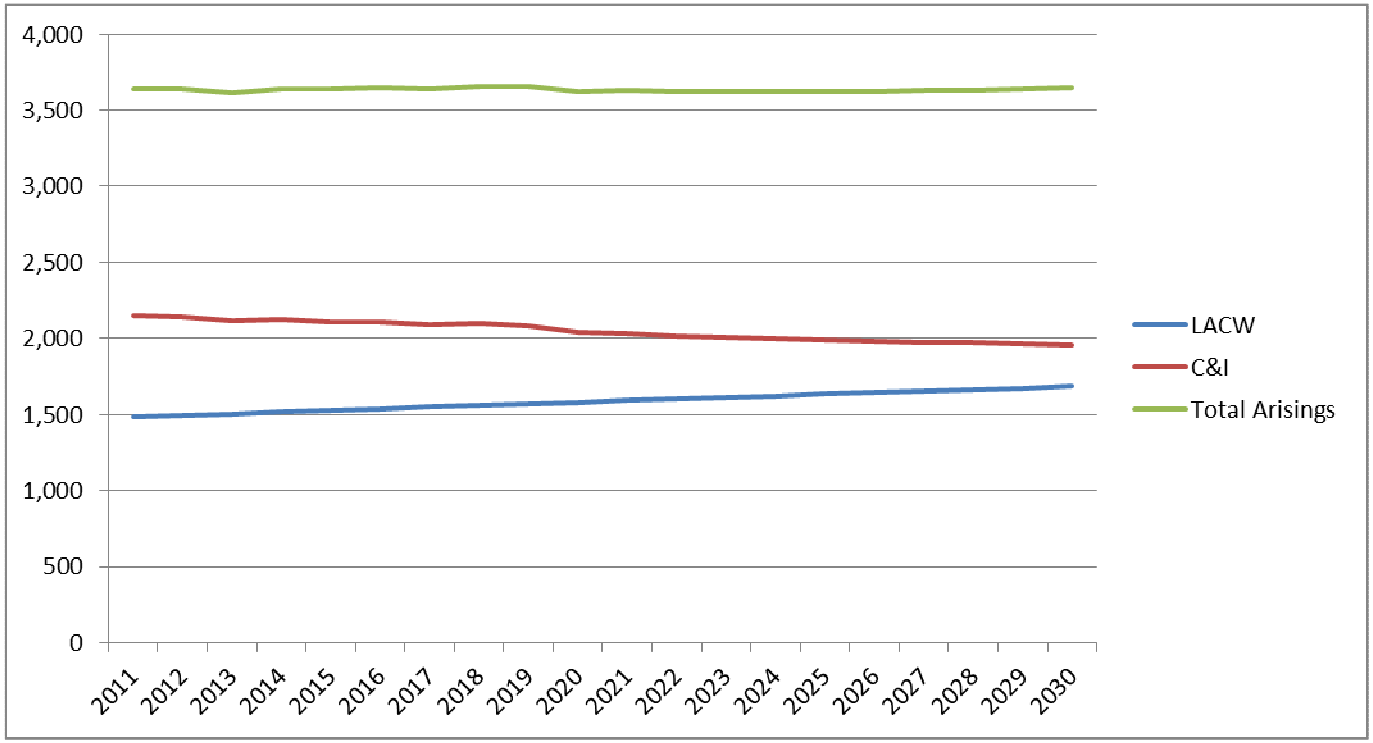


Figure 39: North East Regional Baseline Arisings Forecasts (tonnes x 1,000)

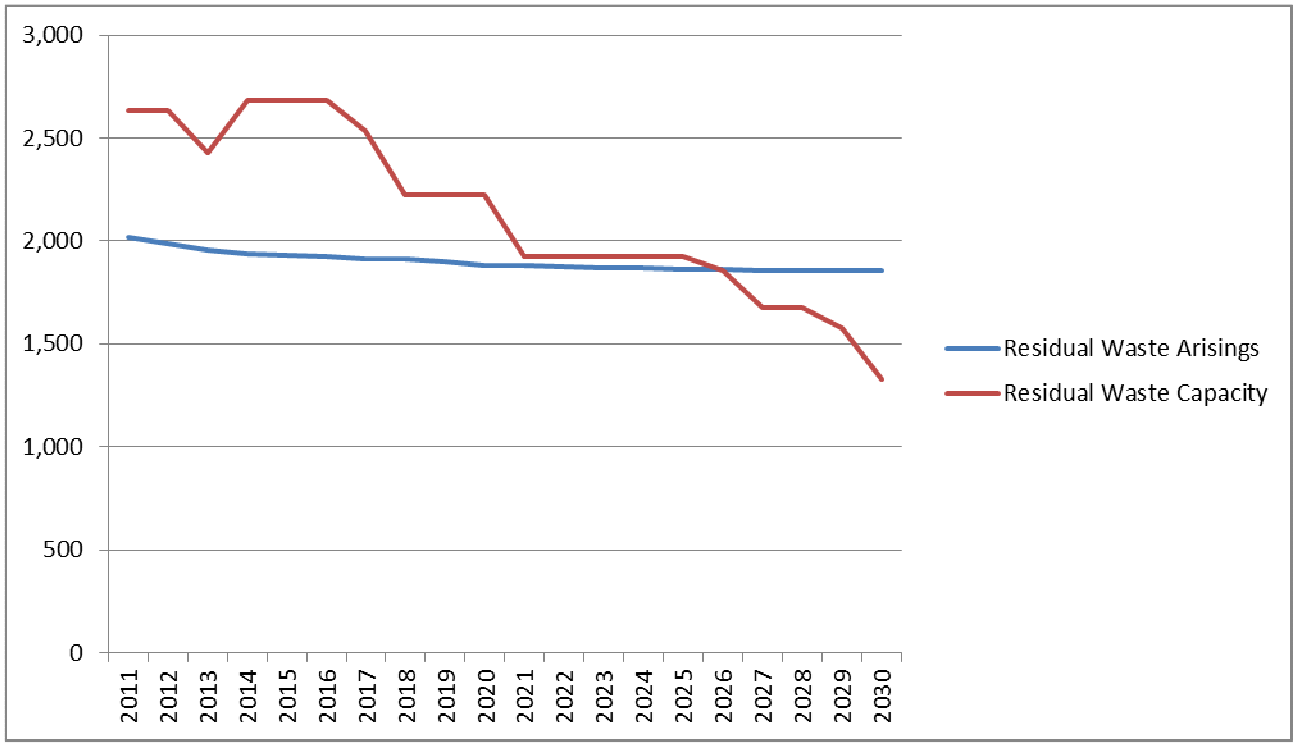


Figure 40: NE Regional Residual Waste Capacity v Arisings, all waste management methods (tonnes)

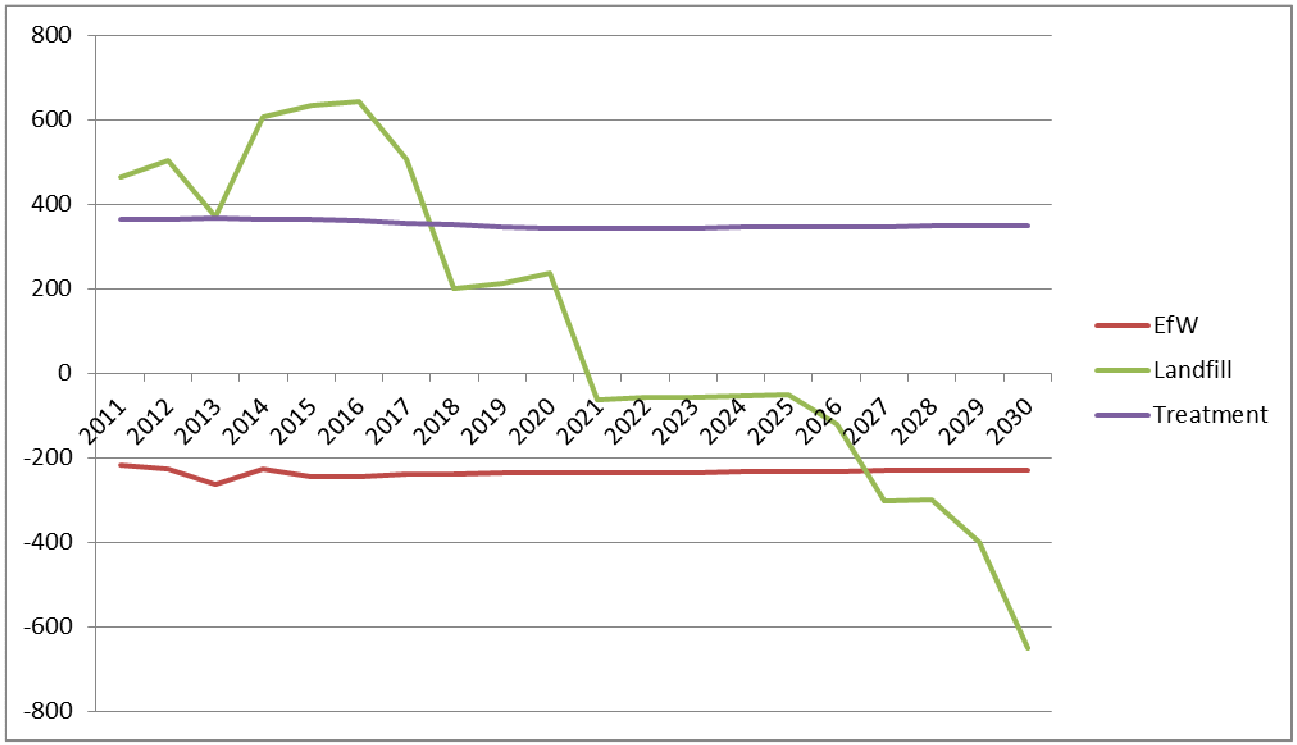


Figure 41: NE Regional Residual Waste Capacity - Arisings, per waste management method (tonnes x 1,000) – negative figures indicate a shortfall

1.2.2. Changes from Baseline: Increased Recycling

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

LACW: (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	376	403	425	448	475	488	501	515	527	541	545	548	551	555	558	562	565	569	573	577
Composting	155	166	181	198	212	219	226	234	243	250	252	253	255	256	258	259	261	262	264	266
Landfill	531	494	425	180	130	116	105	90	76	56	61	65	70	77	81	86	93	97	102	109
Energy Recovery	424	433	472	690	708	709	705	705	704	708	709	710	711	710	710	711	710	711	712	712
Other	0	0	0	0	0	5	10	16	21	27	26	26	25	25	25	24	24	23	23	22
Total Arisings	**1,486**	**1,497**	**1,503**	**1,517**	**1,526**	**1,538**	**1,549**	**1,560**	**1,571**	**1,581**	**1,593**	**1,603**	**1,613**	**1,622**	**1,632**	**1,642**	**1,652**	**1,662**	**1,674**	**1,685**
% Recycling	**35.7%**	**38.0%**	**40.3%**	**42.6%**	**45.0%**	**46.0%**	**47.0%**	**48.0%**	**49.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**

Commercial and Industrial waste – as baseline

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	1,277	1,300	1,311	1,338	1,361	1,372	1,380	1,395	1,401	1,398	1,400	1,396	1,396	1,396	1,395	1,397	1,398	1,399	1,401	1,403
Composting	347	357	369	387	400	406	412	420	427	430	431	431	431	432	432	433	433	434	435	436
Energy Recovery	608	617	652	871	888	889	884	884	881	880	881	880	880	878	877	877	875	875	876	874
Landfill	1,333	1,292	1,213	972	918	903	887	874	854	819	822	820	822	825	826	829	833	836	839	844
Treatment	72	72	71	71	71	76	81	86	91	95	94	93	93	92	91	90	90	89	88	88
Total	**3,638**	**3,637**	**3,616**	**3,640**	**3,637**	**3,647**	**3,643**	**3,660**	**3,654**	**3,622**	**3,627**	**3,621**	**3,622**	**3,622**	**3,621**	**3,626**	**3,629**	**3,633**	**3,640**	**3,644**
Recycling rate	44.6%	45.5%	46.5%	47.4%	48.4%	48.8%	49.2%	49.6%	50.0%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-218	-227	-262	-225	-243	-243	-238	-239	-236	-235	-236	-235	-235	-232	-232	-232	-230	-230	-230	-229
Landfill	471	512	391	632	686	701	567	270	290	325	22	24	22	19	18	-55	-239	-242	-345	-600
Treatment	365	365	366	366	366	361	356	351	346	342	343	344	344	345	346	347	347	348	349	349
Total	617	651	495	772	809	818	685	382	400	432	129	132	132	132	132	60	-121	-123	-227	-479

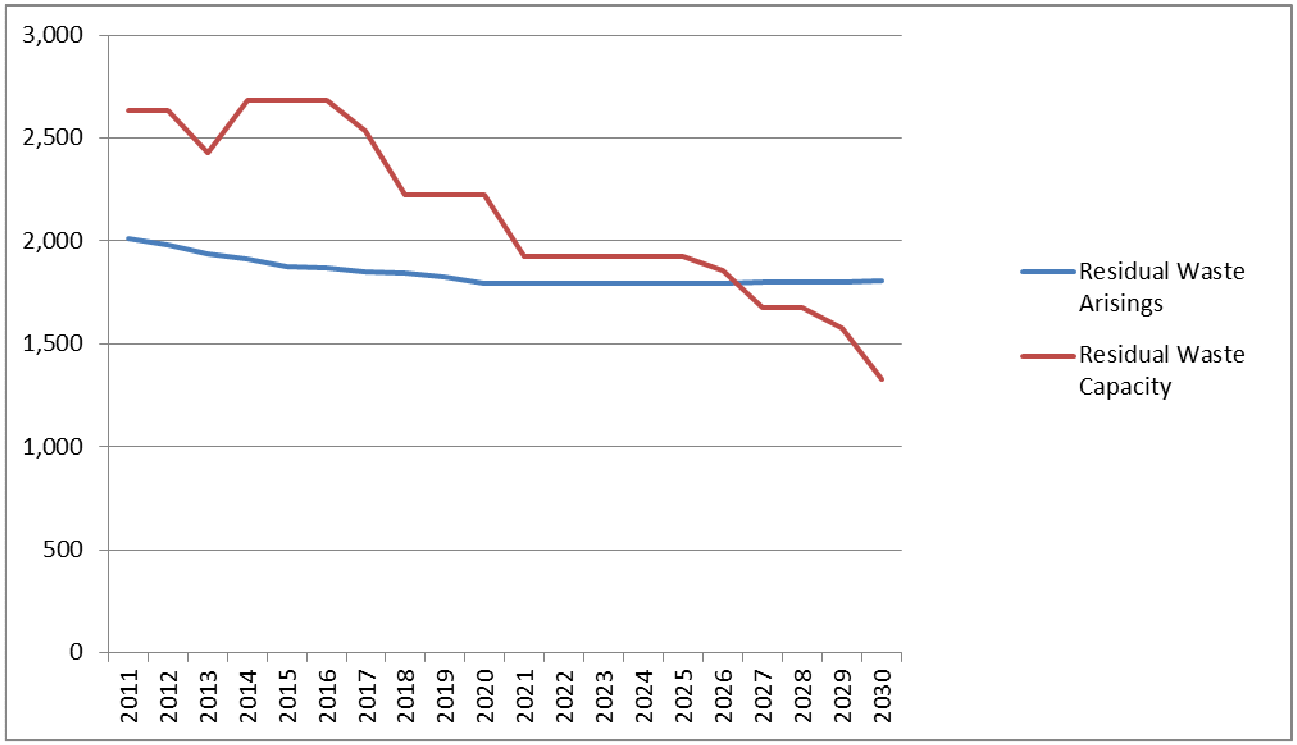


Figure 42: NE Regional Residual waste capacity v arisings all waste management methods: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

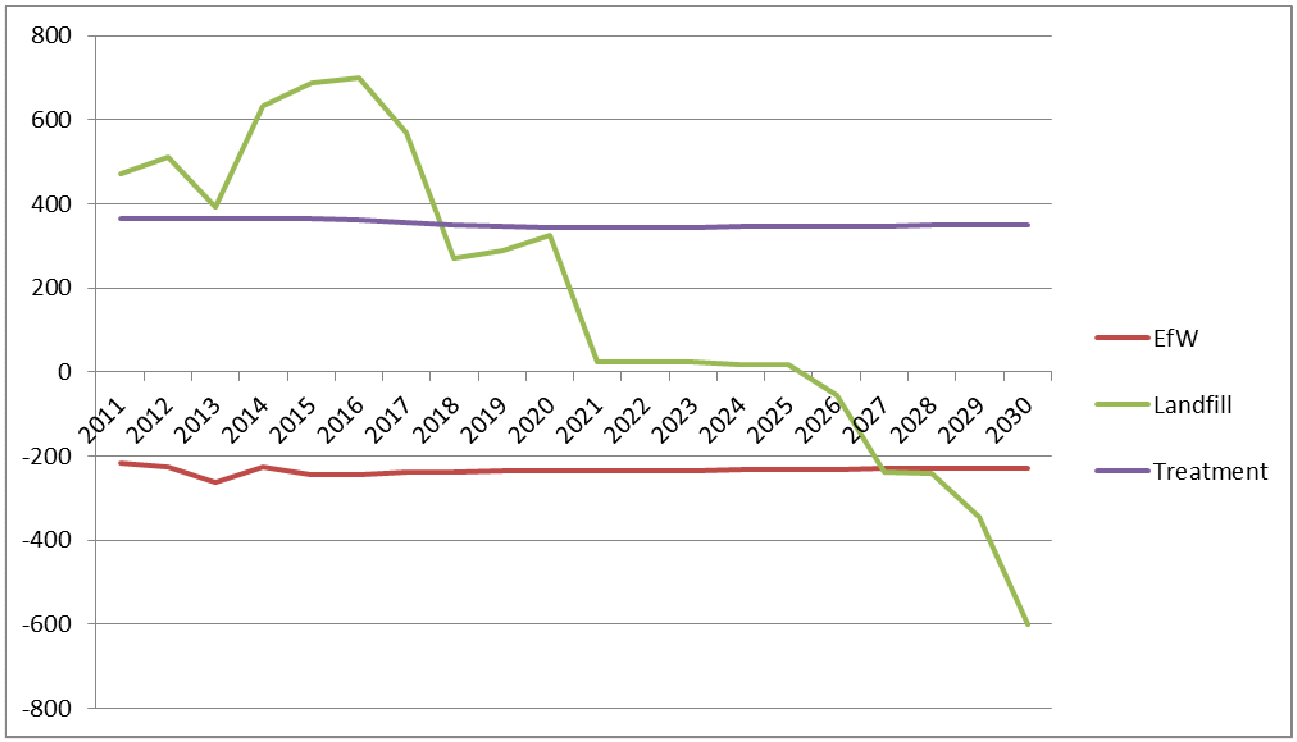


Figure 43: NE Regional Residual Waste Capacity - arisings: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

LACW – as Scenario 1

C&I Arisings, 60% recycling by 2025 (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	912	918	918	934	939	949	954	967	971	962	970	973	979	985	988	985	982	980	978	974
Composting,	194	195	195	198	199	201	201	204	205	202	203	204	204	205	206	205	204	203	202	201
Energy Recovery	184	183	180	181	180	180	178	179	177	173	172	170	169	168	167	166	165	164	163	163
Landfill	789	771	749	739	722	708	690	679	661	636	621	604	589	574	562	561	560	558	557	556
Treatment	72	72	71	71	71	71	70	70	70	68	68	68	67	67	66	66	66	66	66	65
Total	2,152	2,140	2,113	2,123	2,111	2,109	2,094	2,100	2,083	2,041	2,034	2,018	2,009	2,000	1,989	1,984	1,977	1,971	1,966	1,959
Recycling & Reuse	**51.4%**	**52.0%**	**52.7%**	**53.3%**	**53.9%**	**54.5%**	**55.2%**	**55.8%**	**56.4%**	**57.0%**	**57.7%**	**58.3%**	**58.9%**	**59.5%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**

Total Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	1,289	1,322	1,343	1,382	1,415	1,437	1,455	1,482	1,497	1,503	1,515	1,521	1,531	1,540	1,546	1,547	1,548	1,548	1,550	1,551
Composting	349	362	376	396	411	420	428	438	448	452	455	457	459	462	463	464	464	465	466	467
Energy Recovery	608	617	652	871	888	889	884	884	881	880	881	880	880	878	877	877	875	875	876	874
Landfill	1,320	1,265	1,174	919	852	824	795	769	737	692	682	670	659	651	643	647	652	655	659	665
Treatment	72	72	71	71	71	76	81	86	91	95	94	93	93	92	91	90	90	89	88	88
Total	**3,638**	**3,637**	**3,616**	**3,640**	**3,637**	**3,647**	**3,643**	**3,660**	**3,654**	**3,622**	**3,627**	**3,621**	**3,622**	**3,622**	**3,621**	**3,626**	**3,629**	**3,633**	**3,640**	**3,644**
Recycling rate	45.0%	46.3%	47.5%	48.9%	50.2%	50.9%	51.7%	52.5%	53.2%	54.0%	54.3%	54.6%	54.9%	55.3%	55.5%	55.5%	55.4%	55.4%	55.4%	55.4%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-218	-227	-262	-225	-243	-243	-238	-239	-236	-235	-236	-235	-235	-232	-232	-232	-230	-230	-230	-229
Landfill	484	539	430	685	752	780	659	375	407	452	162	174	185	193	201	127	-58	-61	-165	-421
Treatment	365	365	366	366	366	361	356	351	346	342	343	344	344	345	346	347	347	348	349	349
Total	631	677	535	825	875	897	777	487	517	559	269	283	295	306	315	242	60	57	-47	-300

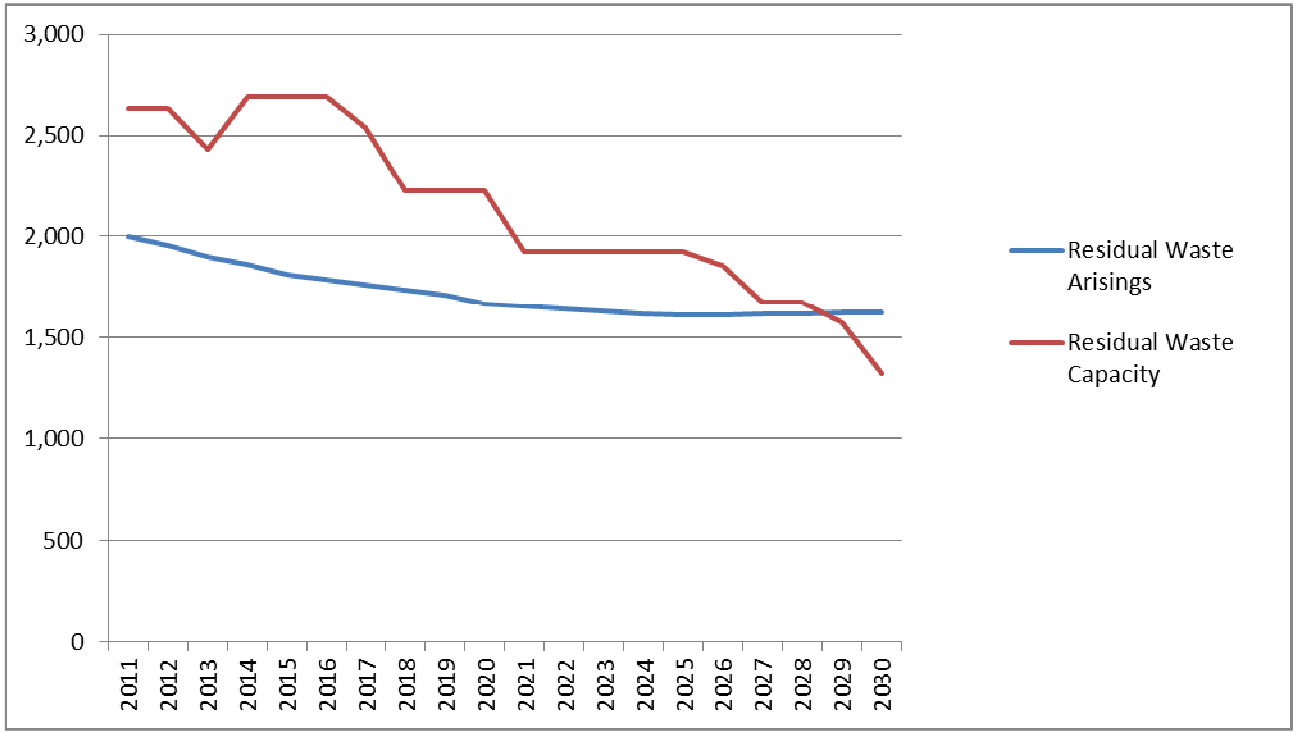


Figure 44: NE Regional Residual waste capacity v arisings all waste management methods: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 60% by 2025

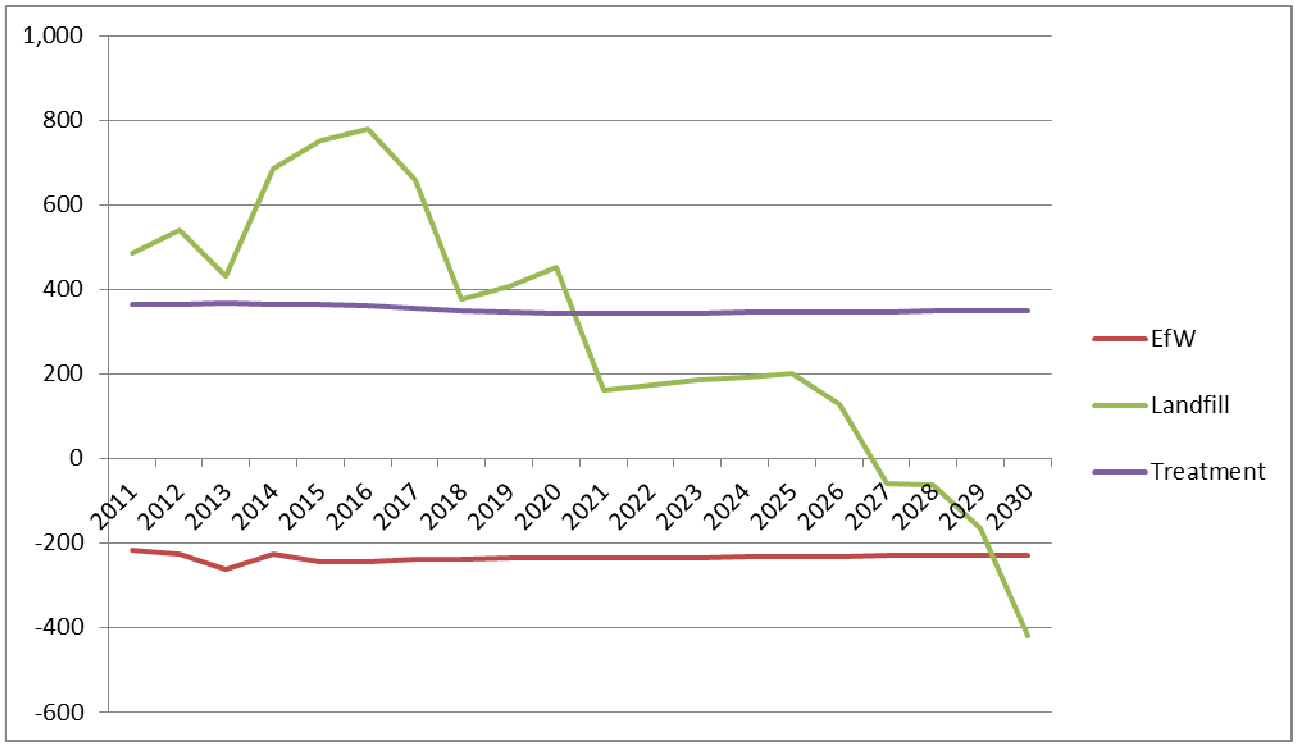


Figure 45: NE Regional Residual Waste Capacity - arisings: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 60% by 2025

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

LACW – as Scenario 1

C&I Arisings 70% recycling by 2025 (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	924	942	952	979	996	1,018	1,033	1,058	1,072	1,073	1,091	1,104	1,121	1,137	1,152	1,150	1,146	1,143	1,141	1,137
Composting,	197	200	202	208	211	215	218	223	226	225	229	231	234	237	240	239	238	237	236	234
Energy Recovery	184	183	180	181	180	180	178	179	177	173	172	170	169	168	167	166	165	164	163	163
Landfill	774	743	707	684	653	625	594	569	538	502	475	446	418	391	364	363	362	361	361	360
Treatment	72	72	71	71	71	71	70	70	70	68	68	68	67	67	66	66	66	66	66	65
Total	2,152	2,140	2,113	2,123	2,111	2,109	2,094	2,100	2,083	2,041	2,034	2,018	2,009	2,000	1,989	1,984	1,977	1,971	1,966	1,959
Recycling & Reuse	**52.1%**	**53.4%**	**54.6%**	**55.9%**	**57.2%**	**58.5%**	**59.8%**	**61.0%**	**62.3%**	**63.6%**	**64.9%**	**66.2%**	**67.4%**	**68.7%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	1,300	1,345	1,378	1,428	1,472	1,506	1,534	1,573	1,599	1,614	1,636	1,652	1,672	1,692	1,711	1,711	1,712	1,712	1,713	1,714
Composting	352	367	383	406	423	435	445	458	469	475	480	484	489	493	497	498	498	499	500	500
Energy Recovery	608	617	652	871	888	889	884	884	881	880	881	880	880	878	877	877	875	875	876	874
Landfill	1,306	1,237	1,132	864	783	741	699	659	614	559	536	511	488	468	445	449	455	458	463	469
Treatment	72	72	71	71	71	76	81	86	91	95	94	93	93	92	91	90	90	89	88	88
Total	**3,638**	**3,637**	**3,616**	**3,640**	**3,637**	**3,647**	**3,643**	**3,660**	**3,654**	**3,622**	**3,627**	**3,621**	**3,622**	**3,622**	**3,621**	**3,626**	**3,629**	**3,633**	**3,640**	**3,644**
Recycling rate	45.4%	47.1%	48.7%	50.4%	52.1%	53.2%	54.3%	55.5%	56.6%	57.7%	58.3%	59.0%	59.7%	60.3%	61.0%	60.9%	60.9%	60.8%	60.8%	60.8%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-218	-227	-262	-225	-243	-243	-238	-239	-236	-235	-236	-235	-235	-232	-232	-232	-230	-230	-230	-229
Landfill	498	567	472	740	821	863	755	485	530	585	308	333	356	376	399	325	139	136	31	-225
Treatment	365	365	366	366	366	361	356	351	346	342	343	344	344	345	346	347	347	348	349	349
Total	645	705	576	880	944	980	873	597	640	693	415	442	466	489	513	440	257	254	150	-104

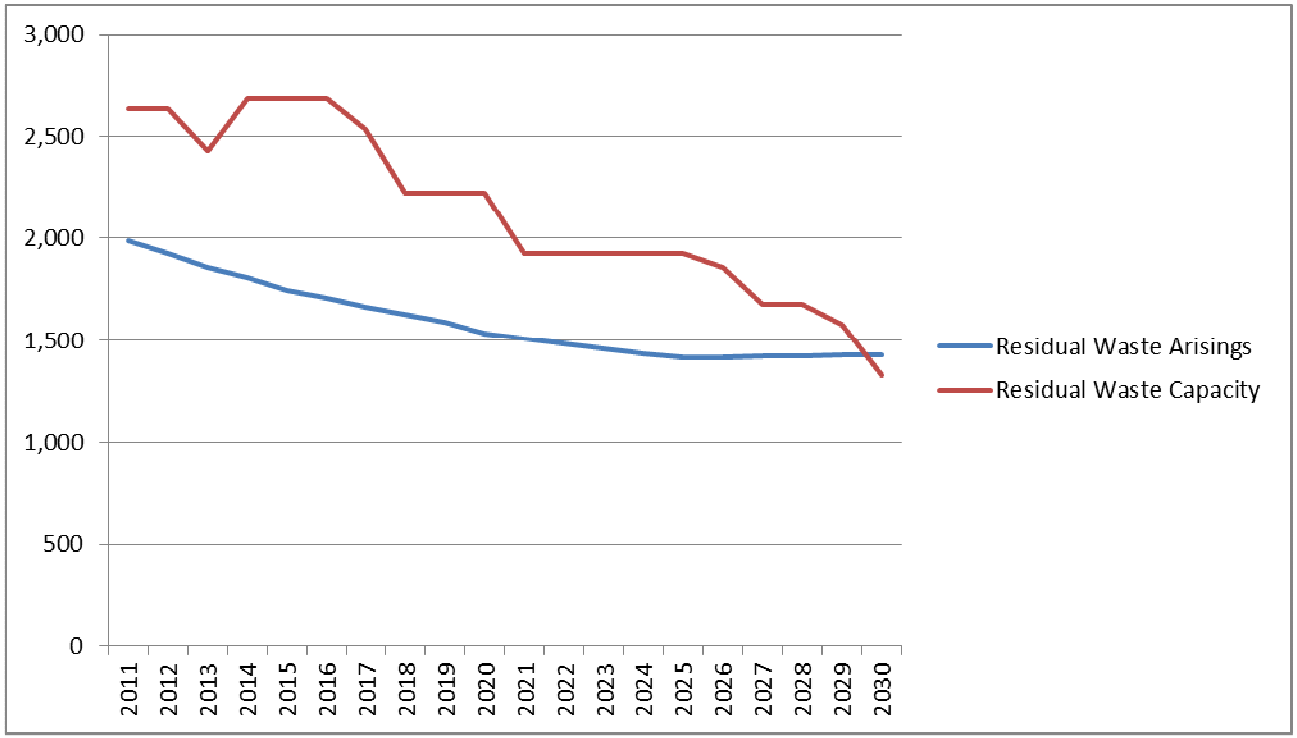


Figure 46: NE Regional Residual waste capacity v arisings all waste management methods: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 70% by 2025

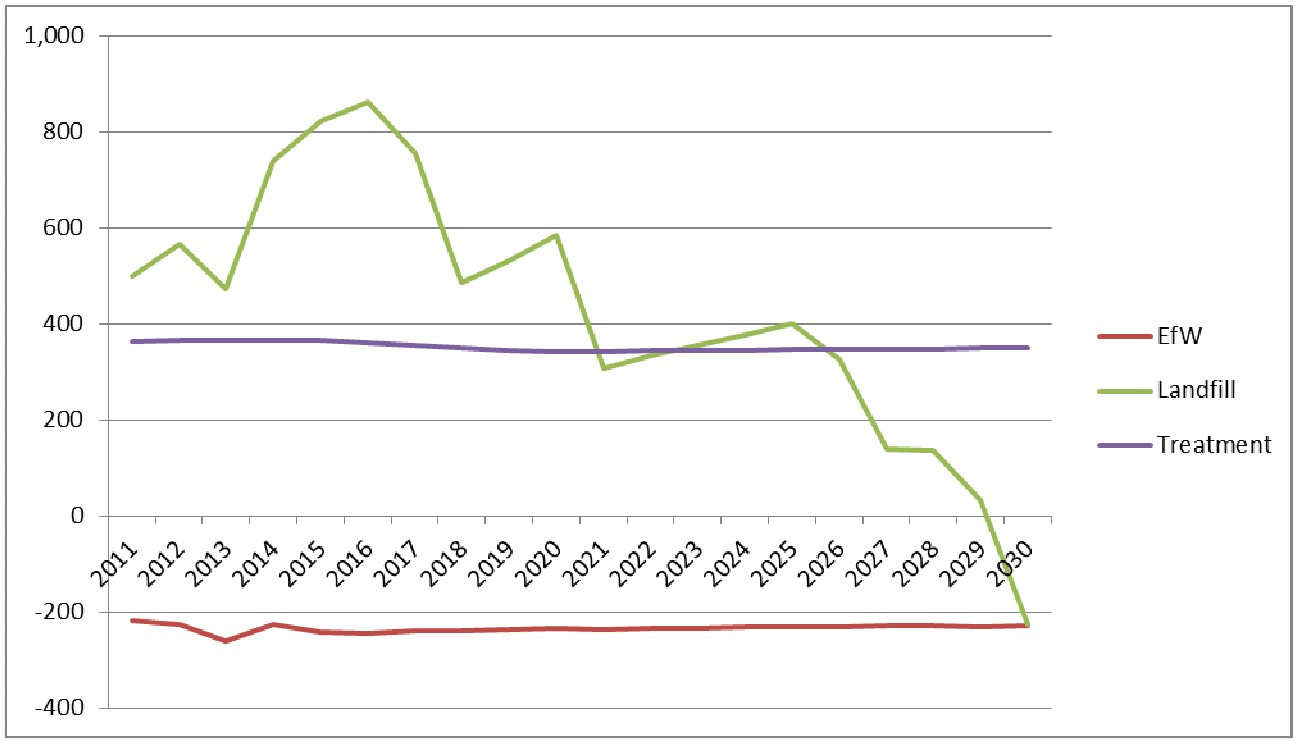


Figure 47: NE Regional Residual Waste Capacity - arisings: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 70% by 2025

Scemario Summary

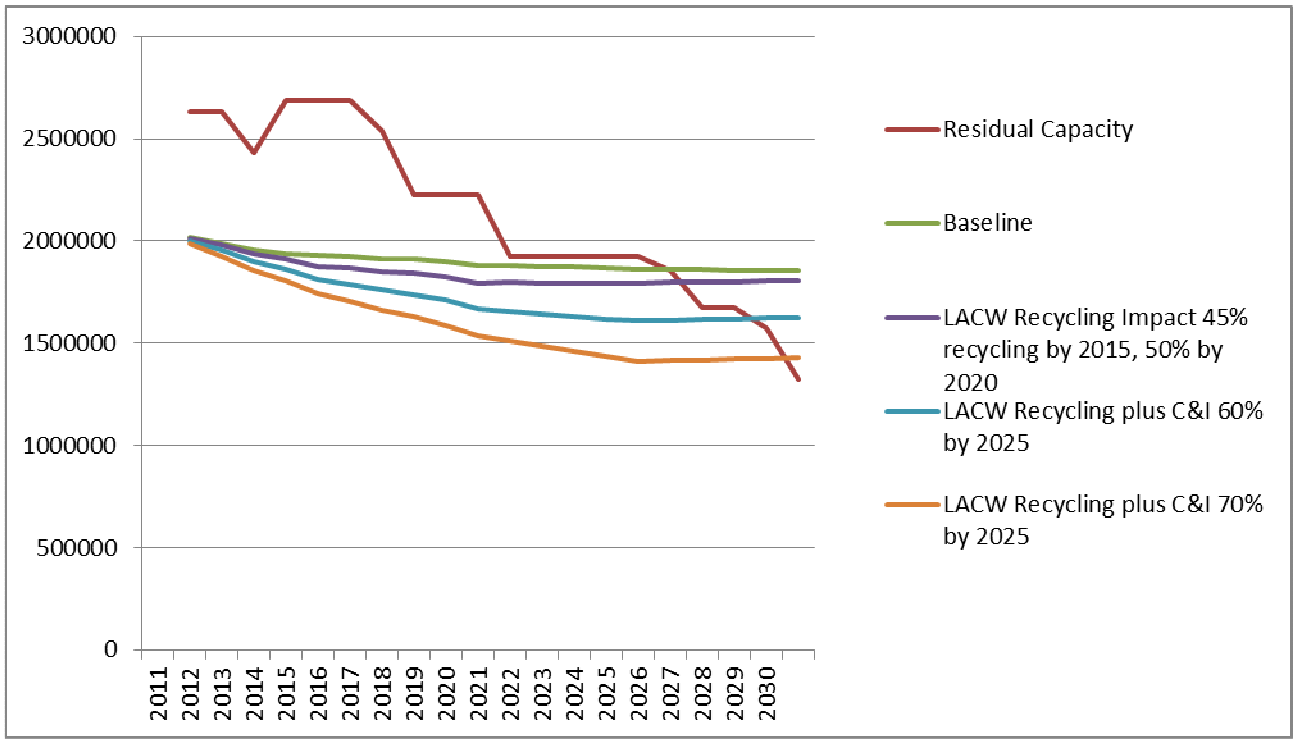


Figure 48: NE Regional Residual Waste Capacity against arisings forecasts, recycling scenarios 1-3

1.2.3. Changes from baseline – increased C&I Landfill Diversion

Scenario 4: LACW as Scenario 1 plus C&I baseline with 75% diversion from landfill by 2020

LACW Arisings as Scenario 1
C&I Arisings baseline plus 75% landfill diversion by 2020 (tonnes x 1,000)

C&I	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	901	896	886	890	885	884	878	881	874	857	855	848	845	841	837	835	832	830	828	826
Composting	192	191	188	189	187	187	186	186	184	180	179	177	176	175	174	173	173	172	171	170
Energy Recovery	185	213	239	269	296	324	351	380	406	425	424	420	418	416	414	413	412	410	409	408
Landfill	802	768	730	704	672	642	609	582	549	510	509	505	502	500	497	496	494	493	492	490
Treatment	72	72	71	71	71	71	70	70	70	68	68	68	67	67	66	66	66	66	66	65
Total	2,152	2,140	2,113	2,123	2,111	2,109	2,094	2,100	2,083	2,041	2,034	2,018	2,009	2,000	1,989	1,984	1,977	1,971	1,966	1,959
% Recycling	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.9%**
% Diversion	**62.7%**	**64.1%**	**65.5%**	**66.8%**	**68.2%**	**69.5%**	**70.9%**	**72.3%**	**73.6%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	1,277	1,300	1,311	1,338	1,361	1,372	1,380	1,395	1,401	1,398	1,400	1,396	1,396	1,396	1,395	1,397	1,398	1,399	1,401	1,403
Composting	347	357	369	387	400	406	412	420	427	430	431	431	431	432	432	433	433	434	435	436
Energy Recovery	608	646	710	958	1,004	1,034	1,056	1,086	1,110	1,133	1,133	1,131	1,130	1,126	1,125	1,124	1,121	1,121	1,122	1,119
Landfill	1,333	1,262	1,155	884	802	758	714	672	625	567	570	570	572	577	578	582	587	590	593	599
Treatment	72	72	71	71	71	76	81	86	91	95	94	93	93	92	91	90	90	89	88	88
Total	**3,638**	**3,637**	**3,616**	**3,640**	**3,637**	**3,647**	**3,643**	**3,660**	**3,654**	**3,622**	**3,627**	**3,621**	**3,622**	**3,622**	**3,621**	**3,626**	**3,629**	**3,633**	**3,640**	**3,644**
% Recycling	**44.6%**	**45.5%**	**46.5%**	**47.4%**	**48.4%**	**48.8%**	**49.2%**	**49.6%**	**50.0%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**
% Diversion	**63.4%**	**65.3%**	**68.1%**	**75.7%**	**78.0%**	**79.2%**	**80.4%**	**81.6%**	**82.9%**	**84.4%**	**84.3%**	**84.3%**	**84.2%**	**84.1%**	**84.0%**	**84.0%**	**83.8%**	**83.8%**	**83.7%**	**83.6%**

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-218	-244	-297	-278	-312	-330	-341	-359	-372	-385	-386	-384	-384	-381	-380	-380	-377	-377	-378	-376
Landfill	471	530	426	684	755	787	670	390	426	475	173	173	171	167	166	93	-92	-94	-198	-453
Treatment	365	365	366	366	366	361	356	351	346	342	343	344	344	345	346	347	347	348	349	349
Total	617	651	495	772	809	818	685	382	400	432	129	132	132	132	132	60	-121	-123	-227	-479

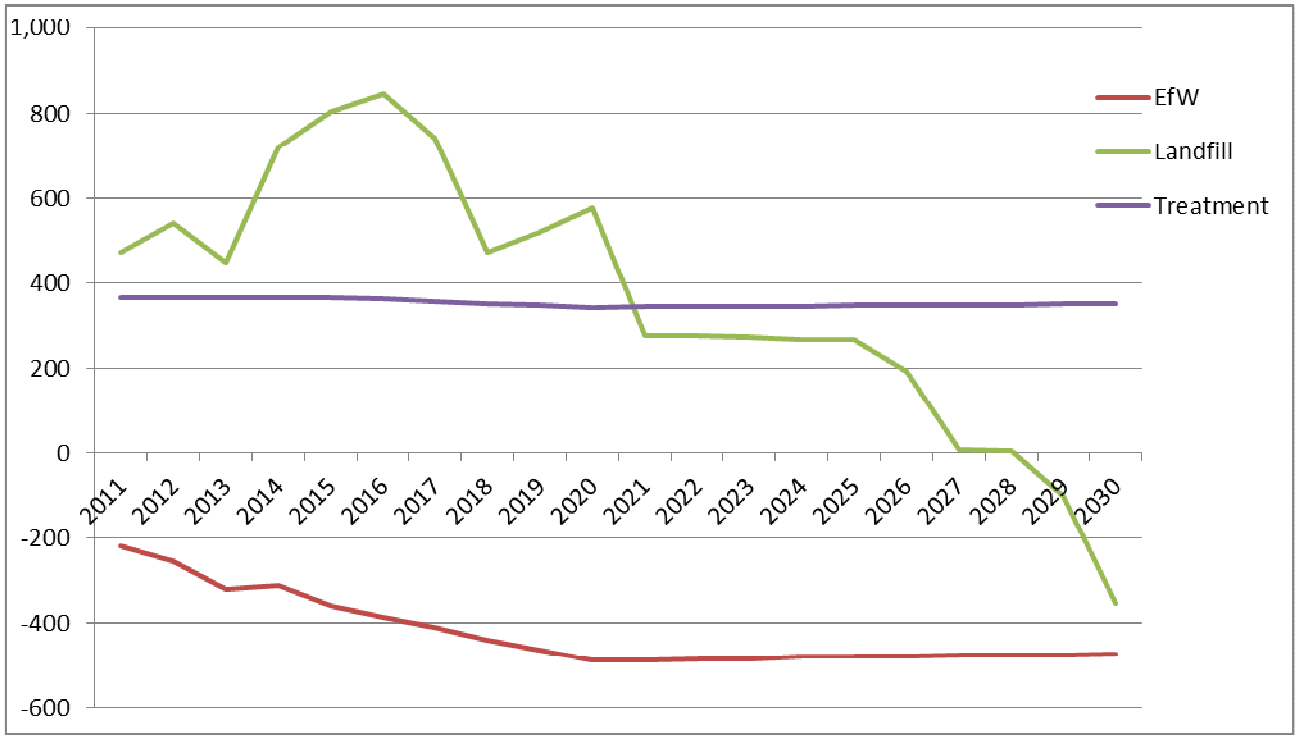


Figure 49: North East England Residual Waste Capacity - arisings: Scenario 4: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Landfill Diversion 75% by 2020

1.2.4. Modelled Capacity Gaps without Houghton Landfill Extension

Baseline Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-218	-227	-262	-225	-243	-243	-238	-239	-236	-235	-236	-235	-235	-232	-232	-232	-230	-230	-230	-229
Landfill	463	504	122	357	385	393	256	-49	-36	-12	-312	-307	-305	-304	-301	-371	-550	-550	-650	-649
Treatment	365	365	366	366	366	361	356	351	346	342	343	344	344	345	346	347	347	348	349	349
Total	610	642	226	497	508	510	374	63	74	95	-205	-199	-196	-191	-187	-256	-433	-431	-532	-529

Scenario 1: Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-218	-227	-262	-225	-243	-243	-238	-239	-236	-235	-236	-235	-235	-232	-232	-232	-230	-230	-230	-229
Landfill	471	512	141	382	436	451	317	20	40	75	-228	-226	-228	-231	-232	-305	-489	-492	-595	-600
Treatment	365	365	366	366	366	361	356	351	346	342	343	344	344	345	346	347	347	348	349	349
Total	617	651	245	522	559	568	435	132	150	182	-121	-118	-118	-118	-118	-190	-371	-373	-477	-479

Scenario 2 Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-218	-227	-262	-225	-243	-243	-238	-239	-236	-235	-236	-235	-235	-232	-232	-232	-230	-230	-230	-229
Landfill	484	539	180	435	502	530	409	125	157	202	-88	-76	-65	-57	-49	-123	-308	-311	-415	-421
Treatment	365	365	366	366	366	361	356	351	346	342	343	344	344	345	346	347	347	348	349	349
Total	631	677	285	575	625	647	527	237	267	309	19	33	45	56	65	-8	-190	-193	-297	-300

Scenario 3 Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-218	-227	-262	-225	-243	-243	-238	-239	-236	-235	-236	-235	-235	-232	-232	-232	-230	-230	-230	-229
Landfill	498	567	222	490	571	613	505	235	280	335	58	83	106	126	149	75	-111	-114	-219	-225
Treatment	365	365	366	366	366	361	356	351	346	342	343	344	344	345	346	347	347	348	349	349
Total	645	705	326	630	694	730	623	347	390	443	165	192	216	239	263	190	7	4	-100	-104

Scenario 4: Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-218	-256	-320	-313	-359	-388	-411	-441	-465	-488	-488	-485	-484	-481	-479	-479	-476	-476	-476	-474
Landfill	471	542	199	470	552	596	490	222	269	327	24	24	22	17	16	-58	-243	-246	-349	-355
Treatment	365	365	366	366	366	361	356	351	346	342	343	344	344	345	346	347	347	348	349	349
Total	617	651	245	522	559	568	435	132	150	182	-121	-118	-118	-118	-118	-190	-371	-373	-477	-479

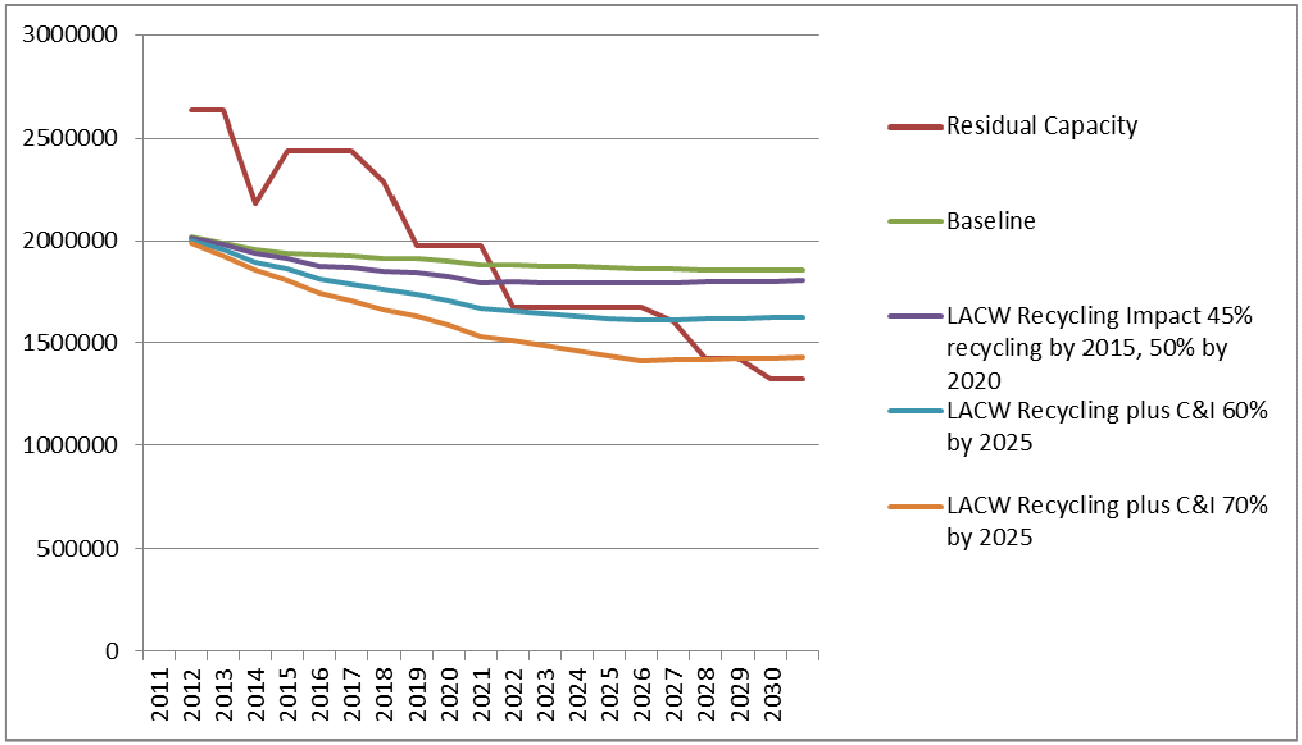


Figure 50: NE England Residual Waste Capacity against arisings forecasts, recycling scenarios 1-3 (without Houghton landfill extension post 2012)

1.3. Organic Waste Recycling Arisings and Capacities

Baseline Organic Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	153	164	175	191	196	201	207	212	219	222	225	228	230	233	236	238	241	244	247	250
From C&I	192	191	188	189	187	187	186	186	184	180	179	177	176	175	174	173	173	172	171	170
Total	344	355	363	379	384	388	393	398	403	402	404	405	407	409	410	412	414	416	418	420

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	155	166	181	198	212	219	226	234	243	250	252	253	255	256	258	259	261	262	264	266
From C&I	192	191	188	189	187	187	186	186	184	180	179	177	176	175	174	173	173	172	171	170
Total	347	357	369	387	400	406	412	420	427	430	431	431	431	432	432	433	433	434	435	436

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	155	166	181	198	212	219	226	234	243	250	252	253	255	256	258	259	261	262	264	266
From C&I	194	195	195	198	199	201	201	204	205	202	203	204	204	205	206	205	204	203	202	201
Total	349	362	376	396	411	420	428	438	448	452	455	457	459	462	463	464	464	465	466	467

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	155	166	181	198	212	219	226	234	243	250	252	253	255	256	258	259	261	262	264	266
From C&I	197	200	202	208	211	215	218	223	226	225	229	231	234	237	240	239	238	237	236	234
Total	352	367	383	406	423	435	445	458	469	475	480	484	489	493	497	498	498	499	500	500

Processing Capacity

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Composting	447	447	447	447	447	447	447	447	447	447	447	447	447	447	447	447	447	447	447	447
AD	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152
Total	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599

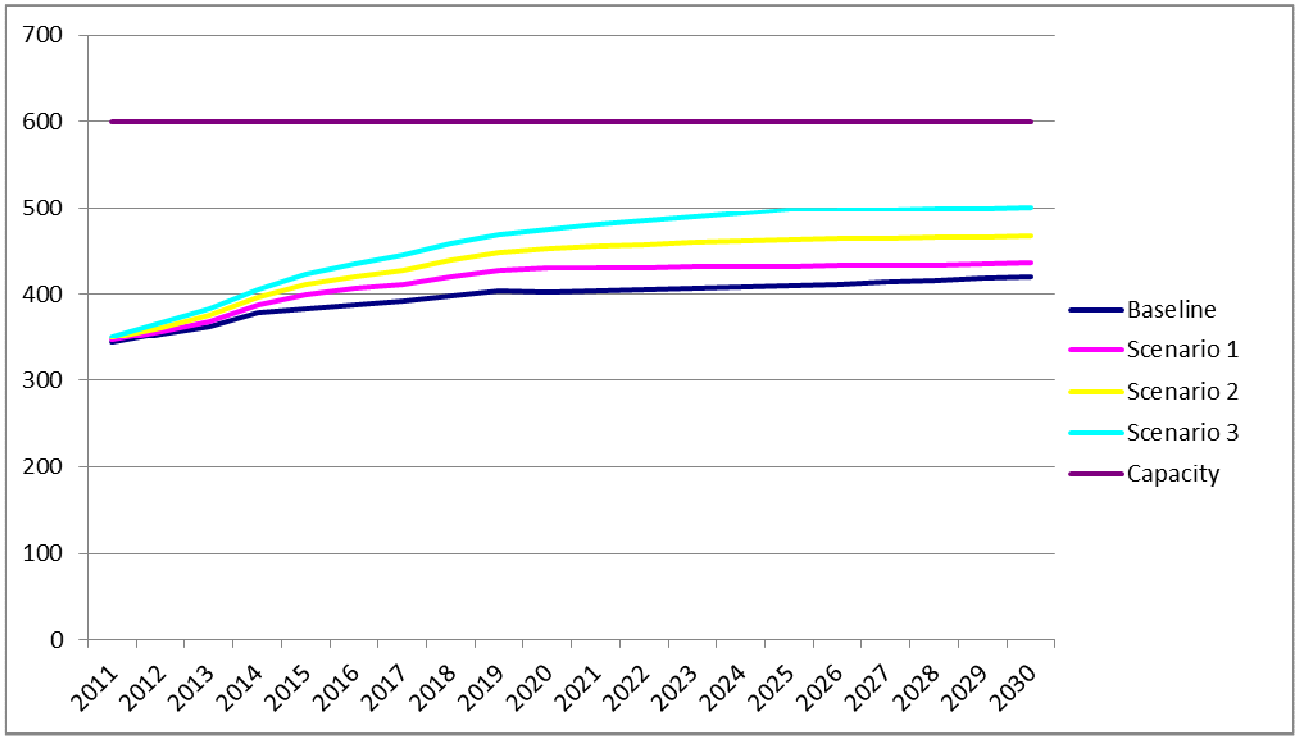


Figure 51: NE Regional Organic Recycling Arisings v Capacity (tonnes x 1,000)

1.4. Hazardous Waste Arisings and Capacities

Waste Fate	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Incineration	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10
Landfill	24	24	24	24	24	24	23	23	23	23	23	23	22	22	22	22	22	22	22	22
Recovery	66	65	64	65	64	64	64	64	63	62	61	61	60	60	60	59	59	58	58	58
Treatment	56	56	55	55	55	55	54	54	54	53	52	52	52	51	51	51	51	50	50	50
Totals	**157**	**156**	**154**	**155**	**154**	**154**	**152**	**153**	**151**	**148**	**147**	**146**	**145**	**144**	**143**	**142**	**142**	**141**	**140**	**139**

Figure 52: NE Regional Forecast Hazardous Waste Arisings (tonnes x 1,000)

Facility	Non-operational	Operational	Grand Total
Haz Landfill	29,998	742,899	772,897
Haz Transfer	4,999	1,598,929	1,603,928
Treatment	0	122,807	122,807
Haz Incineration	0	100	100
Total	34,997	2,464,735	2,499,732

Figure 53: NE Regional Hazardous Waste Processing Capacity (tonnes)

2. County Durham WPA

2.1. Baseline Waste Arisings Forecasts

County Durham Municipal Waste (LACW) Arisings (tonnes x 1,000)

Based upon LACW from WasteDataFlow (2009-10) growth rates supplied by WPA, contract targets 47% recycling by 2015, 50% recycling by 2020 and 75% landfill diversion by 2020

LACW	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
Recycled	68	80	85	87	88	90	92	93	95	97	97	98	98	99	99	100	100	101	102	102
Composting	29	34	36	36	37	38	38	39	40	40	41	41	41	41	42	42	42	42	42	43
Energy Recovery	5	5	5	11	17	24	32	39	47	55	55	55	56	56	56	57	57	57	58	58
Landfill	167	152	143	134	125	116	108	100	91	82	83	83	84	84	85	85	86	86	86	87
Total	269	271	268	268	267	268	270	271	273	274	276	277	279	281	282	284	285	287	288	290
% Recycling	**36.1%**	**42.0%**	**45.0%**	**46.0%**	**47.0%**	**47.6%**	**48.2%**	**48.8%**	**49.4%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**

County Durham Commercial & Industrial Wastes (C&I) Arisings (tonnes x 1,000)

Based upon arisings data from NE C&I Arisings Survey 2009-10, modelled to WPA using business population data from ONS; growth factors from Oxford Economics, with adjustments post 2020.

C&I	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
Recycled	159	157	155	155	155	154	154	152	153	152	149	149	146	145	144	143	143	142	142	143
Composting	39	38	38	38	38	37	37	37	37	37	36	36	35	35	35	35	35	35	35	35
Energy Recovery	21	21	21	21	21	21	21	21	21	20	20	20	20	20	19	19	19	19	19	19
Landfill	149	147	145	145	145	144	144	143	143	142	139	139	137	136	135	133	134	133	133	133
Treatment	21	21	21	21	21	21	21	21	21	20	20	20	20	20	19	19	19	19	19	19
Total	389	384	380	379	380	377	378	373	374	372	364	365	357	355	354	349	350	348	349	349
% Recycling	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**

Total County Durham Arisings (LACW + C&I) (tonnes x 1,000)

Total Arisings	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
Recycled	228	231	235	240	242	243	244	244	246	247	245	246	244	244	243	242	243	243	243	244
Composting	68	69	71	73	74	74	75	75	76	77	77	77	76	76	76	76	77	77	77	77
Energy Recovery	26	26	26	25	34	42	52	62	72	82	89	89	89	89	90	90	90	90	91	91
Landfill	318	306	298	288	277	264	254	241	231	219	208	208	206	206	205	204	205	204	205	206
Treatment	21	21	21	21	21	21	21	21	21	20	20	20	20	20	19	19	19	19	19	19
Total	661	653	650	647	648	644	646	643	646	645	638	641	635	634	634	631	633	633	635	637
% Recycling	**44.7%**	**45.9%**	**47.1%**	**48.4%**	**48.8%**	**49.2%**	**49.5%**	**49.7%**	**49.9%**	**50.2%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**

2.2. Waste facilities within the County Durham WPA Area

Local waste facility data was supplied by the WPA along with permitted and operational capacities in many cases. The available capacities from the 123 sites identified within the WPA area can be summarised as:

Site Type	Not Operational	Operational	Total Capacity (tonnes per annum)
C&D recycling	20,000	175,000	195,000
Composting	85,000	233,220	318,220
Landfill (inert)	29,999	1,090,000	1,119,999
Landfill (non-hazardous)		491,960	491,960
Metal/ELV	102,499	432,624	535,123
Recycling	114,000	590,000	704,000
Transfer	15,000	1,081,484	1,096,484
Treatment	98,000	772,308	870,308
Grand Total	464,498	4,866,596	5,331,094

2.3. Non-Hazardous Residual Waste Arisings and Capacities

2.3.1. Baseline

From these baseline forecasts, County Durham Residual Waste Baseline Forecasts are (tonnes x 1,000)

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
Energy Recovery	26	26	26	25	34	42	52	62	72	82	89	89	89	89	90	90	90	90	91	91
Landfill	318	306	298	288	277	264	254	241	231	219	208	208	206	206	205	204	205	204	205	206
Treatment	21	21	21	21	21	21	21	21	21	20	20	20	20	20	19	19	19	19	19	19
Total Residual	**365**	**353**	**344**	**334**	**332**	**327**	**327**	**324**	**323**	**321**	**316**	**318**	**315**	**315**	**314**	**313**	**314**	**314**	**315**	**316**

County Durham Residual Waste Capacity Forecasts (from key residual waste facilities) (tonnes x 1,000)
(source of data: DCC; landfill annual capacity based upon 2010 tipping rates)

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
EfW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Landfill	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	98
Treatment	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127
Total	325	325	325	325	325	325	325	325	325	325	325	325	325	325	325	325	325	325	325	225

Difference County Durham Regional Capacity – Arisings (tonnes x 1,000)

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
EfW	-26	-26	-26	-25	-34	-42	-52	-62	-72	-82	-89	-89	-89	-89	-90	-90	-90	-90	-91	-91
Landfill	-120	-108	-100	-90	-79	-66	-56	-43	-33	-21	-10	-10	-8	-8	-7	-6	-7	-6	-7	-108
Treatment	106	106	106	106	106	106	106	106	106	107	107	107	107	107	108	108	108	108	108	108
Total	-40	-28	-19	-9	-7	-2	-2	1	2	4	9	7	10	10	11	12	11	11	10	-91

Negative figures indicate a capacity shortfall

From these baseline forecasts:

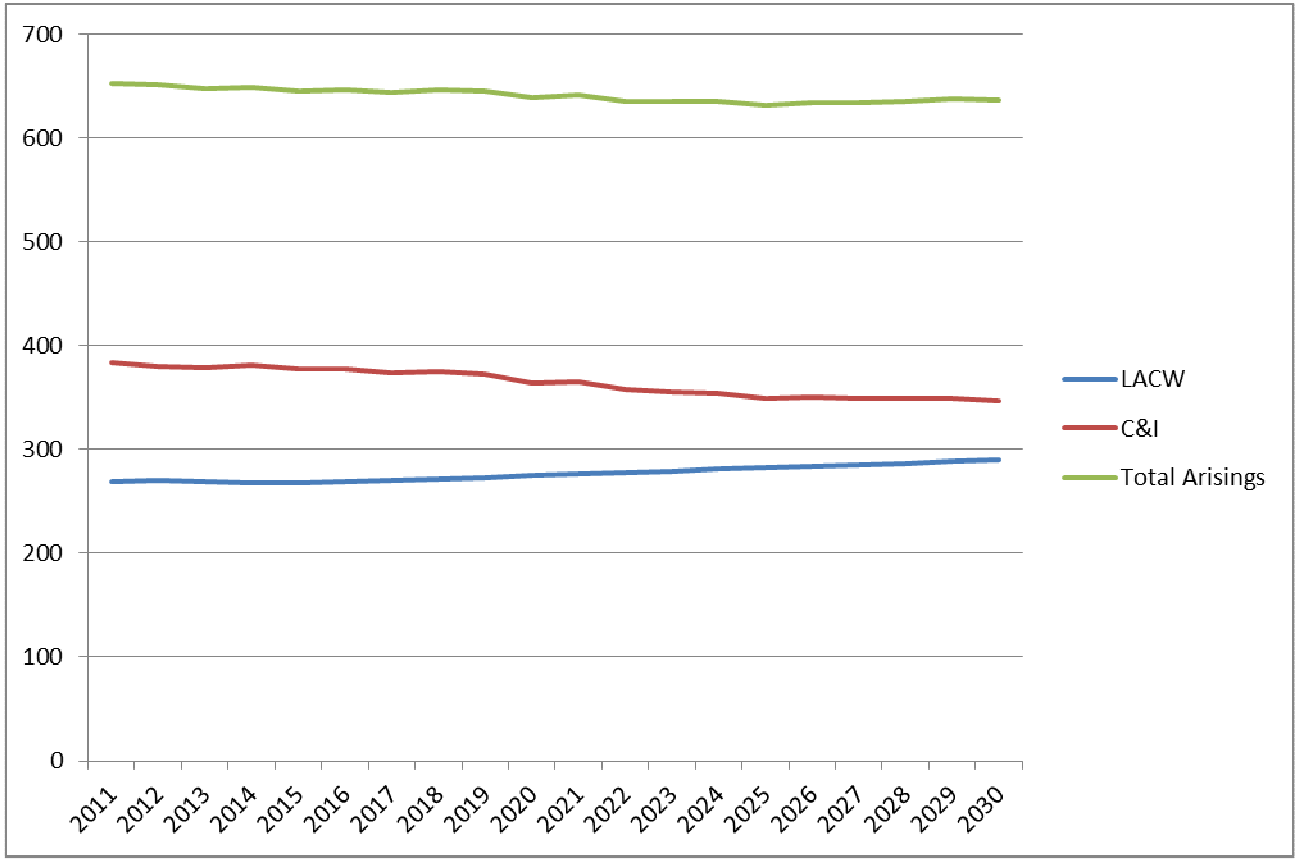


Figure 54: County Durham Baseline Arisings Forecasts (tonnes x 1,000)

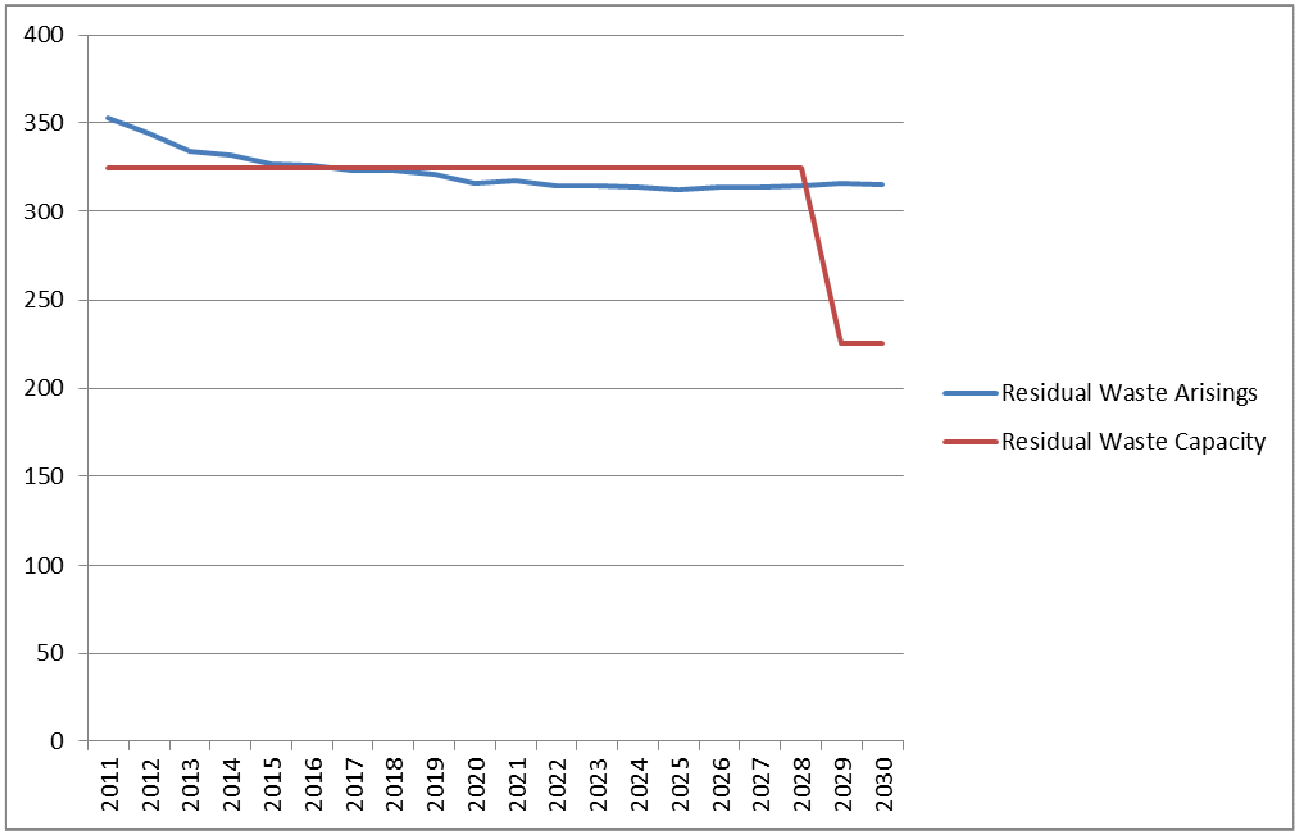


Figure 55: County Durham Residual Waste Capacity v Arisings, all waste management methods (tonnes x 1,000)

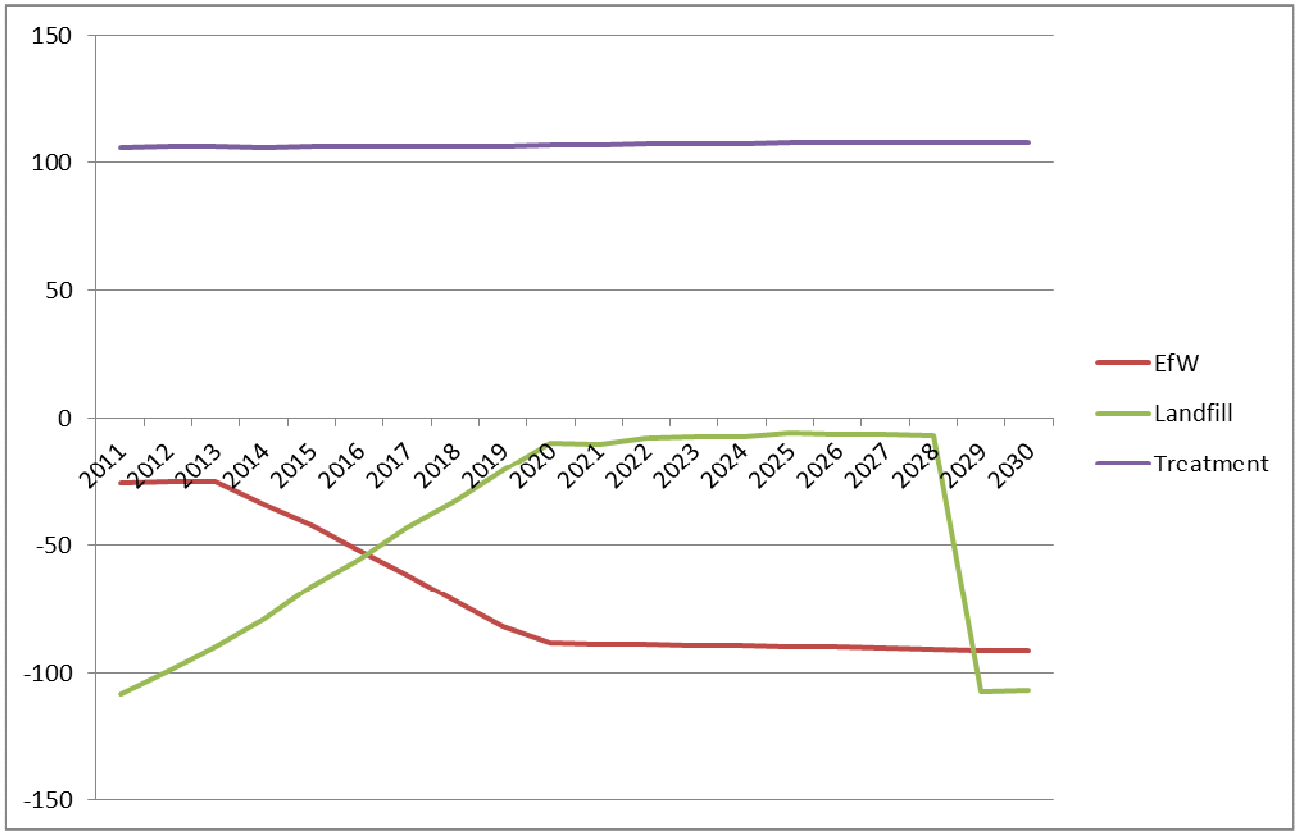


Figure 56: County Durham Residual Waste Capacity - Arisings, per waste management method (tonnes x 1,000) – negative figures indicate a shortfall

2.3.2. Changes from Baseline: Increased Recycling

Scenario 1: LACW Recycling Targets 47% recycling by 2015, 50% by 2020

As baseline, as recycling targets built into LACW contract targets

Scenario 2: LACW Recycling Impact 47% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

LACW – as Scenario 1

C&I Arisings, 60% recycling by 2025 (tonnes x 1,000)

C&I	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
Recycled	159	159	159	160	163	164	166	166	168	169	167	169	167	168	169	169	169	168	168	169
Composting	39	39	39	39	40	40	40	40	41	41	41	41	41	41	41	41	41	41	41	41
Energy Recovery	21	21	21	21	21	21	21	21	21	20	20	20	20	20	19	19	19	19	19	19
Landfill	149	144	140	138	136	132	130	126	124	121	116	114	110	107	104	101	101	101	101	101
Treatment	21	21	21	21	21	21	21	21	21	20	20	20	20	20	19	19	19	19	19	19
Total	389	384	380	379	380	377	378	373	374	372	364	365	357	355	354	349	350	348	349	349
% Recycling	**50.8%**	**51.4%**	**52.0%**	**52.6%**	**53.3%**	**53.9%**	**54.5%**	**55.1%**	**55.8%**	**56.4%**	**57.0%**	**57.6%**	**58.3%**	**58.9%**	**59.5%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**

Total Arisings

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
Recycling	228	233	239	245	250	252	256	257	261	264	264	266	265	267	268	268	269	269	269	270
Composting	68	70	72	75	76	77	78	79	80	81	81	82	82	82	83	83	83	83	83	83
Energy Recovery	26	26	26	25	34	42	52	62	72	82	89	89	89	89	90	90	90	90	91	91
Landfill	318	304	293	281	267	252	239	225	212	198	185	183	179	177	174	172	172	172	173	173
Treatment	21	21	21	21	21	21	21	21	21	20	20	20	20	20	19	19	19	19	19	19
Total	**661**	**653**	**650**	**647**	**648**	**644**	**646**	**643**	**646**	**645**	**638**	**641**	**635**	**634**	**634**	**631**	**633**	**633**	**635**	**637**
Recycling rate	44.7%	46.3%	47.9%	49.5%	50.3%	51.0%	51.6%	52.2%	52.8%	53.4%	54.0%	54.4%	54.7%	55.0%	55.3%	55.5%	55.5%	55.5%	55.5%	55.5%

Residual Waste Capacity Differences (tonnes x 1,000)

Difference	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
EfW	-26	-26	-26	-25	-34	-42	-52	-62	-72	-82	-89	-89	-89	-89	-90	-90	-90	-90	-91	-91
Landfill	-120	-106	-95	-83	-69	-54	-41	-27	-14	0	13	15	19	21	24	26	26	26	25	-75
Treatment	106	106	106	106	106	106	106	106	106	107	107	107	107	107	108	108	108	108	108	108
Total	-40	-26	-14	-2	3	9	13	18	20	25	31	32	37	39	42	44	43	43	42	-59

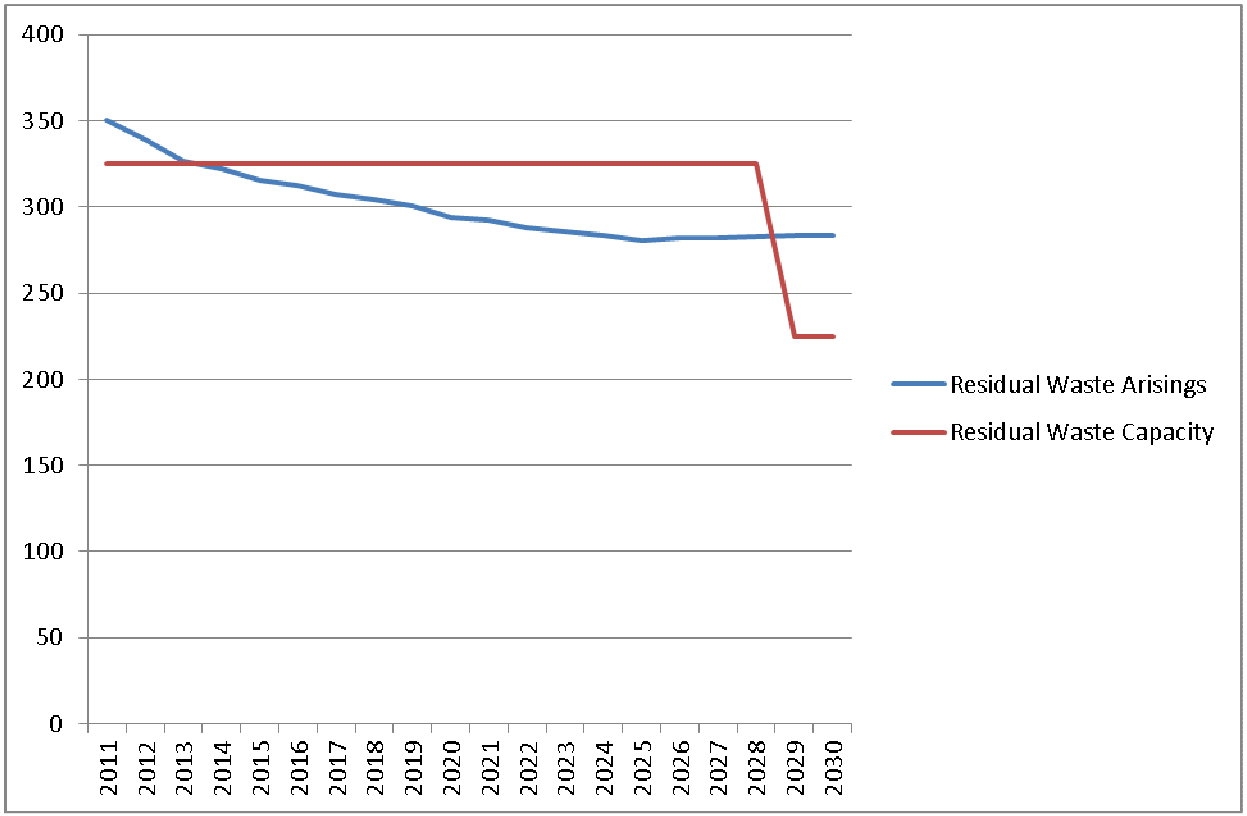


Figure 57: County Durham Residual waste capacity v arisings all waste management methods: Scenario 2: LACW Recycling Impact 47% recycling by 2015, 50% by 2020 and C&I recycling 60% by 2025

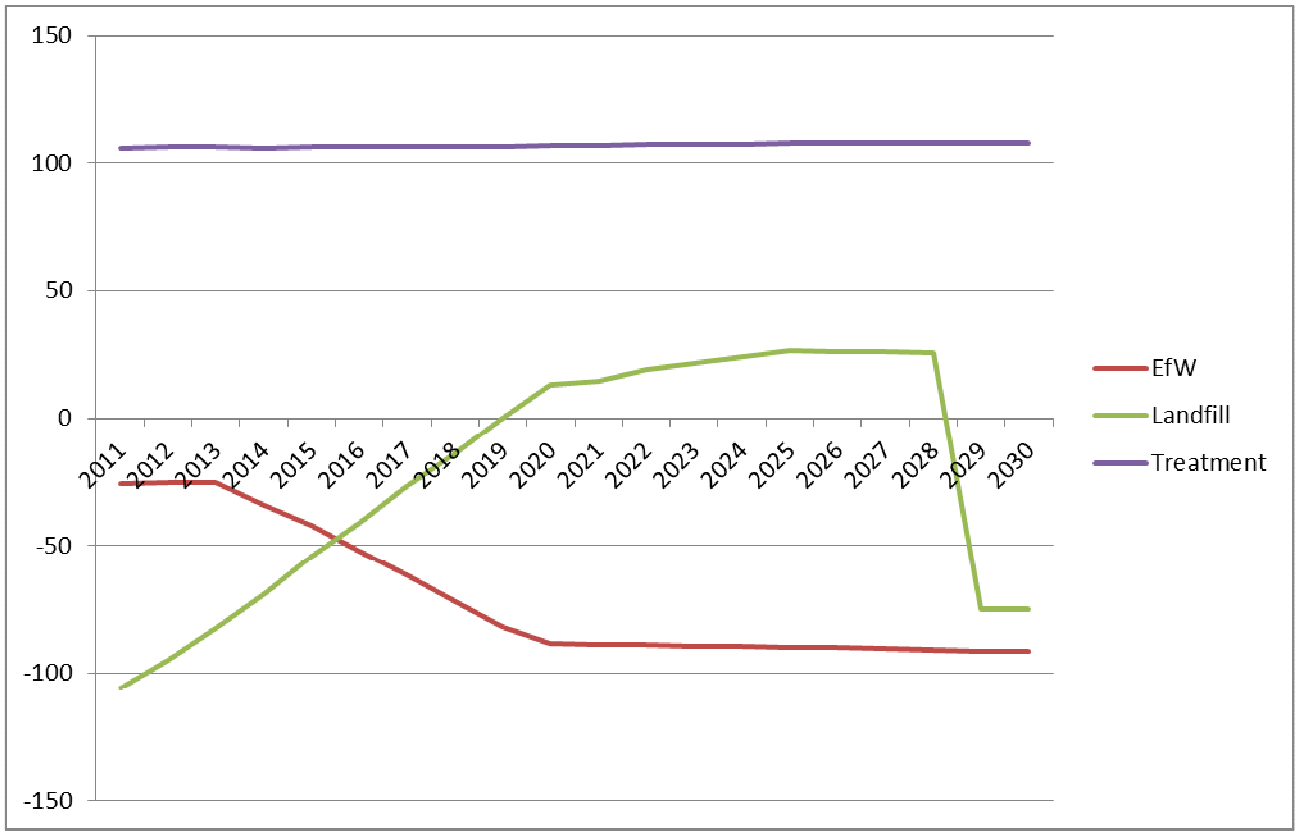


Figure 58: County Durham Residual Waste Capacity - arisings: Scenario 2: LACW Recycling Impact 47% recycling by 2015, 50% by 2020 and C&I Recycling 60% by 2025

Scenario 3: LACW Recycling Impact 47% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

LACW – as Scenario 1

C&I Arisings 70% recycling by 2025 (tonnes x 1,000)

C&I	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
Recycled	159	161	163	166	171	174	178	179	184	187	186	190	190	193	195	197	197	196	196	197
Composting	39	39	40	40	42	42	43	44	45	45	45	46	46	47	48	48	48	48	48	48
Energy Recovery	21	21	21	21	21	21	21	21	21	20	20	20	20	20	19	19	19	19	19	19
Landfill	149	142	135	130	126	120	115	109	105	99	93	88	82	77	72	66	66	66	66	66
Treatment	21	21	21	21	21	21	21	21	21	20	20	20	20	20	19	19	19	19	19	19
Total	389	384	380	379	380	377	378	373	374	372	364	365	357	355	354	349	350	348	349	349
% Recycling	**50.8%**	**52.0%**	**53.3%**	**54.6%**	**55.9%**	**57.2%**	**58.4%**	**59.7%**	**61.0%**	**62.3%**	**63.6%**	**64.8%**	**66.1%**	**67.4%**	**68.7%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**

Total Arisings (tonnes x 1,000)

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
Recycling	228	235	243	251	258	262	268	271	277	282	283	288	288	291	294	296	297	297	297	298
Composting	68	70	73	76	78	79	81	82	84	85	86	87	87	88	89	89	90	90	90	90
Energy Recovery	26	26	26	25	34	42	52	62	72	82	89	89	89	89	90	90	90	90	91	91
Landfill	318	301	288	273	257	240	225	208	192	176	161	157	151	146	142	137	137	137	138	138
Treatment	21	21	21	21	21	21	21	21	21	20	20	20	20	20	19	19	19	19	19	19
Total	**661**	**653**	**650**	**647**	**648**	**644**	**646**	**643**	**646**	**645**	**638**	**641**	**635**	**634**	**634**	**631**	**633**	**633**	**635**	**637**
Recycling rate	44.7%	46.7%	48.6%	50.6%	51.8%	53.0%	53.9%	54.9%	55.9%	56.8%	57.7%	58.5%	59.1%	59.8%	60.4%	61.0%	61.0%	61.0%	61.0%	61.0%

Residual Waste Capacity Differences (tonnes x 1,000)

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
EfW	-26	-26	-26	-25	-34	-42	-52	-62	-72	-82	-89	-89	-89	-89	-90	-90	-90	-90	-91	-91
Landfill	-120	-103	-90	-75	-59	-42	-27	-10	6	22	37	41	47	52	56	61	61	61	60	-40
Treatment	106	106	106	106	106	106	106	106	106	107	107	107	107	107	108	108	108	108	108	108
Total	-40	-23	-9	6	13	22	27	35	40	47	55	59	65	70	74	79	78	78	77	-24

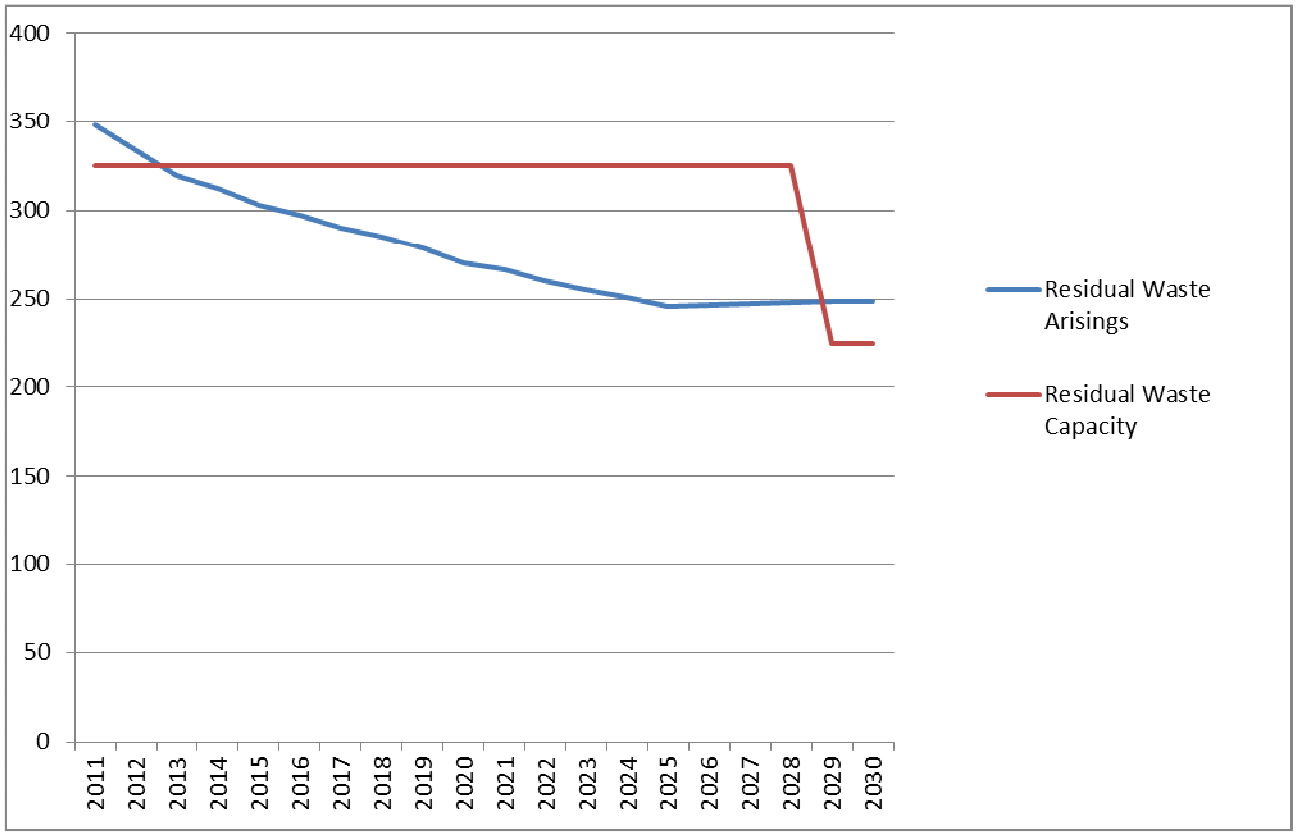


Figure 59: County Durham Residual waste capacity v arisings all waste management methods: Scenario 3: LACW Recycling Impact 47% recycling by 2015, 50% by 2020 and C&I recycling 70% by 2025

Figure 60: County Durham Residual Waste Capacity - arisings: Scenario 3: LACW Recycling Impact 47% recycling by 2015, 50% by 2020 and C&I Recycling 70% by 2025

Scenario Summary:

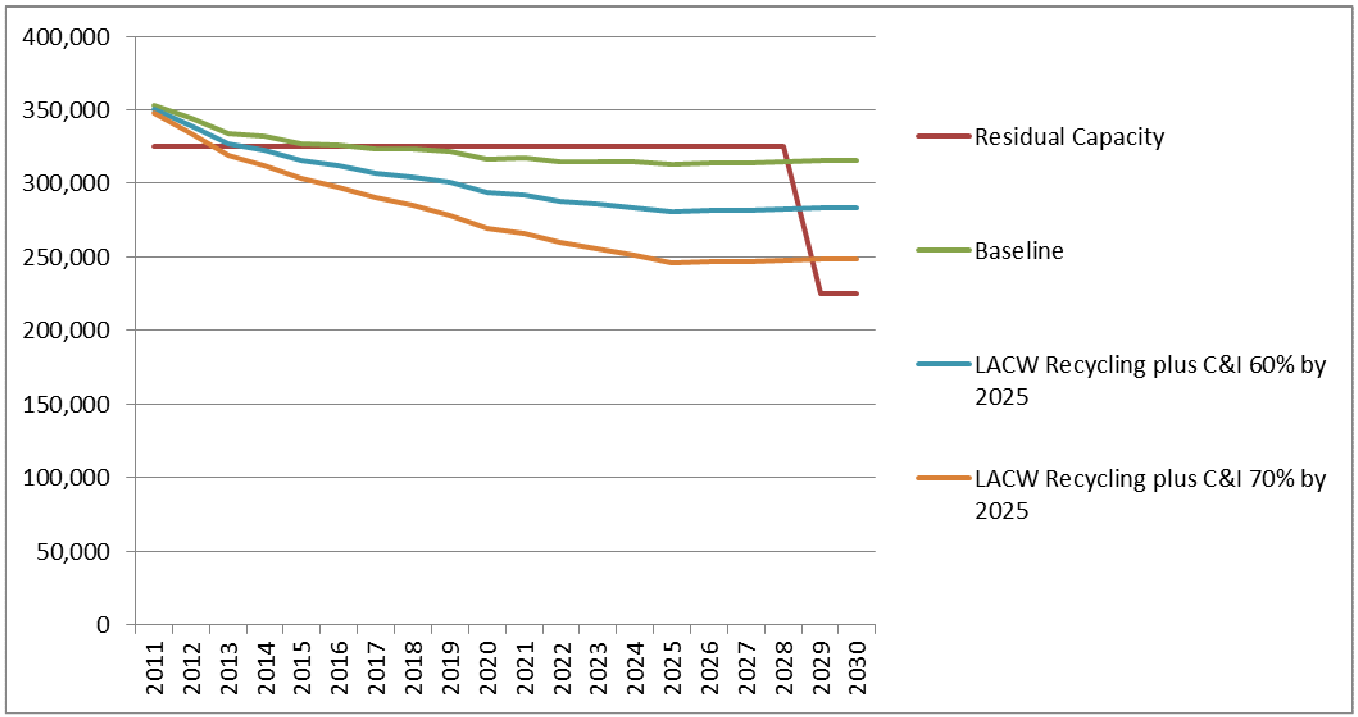


Figure 61: County Durham Residual Waste Capacity against arisings forecasts, recycling scenarios 1-3

2.3.3. Changes from baseline – increased C&I Landfill Diversion

Scenario 4: LACW as Scenario 1 plus C&I baseline with 75% diversion from landfill by 2020

LACW Arisings as Scenario 1
C&I Arisings baseline plus 75% landfill diversion by 2020 (tonnes x 1,000)

C&I	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
Recycled	159	157	155	155	155	154	154	152	153	152	149	149	146	145	144	143	143	142	142	143
Composting	39	38	38	38	38	37	37	37	37	37	36	36	35	35	35	35	35	35	35	35
Energy Recovery	21	21	27	32	38	43	49	54	59	64	68	68	67	67	66	65	66	65	65	65
Landfill	149	146	139	133	128	122	116	110	105	98	91	91	89	89	88	87	87	87	87	87
Treatment	21	21	21	21	21	21	21	21	21	20	20	20	20	20	19	19	19	19	19	19
Total	389	384	380	379	380	377	378	373	374	372	364	365	357	355	354	349	350	348	349	349
% Recycling	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**	**50.8%**
% Diversion	**61.8%**	**61.9%**	**63.3%**	**64.8%**	**66.2%**	**67.7%**	**69.2%**	**70.6%**	**72.1%**	**73.5%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**

Total Arisings (tonnes x 1,000)

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
Recycling	228	231	235	240	242	243	244	244	246	247	245	246	244	244	243	242	243	243	243	244
Composting	68	69	71	73	74	74	75	75	76	77	77	77	76	76	76	76	77	77	77	77
Energy Recovery	26	26	31	37	51	65	80	95	110	126	137	137	136	136	136	136	136	136	137	137
Landfill	318	306	292	276	260	242	226	208	192	175	160	160	159	159	159	158	158	158	159	159
Treatment	21	21	21	21	21	21	21	21	21	20	20	20	20	20	19	19	19	19	19	19
Total	**661**	**653**	**650**	**647**	**648**	**644**	**646**	**643**	**646**	**645**	**638**	**641**	**635**	**634**	**634**	**631**	**633**	**633**	**635**	**637**
% Recycling	**44.7%**	**45.9%**	**47.1%**	**48.4%**	**48.8%**	**49.2%**	**49.5%**	**49.7%**	**49.9%**	**50.2%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**
% Diversion	**51.9%**	**53.1%**	**55.2%**	**57.3%**	**59.9%**	**62.5%**	**65.1%**	**67.6%**	**70.2%**	**72.8%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**

Residual Waste Capacity Differences (tonnes x 1,000)

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
EfW	-26	-26	-31	-37	-51	-65	-80	-95	-110	-126	-137	-137	-136	-136	-136	-136	-136	-136	-137	-137
Landfill	-120	-108	-94	-78	-62	-44	-28	-10	6	23	38	38	39	39	39	40	40	40	39	-61
Treatment	106	106	106	106	106	106	106	106	106	107	107	107	107	107	108	108	108	108	108	108
Total	-40	-28	-19	-9	-7	-2	-2	1	2	4	9	7	10	10	11	12	11	11	10	-91

Figure 62: County Durham Residual Waste Capacity - arisings: Scenario 4: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Landfill Diversion 75% by 2020

2.4. Organic Waste Recycling Arisings and Capacities

Baseline Organic Arisings

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
From LACW	29	31	34	36	36	37	38	38	39	40	40	41	41	41	41	42	42	42	42	42
From C&I	39	38	38	38	38	37	37	37	37	37	36	36	35	35	35	35	35	35	35	35
Total	68	69	71	73	74	74	75	75	76	77	77	77	76	76	76	76	77	77	77	77

Scenario 1: LACW Recycling Impact 47% recycling by 2015, 50% by 2020 as baseline

Scenario 2: LACW Recycling Impact 47% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
From LACW	29	29	34	36	36	37	38	38	39	40	40	41	41	41	41	42	42	42	42	42
From C&I	39	39	39	39	40	40	40	40	41	41	41	41	41	41	41	41	41	41	41	41
Total	68	70	72	75	76	77	78	79	80	81	81	82	82	82	83	83	83	83	83	83

Scenario 3: LACW Recycling Impact 47% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
From LACW	29	29	34	36	36	37	38	38	39	40	40	41	41	41	41	42	42	42	42	42
From C&I	39	39	40	40	42	42	43	44	45	45	45	46	46	47	48	48	48	48	48	48
Total	68	70	73	76	78	79	81	82	84	85	86	87	87	88	89	89	90	90	90	90

Processing Capacity

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
Composting	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233
AD	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152
Total	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385

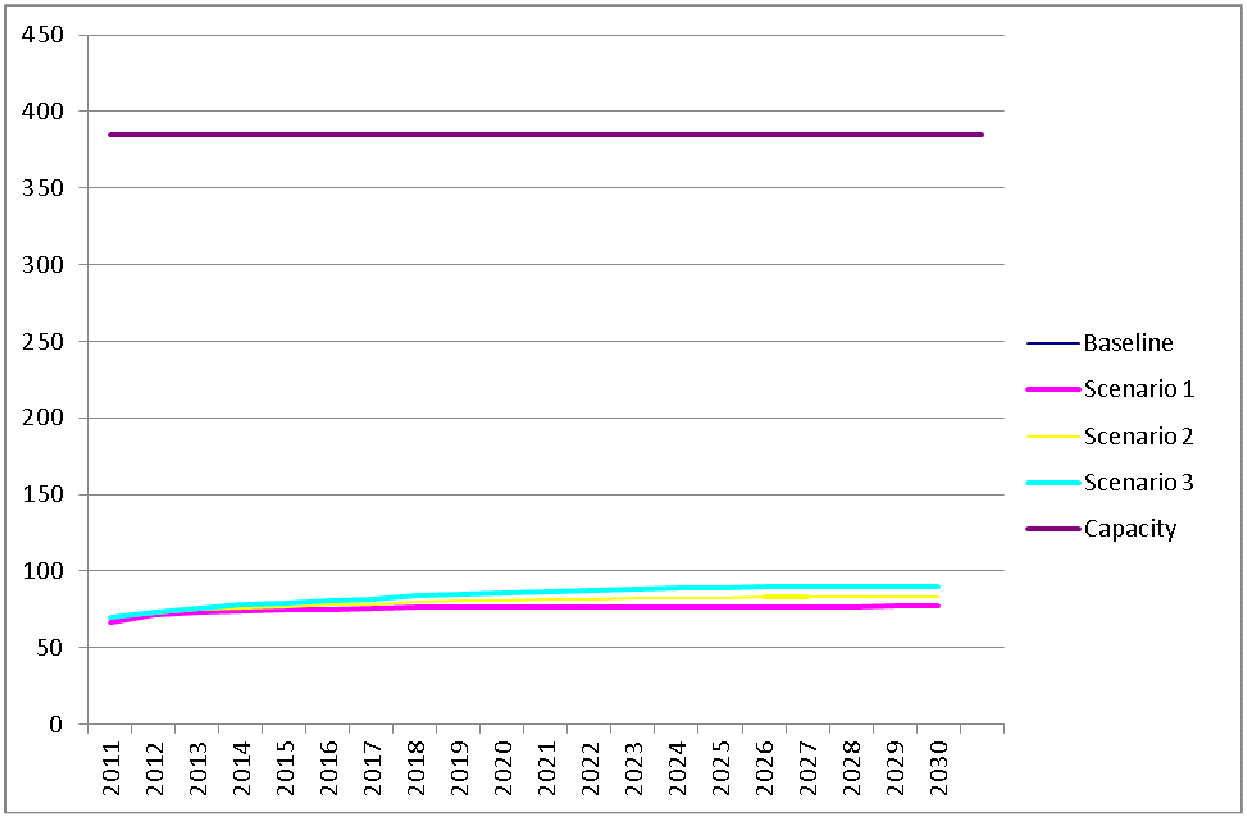


Figure 63: Country Durham - organic recycling forecast arisings v processing capacity (tonnes x 1,000)

2.5. Hazardous Waste Arisings and Capacities

Waste Fate	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Incineration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Landfill	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Recovery	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3
Treatment	11	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	9
Grand Total	**16**	**16**	**16**	**16**	**16**	**16**	**15**	**15**	**15**	**15**	**15**	**14**	**14**	**14**	**14**	**14**	**14**	**14**	**14**	**13**

Figure 64: County Durham Forecast Hazardous Waste Arisings (tonnes x 1,000)

Facility	Non-operational	Operational	Grand Total
Transfer		34,783	34,783
Treatment		10,810	10,810
Grand Total		45,593	45,593

Figure 65: County Durham Hazardous Waste Processing Capacity (tonnes)

3. Northumberland

3.1. Waste Arisings Forecasts

Northumberland Municipal Waste (LACW) Arisings (tonnes x 1,000)

LACW	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	59	64	65	67	68	69	73	74	74	75	76	77	78	80	81	82	85	86	87	90
Composting	13	15	15	15	16	16	17	17	17	17	17	18	18	18	19	19	20	20	20	21
Energy Recovery	110	107	108	107	109	110	107	108	109	110	111	112	114	113	114	115	114	115	116	115
Landfill	18	16	16	17	17	17	17	17	17	18	18	18	18	18	19	19	19	19	19	20
Total	200	202	204	207	209	211	213	216	218	220	222	225	227	230	232	235	237	240	242	245
% Recycling	36.0%	39.0%	39.0%	40.0%	40.0%	40.0%	42.0%	42.0%	42.0%	42.0%	42.0%	42.0%	42.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	45.0%

Northumberland Commercial & Industrial Wastes (C&I) Arisings (tonnes x 1,000)

C&I	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	86	85	85	85	85	85	84	84	84	82	82	81	81	81	80	80	80	79	79	79
Composting	21	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	19	19
Energy Recovery	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	13	13	13
Landfill	80	80	79	80	79	79	79	79	79	77	77	76	76	75	75	75	74	74	74	74
Treatment	10	10	9	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Total	211	209	208	209	208	208	207	207	206	202	201	200	199	198	197	196	195	194	194	193
% Recycling	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%	50.5%

Northumberland Total Arisings (LACW + C&I) (tonnes x 1,000)

Total Arisings	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	144	149	149	152	153	153	157	158	158	157	158	158	159	161	161	162	164	165	166	168
Composting	34	35	35	36	36	36	37	37	37	37	37	37	37	38	38	38	39	39	39	39
Energy Recovery	124	121	122	122	123	124	121	122	123	124	125	126	127	126	127	128	127	128	129	128
Landfill	98	96	96	96	96	96	96	96	96	95	94	94	94	94	94	94	93	93	93	93
Treatment	10	10	9	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Total	411	411	412	416	417	419	420	423	424	422	423	425	426	427	429	431	432	434	436	438
% Recycling	43.4%	44.9%	44.8%	45.3%	45.3%	45.2%	46.2%	46.2%	46.1%	46.1%	46.0%	46.0%	46.0%	46.5%	46.5%	46.4%	46.9%	46.9%	46.9%	47.4%

3.2. Waste facilities within Northumberland

Local waste facility data was supplied by the WPA along with permitted and operational capacities in many cases. The available capacities from the 69 sites identified within the WPA area can be summarised as:

Facility	Non-operational	Operational	Grand Total
Composting	1,000	133,500	134,500
Hazardous Transfer Station		29,998	29,998
Household Waste Recovery Centre		83,500	83,500
Inert Landfill	50,000	10,000	60,000
Inert Recycling		369,000	369,000
Metal Recycling and End-of-Life Vehicle (ELV) Facility		97,776	97,776
Materials Recycling Facilities		283,000	283,000
Non-Hazardous Landfill		982,000	982,000
Non-Hazardous Transfer Station		279,870	279,870
Grand Total	51,000	2,268,644	2,319,644

Capacity is operational or planning capacity
Source: WPA

3.3. Northumberland Non-Hazardous Residual Waste Arisings and Capacities

3.3.1. Baseline

From these baseline forecasts, Northumberland Residual Waste Baseline Forecasts are (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Energy Recovery	124	121	122	122	123	124	121	122	123	124	125	126	127	126	127	128	127	128	129	128
Landfill	98	96	96	96	96	96	96	96	96	95	94	94	94	94	94	94	93	93	93	93
Treatment	10	10	9	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Total Residual	**232**	**227**	**228**	**227**	**228**	**230**	**226**	**228**	**228**	**228**	**228**	**229**	**230**	**229**	**230**	**231**	**229**	**230**	**231**	**230**

Northumberland Residual Waste Capacity Forecasts (from key residual waste facilities) (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW(*)	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130
Landfill	245	245	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
Treatment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Residual	375	375	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175

(*) includes dedicated LACW capacity at Haverton Hill

Difference Northumberland Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	6	9	8	8	7	6	9	8	7	6	5	4	3	4	3	2	3	2	1	2
Landfill	147	149	-51	-51	-51	-51	-51	-51	-51	-50	-49	-49	-49	-49	-49	-49	-48	-48	-48	-48
Treatment	-10	-10	-9	-10	-10	-10	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
Total	143	148	-53	-52	-53	-55	-51	-53	-53	-53	-53	-54	-55	-54	-55	-56	-54	-55	-56	-55

Negative figures indicate a capacity shortfall

From these baseline forecasts

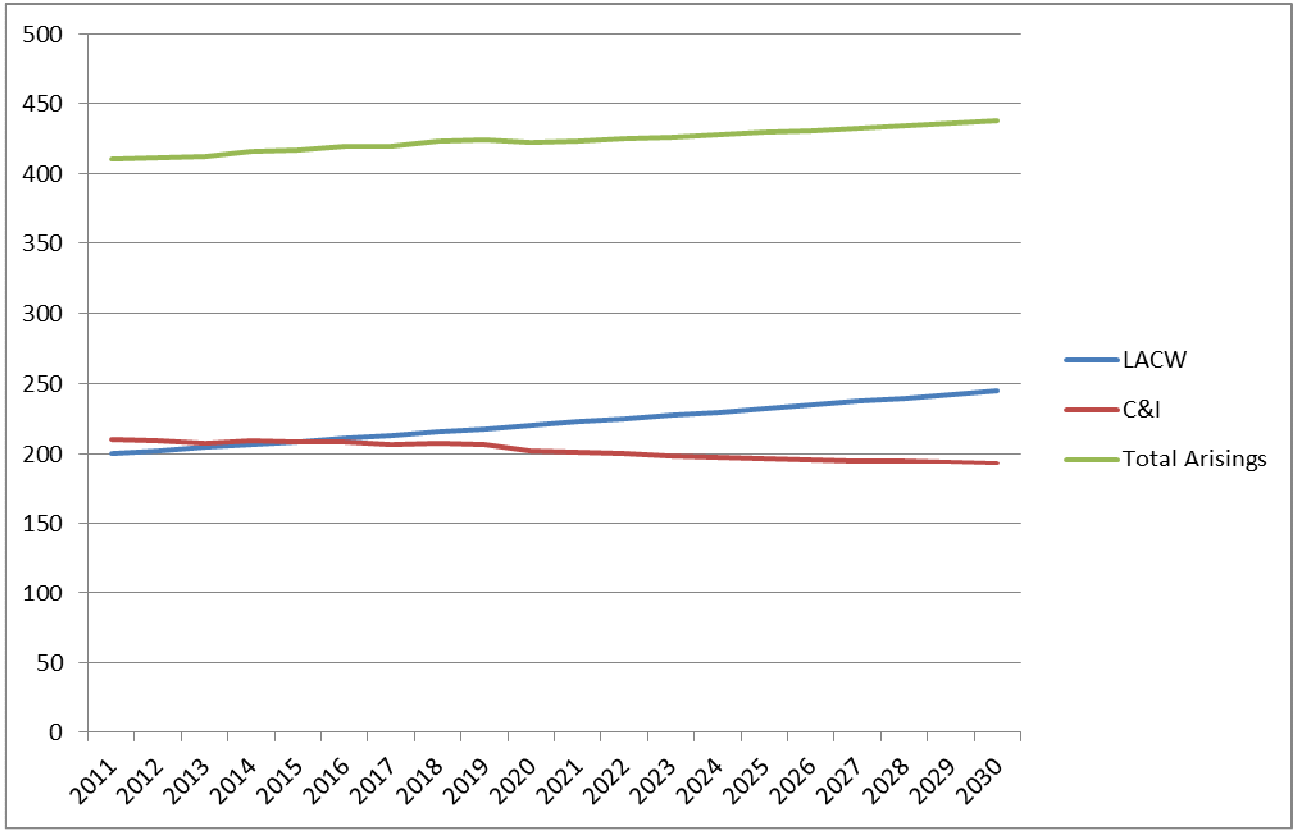


Figure 66: Northumberland Baseline Arisings Forecasts (tonnes x 1,000)

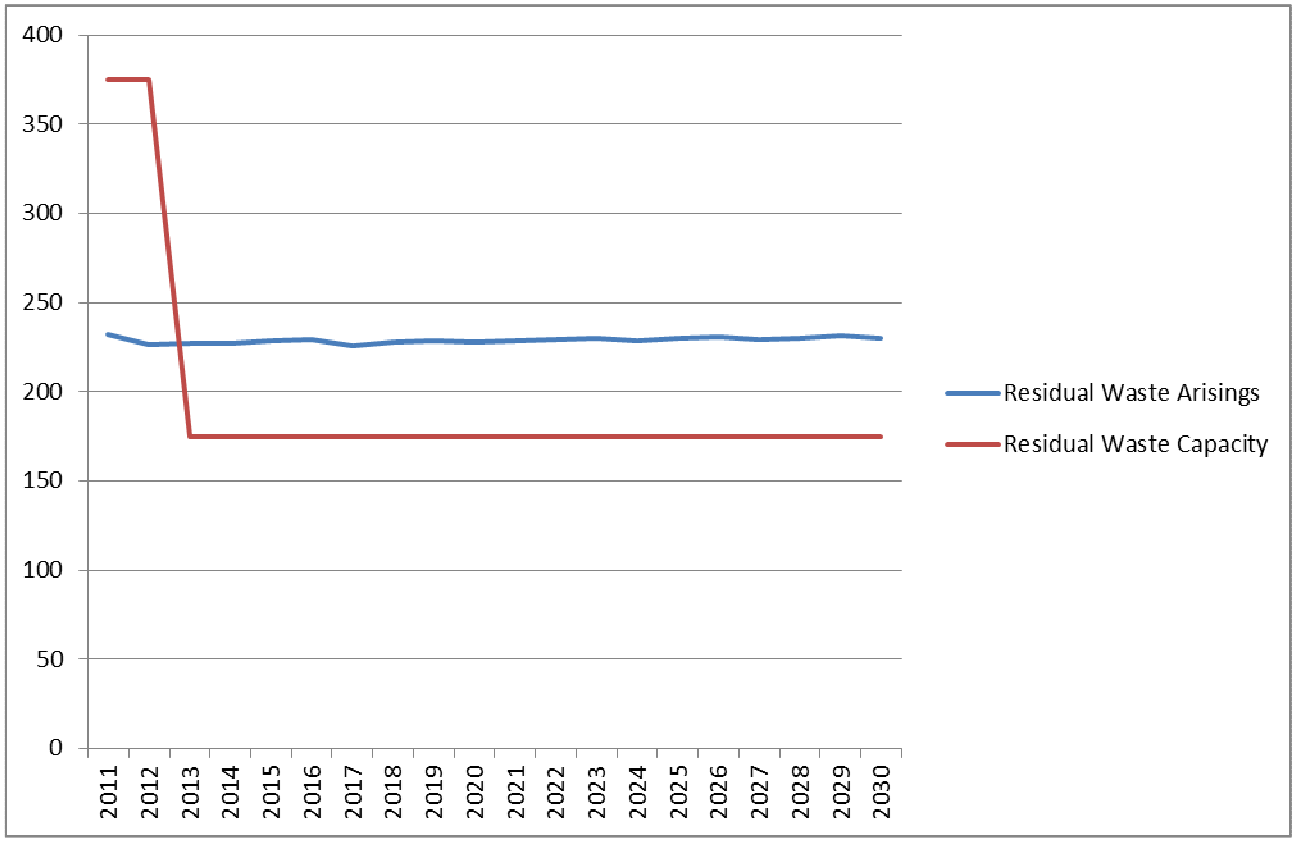


Figure 67: Northumberland Residual Waste Capacity v Arisings, all waste management methods (tonnes x 1,000)

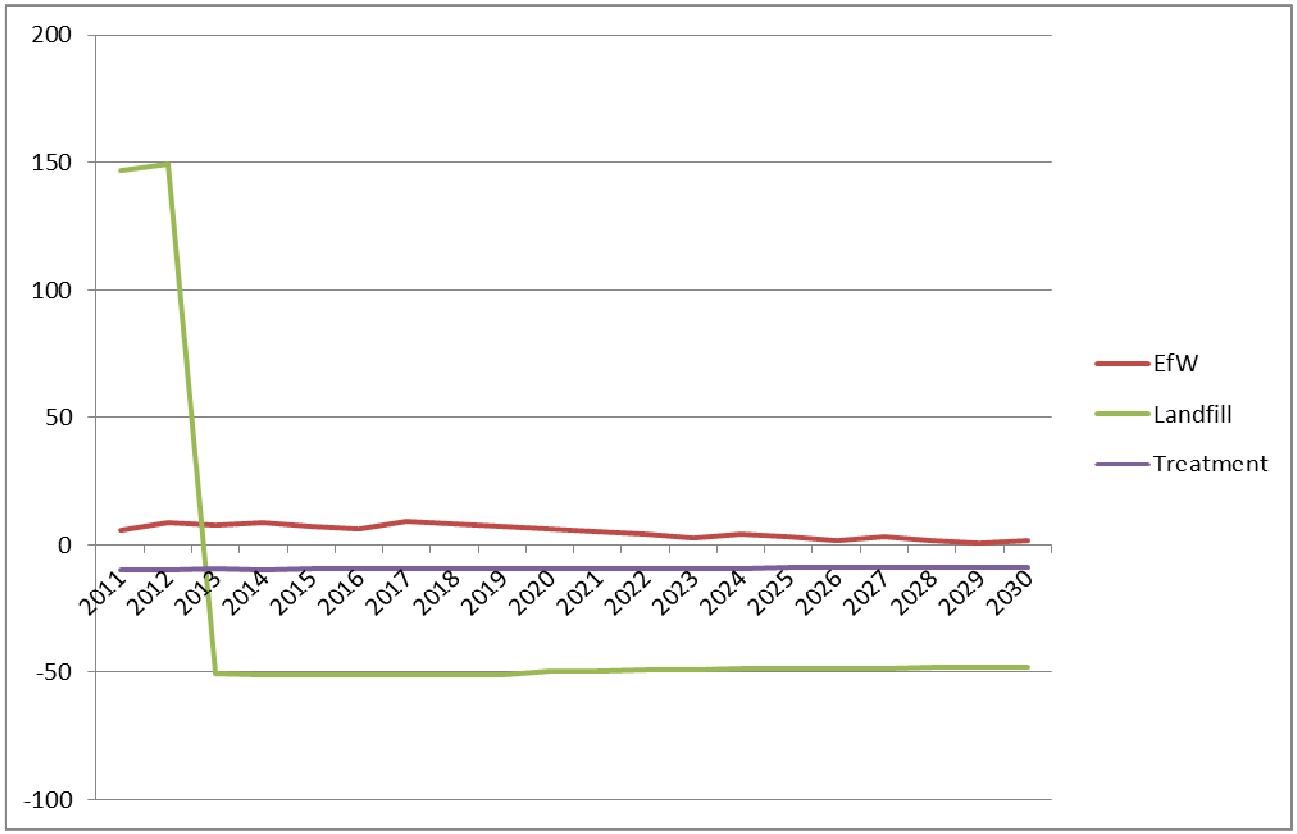


Figure 68: Northumberland Regional Residual Waste Capacity - Arisings, per waste management method (tonnes x 1,000) – negative figures indicate a shortfall

3.3.2. Changes from Baseline: Increased Recycling

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

LACW: (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	59	63	67	72	76	79	81	84	87	89	90	91	92	93	94	95	96	97	98	99
Composting	13	14	15	17	18	18	19	19	20	21	21	21	21	21	22	22	22	22	23	23
Landfill	18	18	13	11	6	4	6	4	2	0	0	0	0	2	2	2	5	5	5	7
Energy Recovery	110	107	108	107	109	110	107	108	109	110	111	112	114	113	114	115	114	115	116	115
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Arisings	**200**	**202**	**204**	**207**	**209**	**211**	**213**	**216**	**218**	**220**	**222**	**225**	**227**	**230**	**232**	**235**	**237**	**240**	**242**	**245**
% Recycling	**36.0%**	**38.3%**	**40.5%**	**42.8%**	**45.0%**	**46.0%**	**47.0%**	**48.0%**	**49.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**

Commercial and Industrial waste – as baseline

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	144	148	152	157	161	164	166	169	171	172	172	173	173	174	175	175	176	177	177	178
Composting	34	35	36	37	38	39	39	40	40	40	40	41	41	41	41	41	41	41	42	42
Energy Recovery	124	121	122	122	123	124	121	122	123	124	125	126	127	126	127	128	127	128	129	128
Landfill	98	97	93	91	86	84	85	83	81	77	77	76	76	78	77	77	79	79	79	81
Treatment	10	10	9	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Total	**411**	**411**	**412**	**416**	**417**	**419**	**420**	**423**	**424**	**422**	**423**	**425**	**426**	**427**	**429**	**431**	**432**	**434**	**436**	**438**
Recycling rate	43.4%	44.5%	45.6%	46.7%	47.8%	48.2%	48.7%	49.2%	49.7%	50.3%	50.2%	50.2%	50.2%	50.2%	50.2%	50.2%	50.2%	50.2%	50.2%	50.2%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	6	9	8	8	7	6	9	8	7	6	5	4	3	4	3	2	3	2	1	2
Landfill	147	148	-48	-46	-41	-39	-40	-38	-36	-32	-32	-31	-31	-33	-32	-32	-34	-34	-34	-36
Treatment	-10	-10	-9	-10	-10	-10	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
Total	143	147	-49	-47	-43	-42	-40	-40	-38	-35	-36	-36	-37	-38	-38	-39	-40	-41	-42	-43

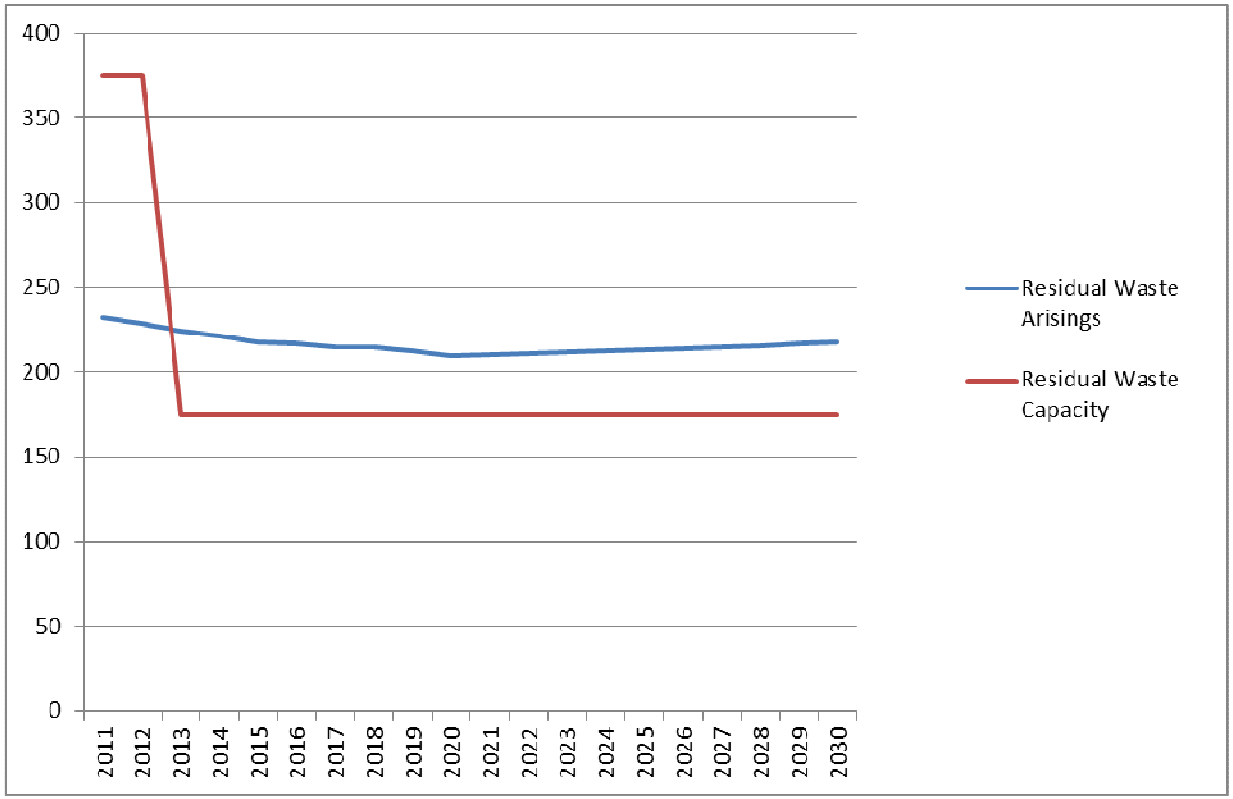


Figure 69: Northumberland Residual waste capacity v arisings all waste management methods: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

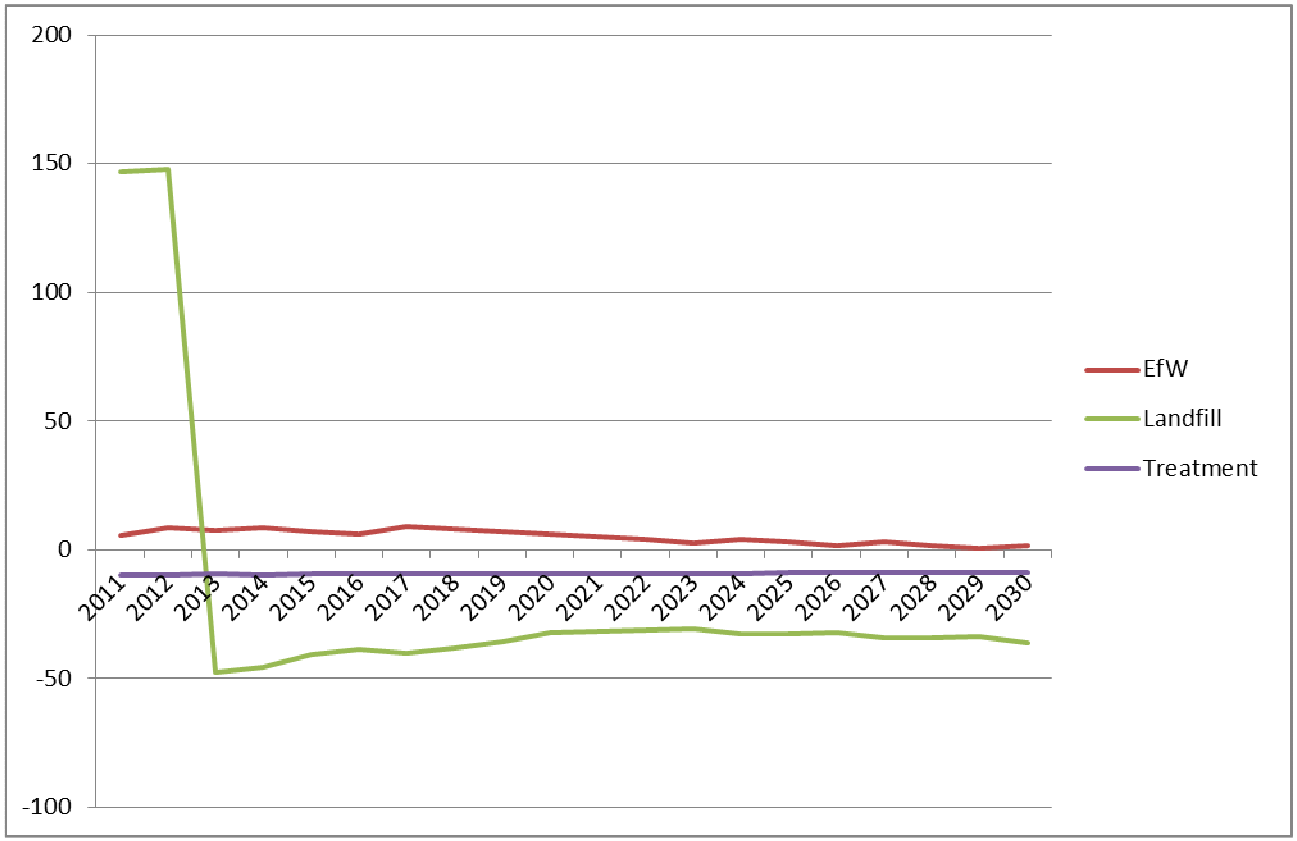


Figure 70: Northumberland Residual Waste Capacity - arisings: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

LACW – as Scenario 1

C&I Arisings, 60% recycling by 2025 (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	87	87	88	89	90	91	91	93	93	92	93	93	94	95	95	95	94	94	94	93
Composting	21	21	21	21	22	22	22	22	22	22	22	22	23	23	23	23	23	23	22	22
Energy Recovery	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	13	13	13
Landfill	79	77	75	74	73	72	70	69	67	64	63	61	60	58	56	56	56	56	55	55
Treatment	10	10	9	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Total	211	209	208	209	208	208	207	207	206	202	201	200	199	198	197	196	195	194	194	193
Recycling & Reuse	**51.2%**	**51.8%**	**52.4%**	**53.0%**	**53.7%**	**54.3%**	**54.9%**	**55.5%**	**56.2%**	**56.8%**	**57.4%**	**58.0%**	**58.7%**	**59.3%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	145	150	155	161	166	170	173	177	180	182	183	185	186	188	190	190	191	191	192	193
Composting	34	35	37	38	39	40	41	42	42	43	43	43	44	44	45	45	45	45	45	45
Energy Recovery	124	121	122	122	123	124	121	122	123	124	125	126	127	126	127	128	127	128	129	128
Landfill	97	95	89	85	79	76	76	73	69	64	63	61	60	60	59	59	61	60	60	63
Treatment	10	10	9	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Total	**411**	**411**	**412**	**416**	**417**	**419**	**420**	**423**	**424**	**422**	**423**	**425**	**426**	**427**	**429**	**431**	**432**	**434**	**436**	**438**
Recycling rate	43.8%	45.1%	46.5%	47.9%	49.3%	50.1%	50.9%	51.7%	52.5%	53.2%	53.5%	53.8%	54.0%	54.3%	54.6%	54.6%	54.5%	54.5%	54.4%	54.4%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	6	9	8	8	7	6	9	8	7	6	5	4	3	4	3	2	3	2	1	2
Landfill	148	150	-44	-40	-34	-31	-31	-28	-24	-19	-18	-16	-15	-15	-14	-14	-16	-15	-15	-18
Treatment	-10	-10	-9	-10	-10	-10	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
Total	144	149	-46	-41	-36	-34	-31	-29	-26	-22	-22	-21	-21	-20	-20	-21	-22	-23	-24	-25

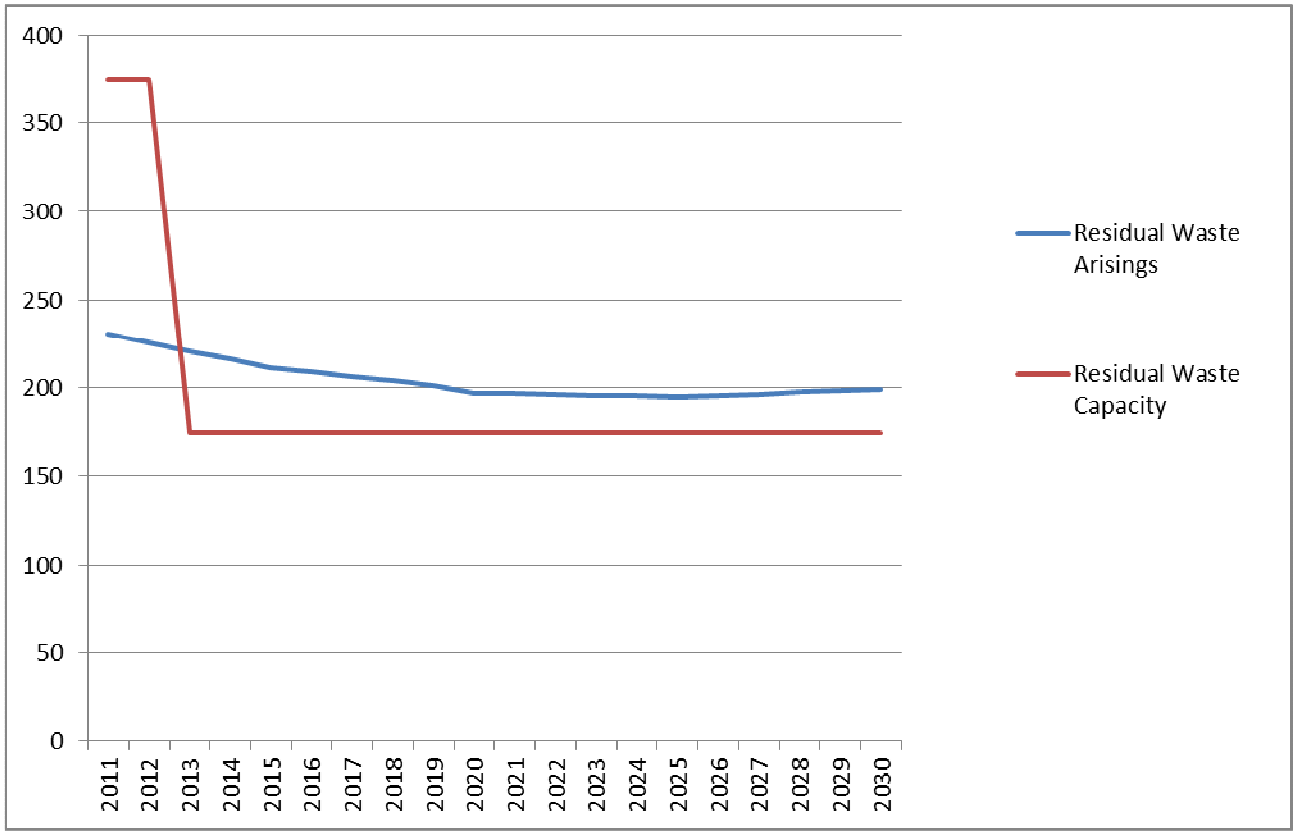


Figure 71: Northumberland Residual waste capacity v arisings all waste management methods: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 60% by 2025

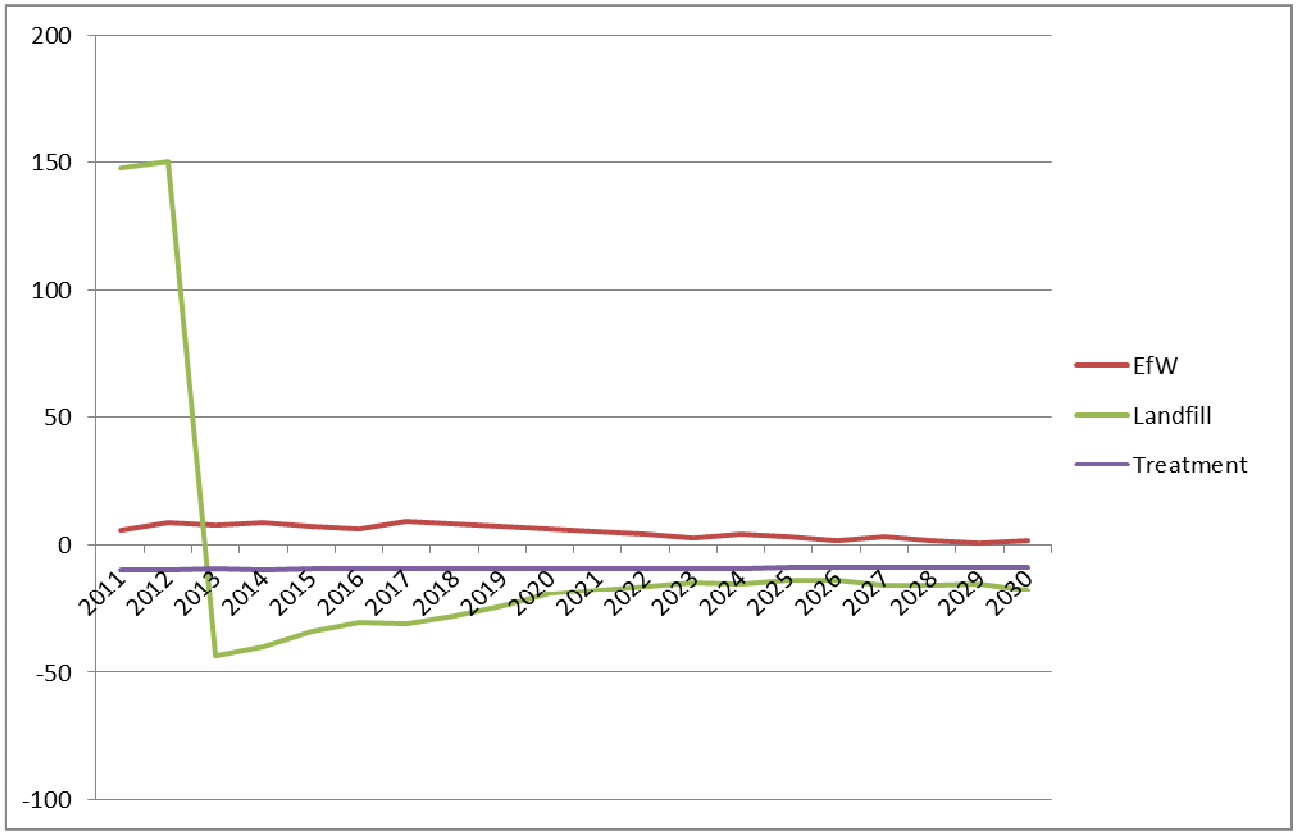


Figure 72: Northumberland Residual Waste Capacity - arisings: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 60% by 2025

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

LACW – as Scenario 1

C&I Arisings 70% recycling by 2025 (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	88	90	91	94	96	98	99	102	103	103	105	106	108	109	111	111	110	110	109	109
Composting,	21	21	22	23	23	23	24	24	25	25	25	26	26	26	27	27	26	26	26	26
Energy Recovery	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	13	13	13
Landfill	78	74	71	69	66	63	60	58	55	51	48	45	42	40	37	37	36	36	36	36
Treatment	10	10	9	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Total	211	209	208	209	208	208	207	207	206	202	201	200	199	198	197	196	195	194	194	193
Recycling & Reuse	**51.8%**	**53.1%**	**54.4%**	**55.7%**	**57.0%**	**58.3%**	**59.6%**	**60.8%**	**62.1%**	**63.4%**	**64.7%**	**66.0%**	**67.3%**	**68.6%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	147	152	158	166	172	177	181	186	190	193	195	198	200	203	206	206	207	207	208	208
Composting	35	36	37	39	41	42	43	44	45	45	46	47	47	48	48	48	49	49	49	49
Energy Recovery	124	121	122	122	123	124	121	122	123	124	125	126	127	126	127	128	127	128	129	128
Landfill	96	92	84	80	72	67	67	62	57	51	48	45	42	42	39	39	41	41	41	43
Treatment	10	10	9	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Total	**411**	**411**	**412**	**416**	**417**	**419**	**420**	**423**	**424**	**422**	**423**	**425**	**426**	**427**	**429**	**431**	**432**	**434**	**436**	**438**
Recycling rate	44.1%	45.8%	47.5%	49.3%	51.0%	52.1%	53.2%	54.3%	55.4%	56.4%	57.0%	57.5%	58.1%	58.6%	59.2%	59.1%	59.0%	59.0%	58.9%	58.8%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	6	9	8	8	7	6	9	8	7	6	5	4	3	4	3	2	3	2	1	2
Landfill	149	153	-39	-35	-27	-22	-22	-17	-12	-6	-3	0	3	3	6	6	4	4	4	2
Treatment	-10	-10	-9	-10	-10	-10	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
Total	145	152	-41	-36	-29	-26	-22	-18	-14	-9	-7	-5	-4	-2	0	-1	-2	-3	-4	-5

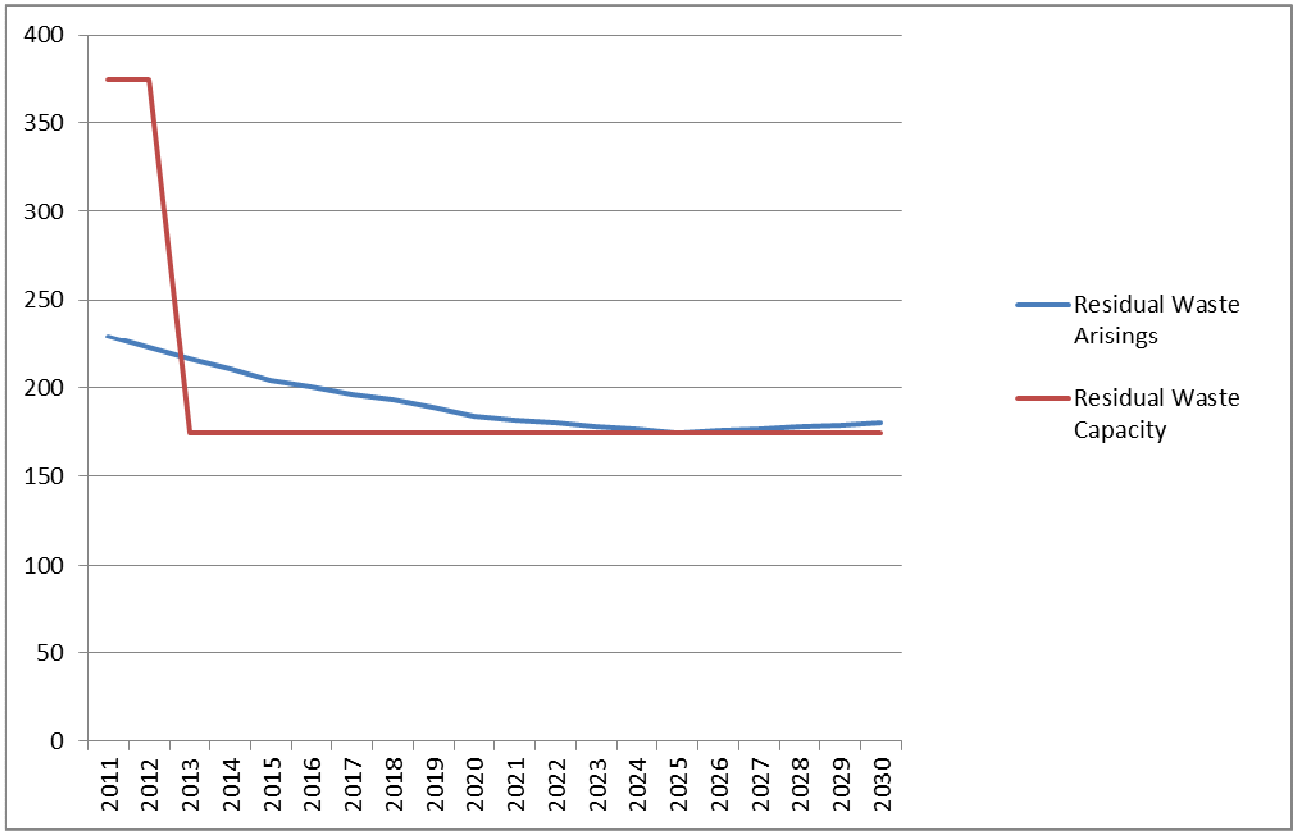


Figure 73: Northumberland Residual waste capacity v arisings all waste management methods: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 70% by 2025

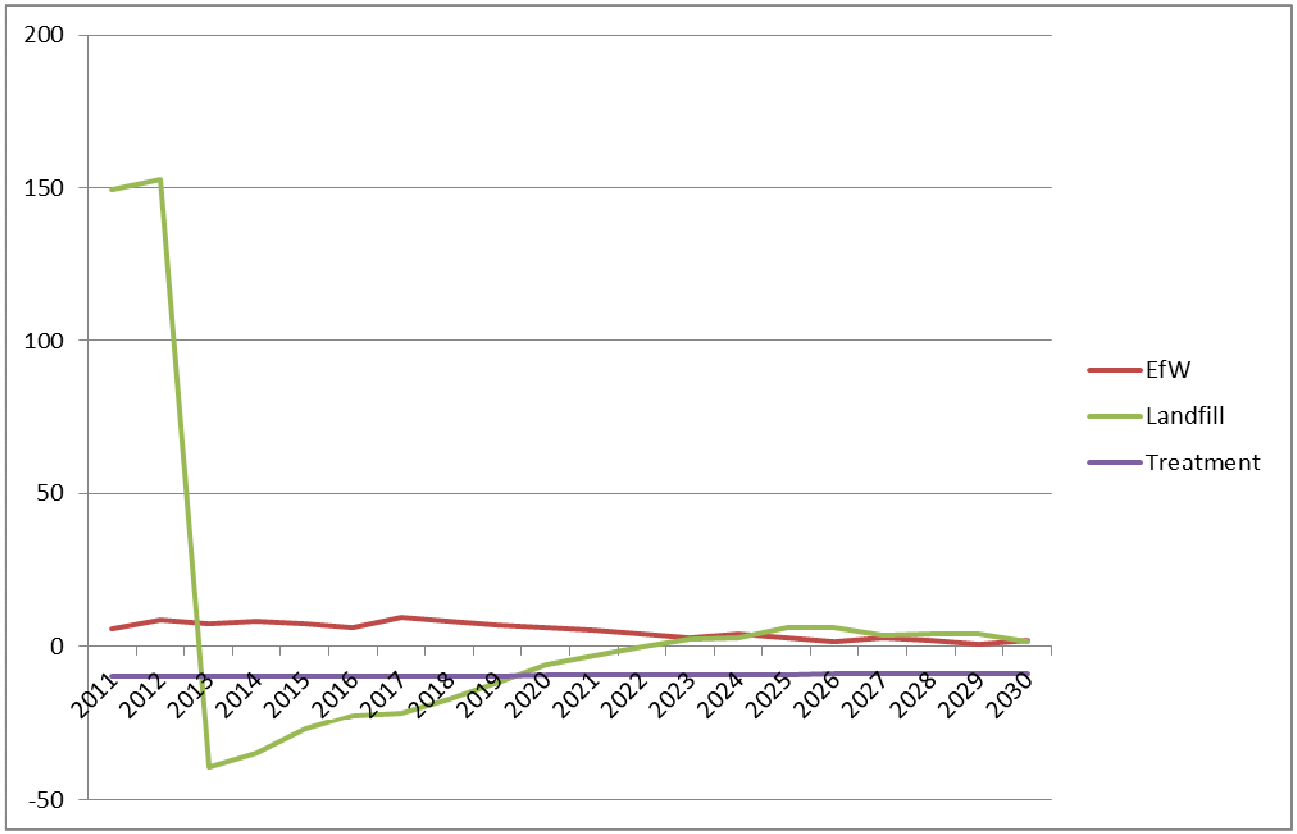


Figure 74: Northumberland Residual Waste Capacity - arisings: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 70% by 2025

Scenarios Summary

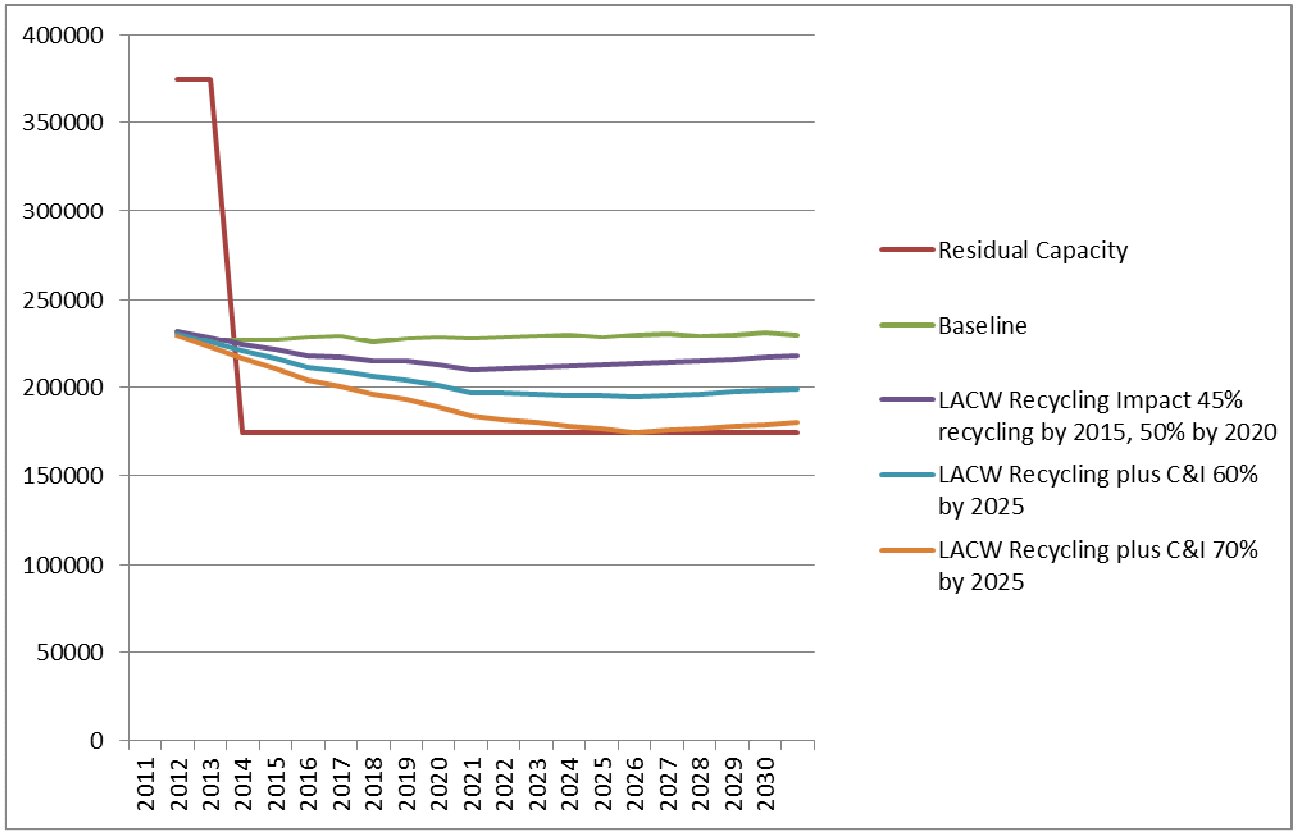


Figure 75: Northumberland Residual Waste Capacity against arisings forecasts, recycling scenarios 1-3

3.3.3. Changes from baseline – increased C&I Landfill Diversion

Scenario 4: LACW as Scenario 1 plus C&I baseline with 70% diversion from landfill by 2020

LACW Arisings as Scenario 1
C&I Arisings baseline plus 70% landfill diversion by 2020 (tonnes x 1,000)

C&I	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	86	85	85	85	85	85	84	84	84	82	82	81	81	81	80	80	80	79	79	79
Composting	21	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	19	19
Energy Recovery	14	17	20	23	26	29	32	35	38	40	40	40	40	39	39	39	39	39	39	38
Landfill	80	77	73	71	67	64	61	58	55	50	50	50	50	49	49	49	49	49	48	48
Treatment	10	10	9	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Total	211	209	208	209	208	208	207	207	206	202	201	200	199	198	197	196	195	194	194	193
% Recycling	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**	**50.5%**
% Diversion	**61.9%**	**63.3%**	**64.8%**	**66.3%**	**67.7%**	**69.2%**	**70.6%**	**72.1%**	**73.5%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	144	148	152	157	161	164	166	169	171	172	172	173	173	174	175	175	176	177	177	178
Composting	34	35	36	37	38	39	39	40	40	40	40	41	41	41	41	41	41	41	42	42
Energy Recovery	124	124	128	131	135	139	139	143	147	150	151	152	153	152	153	154	153	154	155	153
Landfill	98	94	86	81	73	68	67	62	57	50	50	50	50	52	52	51	54	53	53	56
Treatment	10	10	9	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Total	**411**	**411**	**412**	**416**	**417**	**419**	**420**	**423**	**424**	**422**	**423**	**425**	**426**	**427**	**429**	**431**	**432**	**434**	**436**	**438**
% Recycling	**43.4%**	**44.5%**	**45.6%**	**46.7%**	**47.8%**	**48.2%**	**48.7%**	**49.2%**	**49.7%**	**50.3%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**
% Diversion	**76.1%**	**77.1%**	**79.0%**	**80.4%**	**82.4%**	**83.7%**	**84.0%**	**85.3%**	**86.6%**	**88.0%**	**88.1%**	**88.2%**	**88.3%**	**87.9%**	**88.0%**	**88.1%**	**87.6%**	**87.7%**	**87.8%**	**87.3%**

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	6	6	2	-1	-5	-9	-9	-13	-17	-20	-21	-22	-23	-22	-23	-24	-23	-24	-25	-23
Landfill	147	151	-41	-36	-28	-23	-22	-17	-12	-5	-5	-5	-5	-7	-7	-6	-9	-8	-8	-11
Treatment	-10	-10	-9	-10	-10	-10	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
Total	143	147	-49	-47	-43	-42	-40	-40	-38	-35	-36	-36	-37	-38	-38	-39	-40	-41	-42	-43

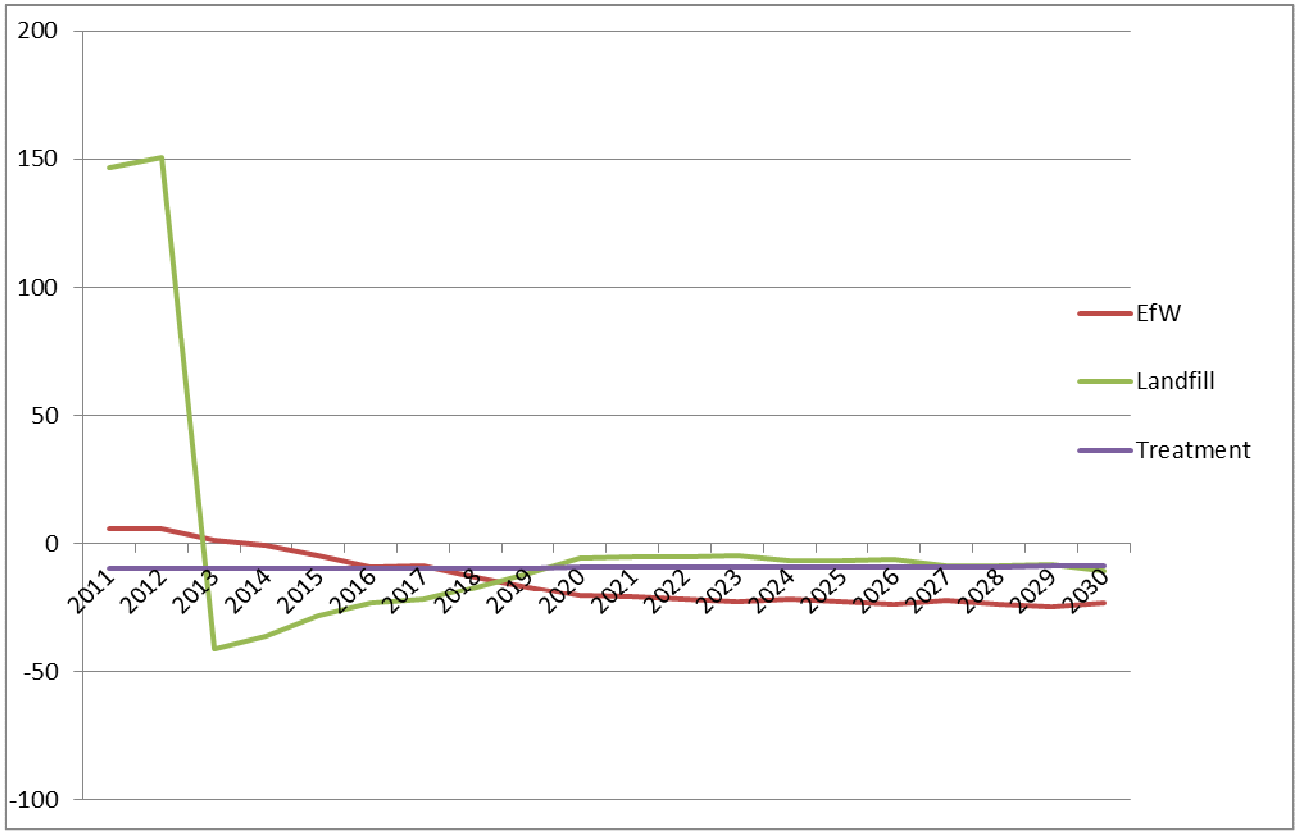


Figure 76: Northumberland Residual Waste Capacity - arisings: Scenario 4: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Landfill Diversion 75% by 2020

3.4. Organic Waste Recycling Arisings and Capacities

Baseline Organic Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	13	15	15	15	16	16	17	17	17	17	17	18	18	18	19	19	20	20	20	21
From C&I	21	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	19	19
Total	34	35	35	36	36	36	37	37	37	37	37	37	37	38	38	38	39	39	39	39

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	13	14	15	17	18	18	19	19	20	21	21	21	21	21	22	22	22	22	23	23
From C&I	21	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	19	19
Total	34	35	36	37	38	39	39	40	40	40	40	41	41	41	41	41	41	41	42	42

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	13	14	15	17	18	18	19	19	20	21	21	21	21	21	22	22	22	22	23	23
From C&I	21	21	21	21	22	22	22	22	22	22	22	22	23	23	23	23	23	23	22	22
Total	34	35	37	38	39	40	41	42	42	43	43	43	44	44	45	45	45	45	45	45

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	13	14	15	17	18	18	19	19	20	21	21	21	21	21	22	22	22	22	23	23
From C&I	21	21	22	23	23	23	24	24	25	25	25	26	26	26	27	27	26	26	26	26
Total	35	36	37	39	41	42	43	44	45	45	46	47	47	48	48	48	49	49	49	49

Processing Capacity

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Composting	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114
AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114

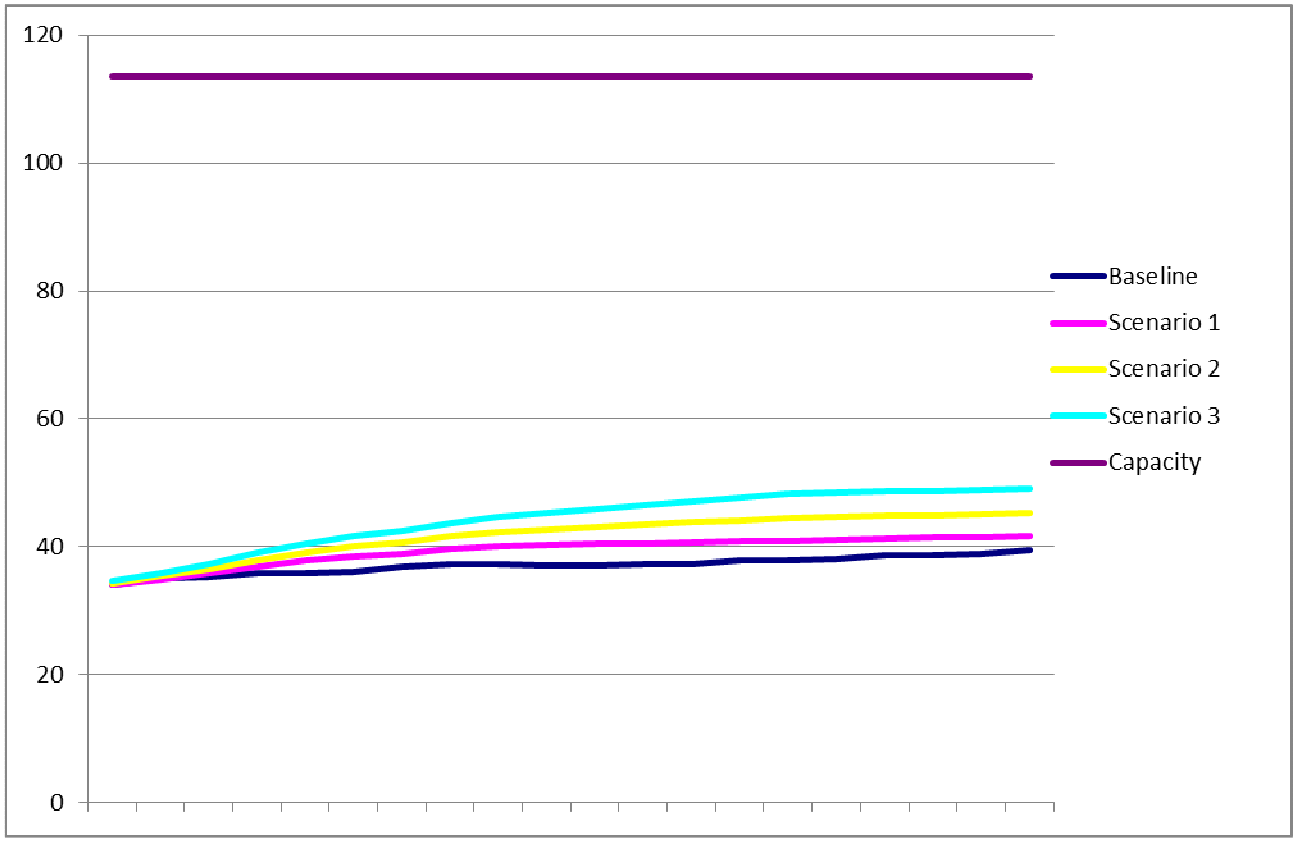


Figure 77: Northumberland - organic recycling forecast arisings v processing capacity (tonnes x 1,000)

3.5. Hazardous Waste Arisings and Capacities

Waste Fate	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Incineration	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Landfill	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Recovery	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	9
Treatment	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Grand Total	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**19**	**19**	**19**	**19**

Figure 78: Northumberland Forecast Hazardous Waste Arisings (tonnes x 1,000)

Facility	Non Operational	Operational	Grand Total
Haz Transfer Station		29,998	29,998
Grand Total		29,998	29,998

Figure 79: Northumberland Hazardous Waste Processing Capacity (tonnes)

4. Tyne & Wear Sub-Region

4.1. Waste Arisings Forecasts

Tyne and Wear Sub-Regional Municipal Waste (LACW) Arisings (tonnes x 1,000)

Sum of LACW arisings for individual LPAs

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	155	161	167	179	183	185	187	190	192	193	195	196	197	198	199	200	201	202	204	205
Composting	65	68	76	89	92	94	97	100	104	105	106	106	107	107	108	108	109	110	111	111
Energy Recovery	28	42	80	294	307	301	294	288	280	276	278	279	281	282	283	284	286	287	289	291
Landfill	353	334	285	55	40	41	41	42	43	44	44	45	46	47	47	48	49	50	51	52
Other	0	0	0	0	0	5	11	16	21	27	26	26	25	25	25	24	24	23	23	22
Total Arisings	601	605	608	617	621	626	631	635	640	644	649	653	656	659	662	665	669	672	677	682
% Recycling	**36.6%**	**37.9%**	**40.0%**	**43.4%**	**44.2%**	**44.6%**	**45.1%**	**45.6%**	**46.3%**	**46.3%**	**46.3%**	**46.3%**	**46.3%**	**46.4%**	**46.4%**	**46.4%**	**46.4%**	**46.4%**	**46.4%**	**46.4%**

Tyne and Wear Sub-Regional Commercial & Industrial Wastes (C&I) Arisings (tonnes x 1,000)

Sum of C&I waste arisings for individual LPAs

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	389	387	384	386	384	385	383	385	384	377	377	376	375	375	375	375	375	374	375	375
Composting	55	55	54	54	54	54	54	54	54	52	52	52	51	51	51	51	51	51	51	50
Energy Recovery	74	74	73	73	73	73	72	72	72	70	69	69	69	68	68	68	67	67	67	67
Landfill	344	342	339	341	339	340	339	340	339	333	333	332	331	331	331	331	331	331	331	331
Treatment	23	23	23	23	23	23	23	23	23	22	22	22	22	22	22	22	22	22	22	22
Total	886	882	872	877	873	875	870	873	871	853	853	850	849	847	847	846	846	845	844	845
Recycling & Reuse	**50.1%**	**50.1%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.4%**

Total Tyne and Wear Sub-Regional Arisings (LACW + C&I) (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	544	548	551	565	567	570	571	574	576	570	572	572	572	573	574	575	576	577	578	580
Composting	120	123	130	143	146	148	151	154	157	157	158	158	158	159	159	159	160	160	161	162
Energy Recovery	102	116	153	367	380	373	367	360	352	346	347	348	349	350	351	352	353	354	356	358
Landfill	697	676	624	395	379	381	380	382	382	376	377	377	377	378	378	379	380	381	382	383
Treatment	23	23	23	23	23	28	33	39	44	49	48	48	47	47	46	46	45	45	44	44
Total	1,487	1,486	1,480	1,493	1,494	1,501	1,501	1,509	1,511	1,498	1,502	1,503	1,505	1,506	1,509	1,512	1,515	1,517	1,522	1,527
Recycling rate	**44.7%**	**45.2%**	**46.0%**	**47.4%**	**47.7%**	**47.9%**	**48.0%**	**48.2%**	**48.5%**	**48.5%**	**48.6%**	**48.6%**	**48.6%**	**48.6%**	**48.6%**	**48.6%**	**48.6%**	**48.6%**	**48.6%**	**48.6%**

4.2. Non-Hazardous Residual Waste Arisings and Capacities

4.2.1. Baseline

From these baseline forecasts, Tyne and Wear Sub-Regional Residual Waste Baseline Forecasts are (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Energy Recovery	102	116	153	367	380	373	367	360	352	346	347	348	349	350	351	352	353	354	356	358
Landfill	697	676	624	395	379	381	380	382	382	376	377	377	377	378	378	379	380	381	382	383
Treatment	23	23	23	23	23	28	33	39	44	49	48	48	47	47	46	46	45	45	44	44
Total Residual	**823**	**815**	**799**	**786**	**782**	**782**	**780**	**781**	**778**	**771**	**773**	**773**	**774**	**775**	**776**	**777**	**779**	**780**	**782**	**785**

Tyne and Wear Sub-Regional Residual Waste Capacity Forecasts (from key residual waste facilities) (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW[3]	0	0	55	239	239	239	239	239	239	239	239	239	239	239	239	239	239	239	239	239
Landfill	740	740	740	740	740	740	430	430	430	430	430	430	430	430	430	250	250	250	0	0
Treatment	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310
Total Residual	1,050	1,050	1,105	1,289	1,289	1,289	979	979	979	979	979	979	979	979	979	799	799	799	549	549

[3] Identifies that procured waste capacity located outside the sub-region provides sub-regional capacity.

Difference of Tyne and Wear Sub-Regional Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-102	-116	-98	-128	-141	-134	-128	-121	-113	-107	-108	-109	-110	-111	-112	-113	-114	-115	-117	-119
Landfill	43	64	116	345	361	359	50	48	48	54	53	53	53	52	52	-129	-130	-131	-382	-383
Treatment	287	287	287	287	287	282	277	271	266	261	262	262	263	263	264	264	265	265	266	266
Total	227	235	306	503	507	507	199	198	201	208	206	206	205	204	203	22	20	19	-233	-236

Negative figures indicate a capacity shortfall

From these baseline forecasts:

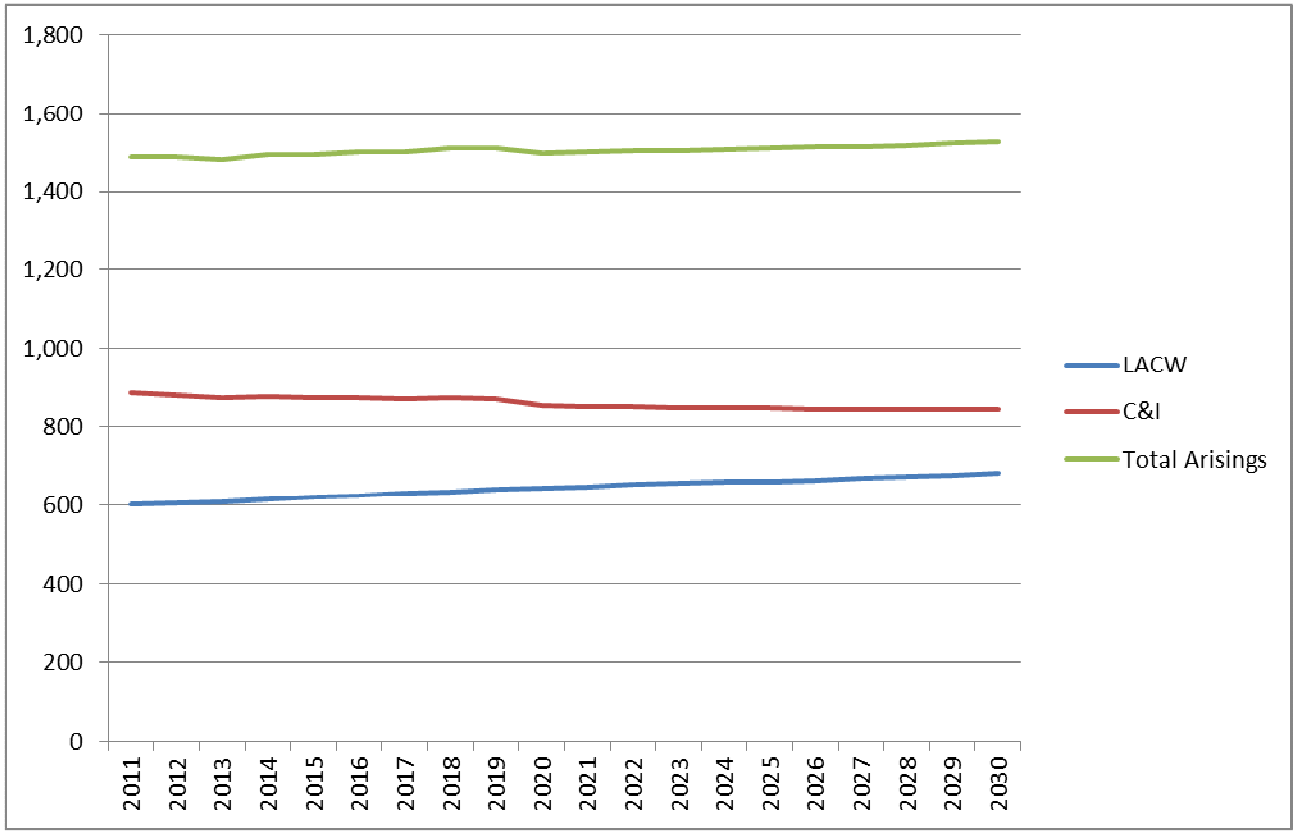


Figure 80: Tyne & Wear Sub-Regional Baseline Arisings Forecasts (tonnes x 1,000)

Figure 81: Tyne & Wear Sub-Regional Residual Waste Capacity v Arisings, all waste management methods (tonnes)

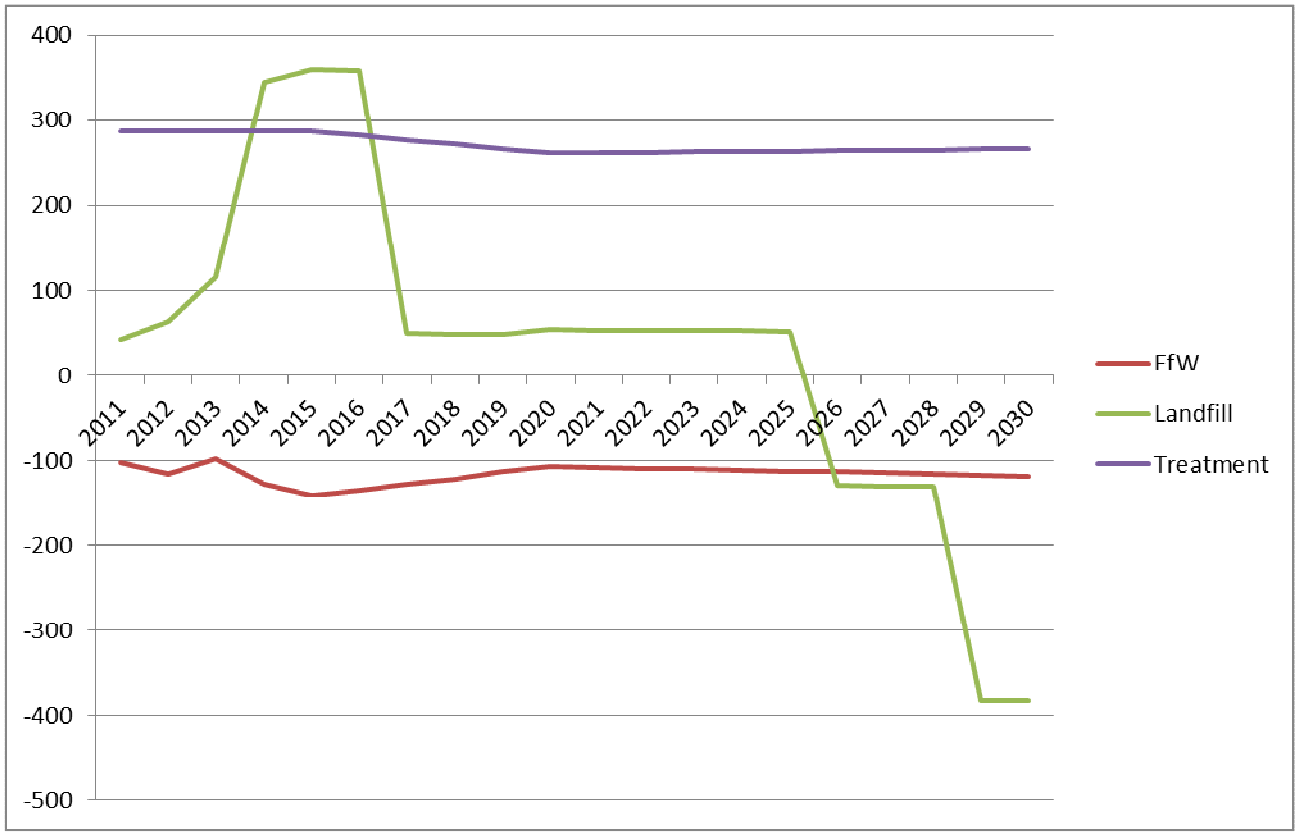


Figure 82: Tyne & Wear Sub-Regional Residual Waste Capacity - Arisings, per waste management method (tonnes x 1,000) – negative figures indicate a shortfall

4.2.2. Changes from Baseline: Increased Recycling

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

LACW: (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	155	161	167	179	186	191	195	200	204	209	211	212	213	214	215	216	217	218	219	221
Composting	65	68	76	89	93	97	101	105	110	113	114	115	115	116	116	117	118	118	119	120
Landfill	353	334	285	55	35	32	29	27	26	20	21	21	22	23	23	24	25	26	27	28
Energy Recovery	28	42	80	294	307	301	294	288	280	276	278	279	281	282	283	284	286	287	289	291
Other	0	0	0	0	0	5	11	16	21	27	26	26	25	25	25	24	24	23	23	22
Total Arisings	**601**	**605**	**608**	**617**	**621**	**626**	**631**	**635**	**640**	**644**	**649**	**653**	**656**	**659**	**662**	**665**	**669**	**672**	**677**	**682**
% Recycling	**36.6%**	**37.9%**	**40.0%**	**43.4%**	**45.0%**	**46.0%**	**47.0%**	**48.0%**	**49.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**

Commercial and Industrial waste – as baseline

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	544	548	551	565	570	576	579	584	587	586	587	587	588	589	589	590	592	592	594	596
Composting	120	123	130	143	147	151	155	159	164	165	166	166	167	167	167	168	168	169	170	170
Energy Recovery	102	116	153	367	380	373	367	360	352	346	347	348	349	350	351	352	353	354	356	358
Landfill	697	676	624	395	374	372	368	366	364	352	353	353	353	354	354	355	356	357	358	359
Treatment	23	23	23	23	23	28	33	39	44	49	48	48	47	47	46	46	45	45	44	44
Total	**1,487**	**1,486**	**1,480**	**1,493**	**1,494**	**1,501**	**1,501**	**1,509**	**1,511**	**1,498**	**1,502**	**1,503**	**1,505**	**1,506**	**1,509**	**1,512**	**1,515**	**1,517**	**1,522**	**1,527**
Recycling rate	44.7%	45.2%	46.0%	47.4%	48.0%	48.4%	48.9%	49.3%	49.7%	50.1%	50.1%	50.1%	50.2%	50.2%	50.2%	50.2%	50.2%	50.2%	50.2%	50.2%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-102	-116	-98	-128	-141	-134	-128	-121	-113	-107	-108	-109	-110	-111	-112	-113	-114	-115	-117	-119
Landfill	43	64	116	345	366	368	372	64	66	78	77	77	77	76	76	75	-106	-107	-108	-359
Treatment	287	287	287	287	287	282	277	271	266	261	262	262	263	263	264	264	265	265	266	266
Total	227	235	306	503	512	515	521	214	219	232	230	230	229	228	227	226	44	43	41	-211

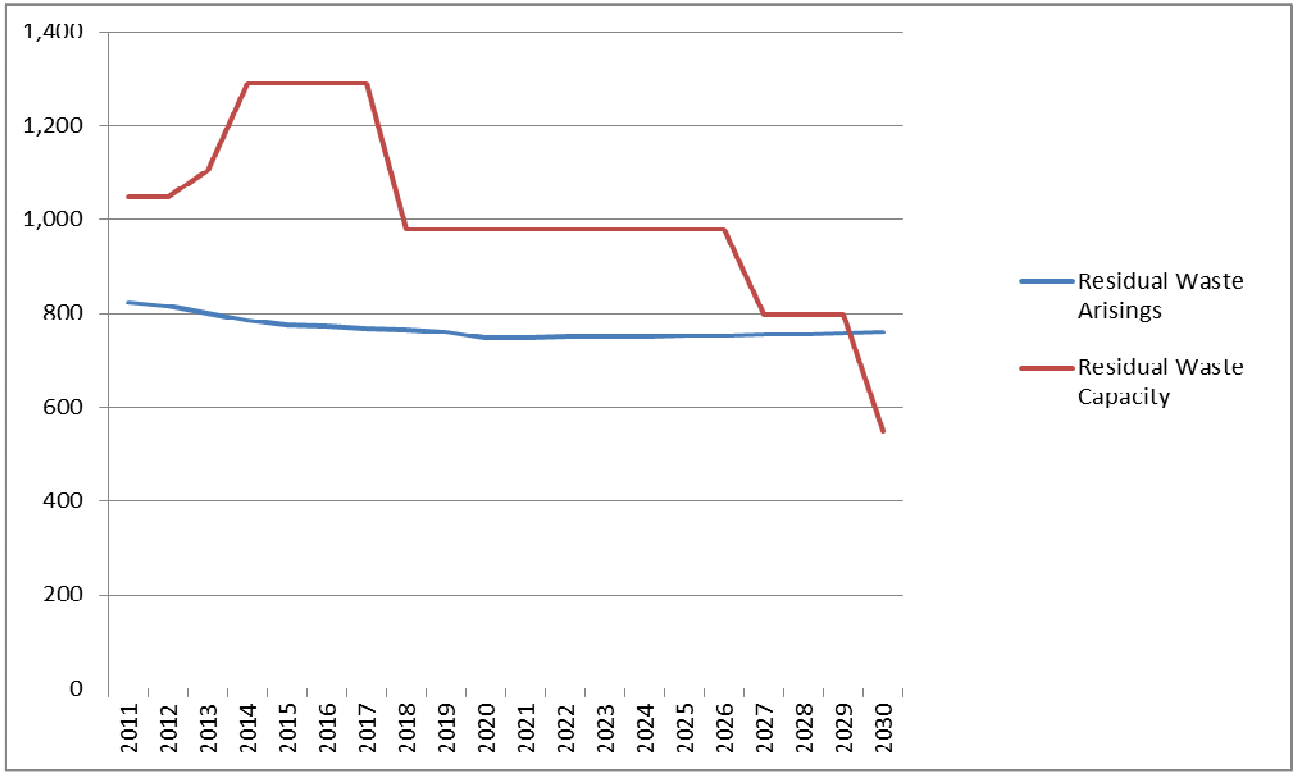


Figure 83: Tyne & Wear Residual waste capacity v arisings all waste management methods: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

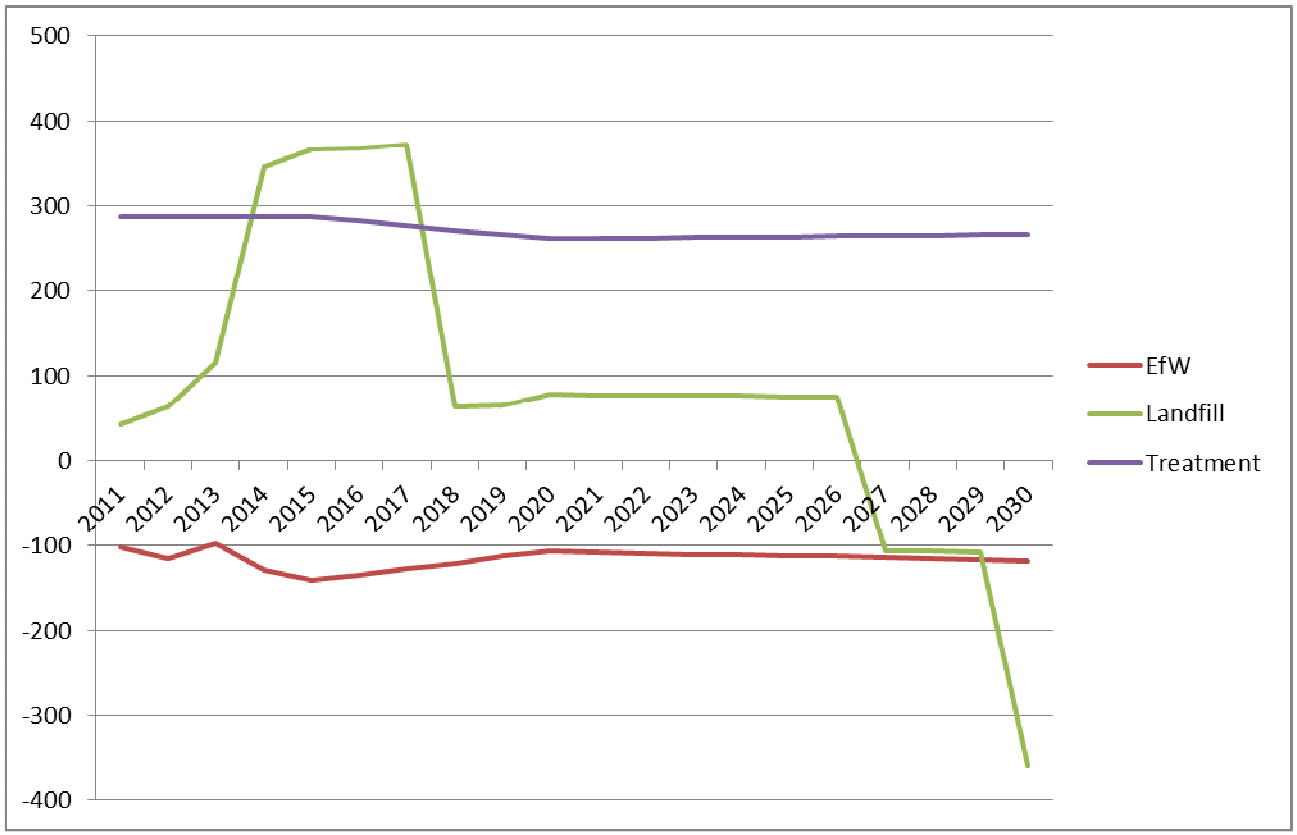


Figure 84: Tyne & Wear Residual Waste Capacity - arisings: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

LACW – as Scenario 1

C&I Arisings, 60% recycling by 2025 (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	394	397	398	405	408	414	417	424	428	425	429	433	437	441	447	447	447	446	446	447
Composting,	56	56	56	57	57	58	58	59	60	59	59	60	60	60	61	61	61	60	60	60
Energy Recovery	74	74	73	73	73	73	72	72	72	70	69	69	69	68	68	68	67	67	67	67
Landfill	339	331	323	319	312	307	300	295	289	278	273	267	261	255	249	249	249	249	249	250
Treatment	23	23	23	23	23	23	23	23	23	22	22	22	22	22	22	22	22	22	22	22
Total	886	882	872	877	873	875	870	873	871	853	853	850	849	847	847	846	846	845	844	845
Recycling & Reuse	**50.8%**	**51.4%**	**52.1%**	**52.7%**	**53.4%**	**54.0%**	**54.7%**	**55.3%**	**56.0%**	**56.6%**	**57.3%**	**57.9%**	**58.6%**	**59.2%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**

Total Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	549	558	565	584	595	605	613	624	631	634	640	645	650	655	662	663	664	664	666	668
Composting	121	124	132	146	151	155	160	164	170	172	173	174	175	176	177	178	178	179	179	180
Energy Recovery	102	116	153	367	380	373	367	360	352	346	347	348	349	350	351	352	353	354	356	358
Landfill	692	665	608	373	346	339	329	322	314	298	293	288	283	278	272	273	274	275	276	277
Treatment	23	23	23	23	23	28	33	39	44	49	48	48	47	47	46	46	45	45	44	44
Total	**1,487**	**1,486**	**1,480**	**1,493**	**1,494**	**1,501**	**1,501**	**1,509**	**1,511**	**1,498**	**1,502**	**1,503**	**1,505**	**1,506**	**1,509**	**1,512**	**1,515**	**1,517**	**1,522**	**1,527**
Recycling rate	45.0%	45.9%	47.1%	48.9%	49.9%	50.7%	51.4%	52.2%	53.0%	53.8%	54.1%	54.5%	54.8%	55.2%	55.6%	55.6%	55.6%	55.6%	55.5%	55.5%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-102	-116	-98	-128	-141	-134	-128	-121	-113	-107	-108	-109	-110	-111	-112	-113	-114	-115	-117	-119
Landfill	48	75	132	367	394	401	411	108	116	132	137	142	147	152	158	157	-24	-25	-26	-277
Treatment	287	287	287	287	287	282	277	271	266	261	262	262	263	263	264	264	265	265	266	266
Total	233	246	322	526	540	549	560	258	269	287	290	295	299	304	309	308	126	125	123	-130

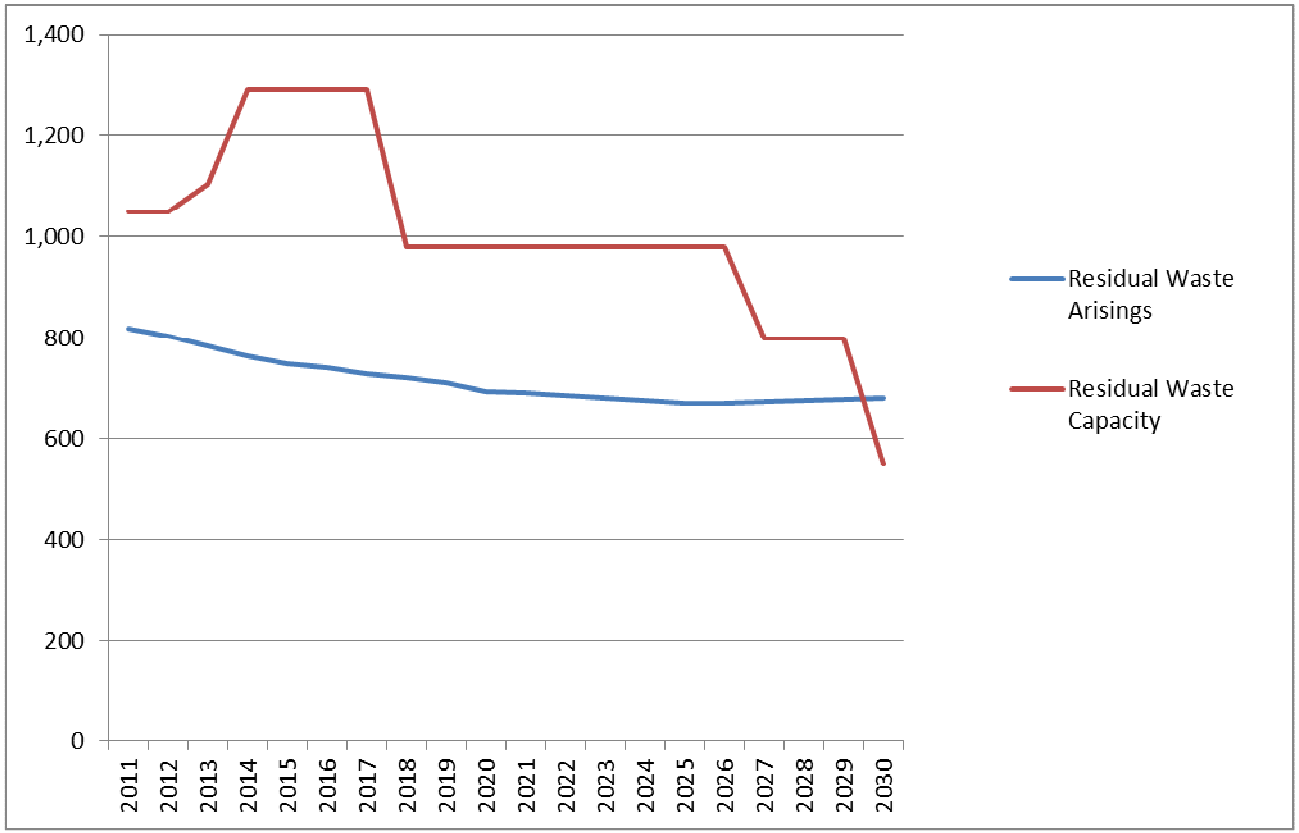


Figure 85: Tyne & Wear Residual waste capacity v arisings all waste management methods: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 60% by 2025

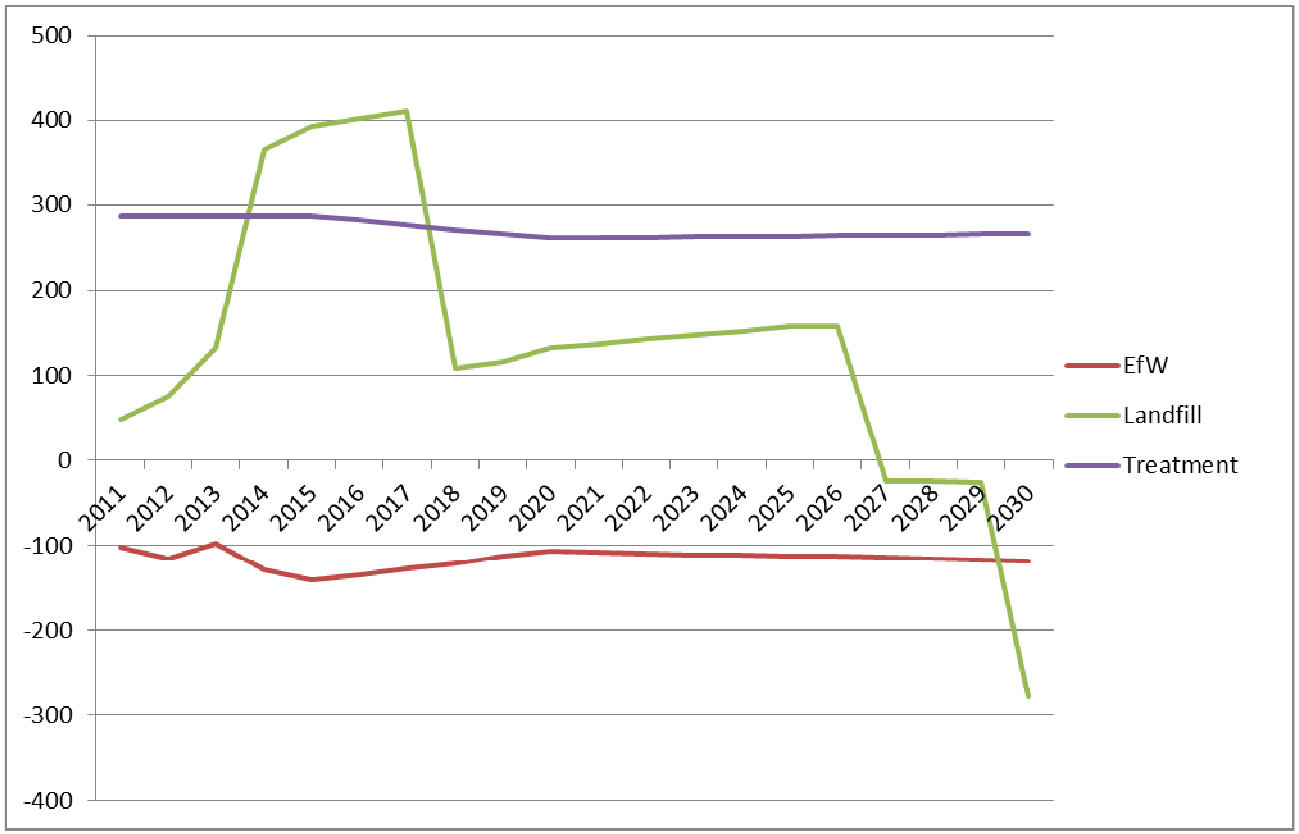


Figure 86: Tyne & Wear Residual Waste Capacity - arisings: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 60% by 2025

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

LACW – as Scenario 1

C&I Arisings 70% recycling by 2025 (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	399	407	414	426	435	446	454	465	474	476	485	494	503	512	521	521	521	521	521	521
Composting,	57	58	58	60	61	63	64	65	66	66	67	68	69	70	71	71	71	70	70	70
Energy Recovery	74	74	73	73	73	73	72	72	72	70	69	69	69	68	68	68	67	67	67	67
Landfill	333	319	305	295	282	271	258	248	235	220	209	197	186	175	164	164	165	164	165	165
Treatment	23	23	23	23	23	23	23	23	23	22	22	22	22	22	22	22	22	22	22	22
Total	886	882	872	877	873	875	870	873	871	853	853	850	849	847	847	846	846	845	844	845
Recycling & Reuse	**51.4%**	**52.8%**	**54.1%**	**55.4%**	**56.8%**	**58.1%**	**59.4%**	**60.8%**	**62.1%**	**63.4%**	**64.7%**	**66.1%**	**67.4%**	**68.7%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	554	568	581	605	621	636	649	665	678	684	696	705	716	726	736	737	738	739	740	742
Composting	121	126	134	148	155	160	165	170	176	179	181	183	184	186	188	188	188	189	189	190
Energy Recovery	102	116	153	367	380	373	367	360	352	346	347	348	349	350	351	352	353	354	356	358
Landfill	686	653	590	349	317	303	288	274	261	240	229	219	208	197	187	188	190	190	192	193
Treatment	23	23	23	23	23	28	33	39	44	49	48	48	47	47	46	46	45	45	44	44
Total	**1,487**	**1,486**	**1,480**	**1,493**	**1,494**	**1,501**	**1,501**	**1,509**	**1,511**	**1,498**	**1,502**	**1,503**	**1,505**	**1,506**	**1,509**	**1,512**	**1,515**	**1,517**	**1,522**	**1,527**
Recycling rate	45.4%	46.7%	48.3%	50.5%	51.9%	53.1%	54.2%	55.4%	56.5%	57.6%	58.4%	59.1%	59.8%	60.5%	61.2%	61.2%	61.2%	61.1%	61.1%	61.1%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-102	-116	-98	-128	-141	-134	-128	-121	-113	-107	-108	-109	-110	-111	-112	-113	-114	-115	-117	-119
Landfill	54	87	150	391	423	437	452	156	169	190	201	211	222	233	243	242	60	60	58	-193
Treatment	287	287	287	287	287	282	277	271	266	261	262	262	263	263	264	264	265	265	266	266
Total	239	258	340	549	570	584	602	306	322	345	354	364	374	385	394	392	211	210	207	-46

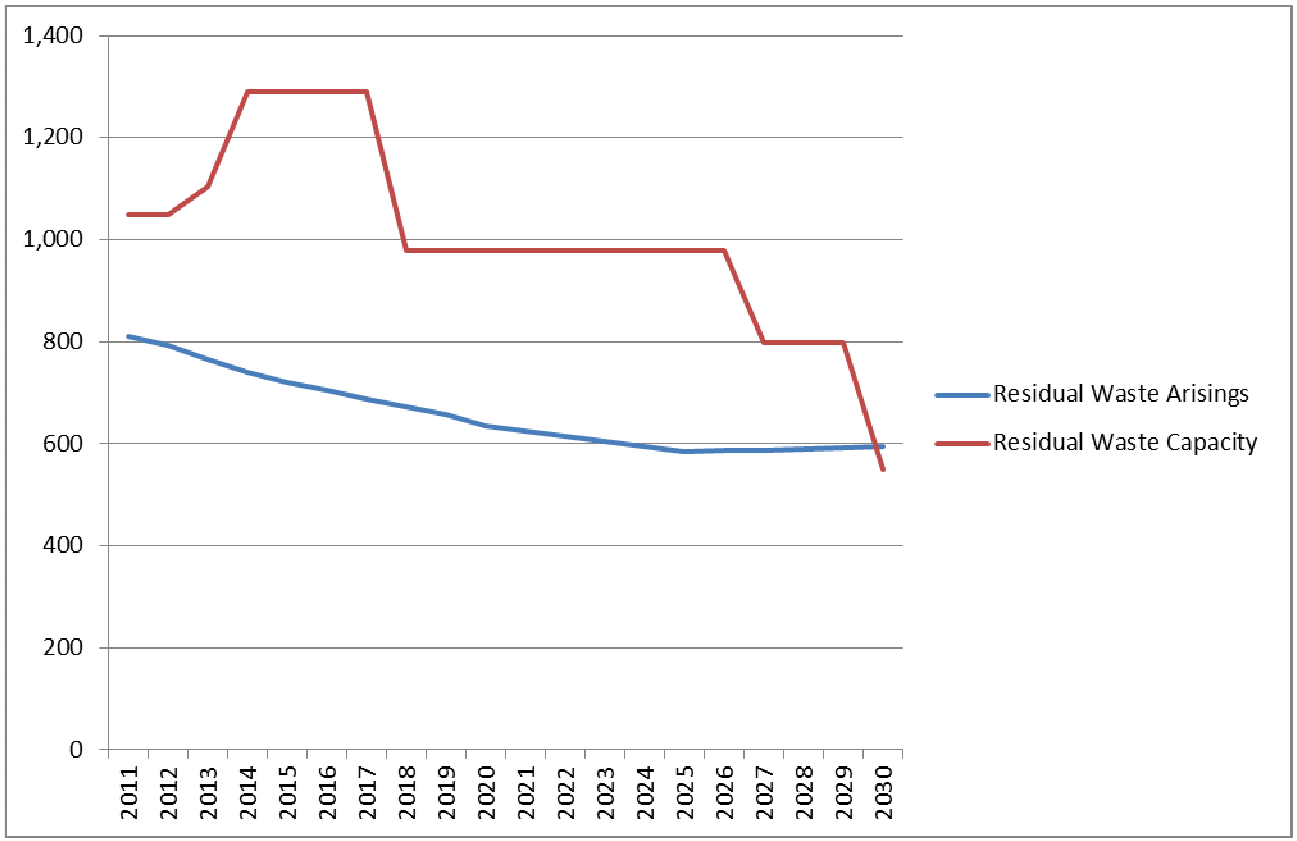


Figure 87: Tyne & Wear Residual waste capacity v arisings all waste management methods: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 70% by 2025

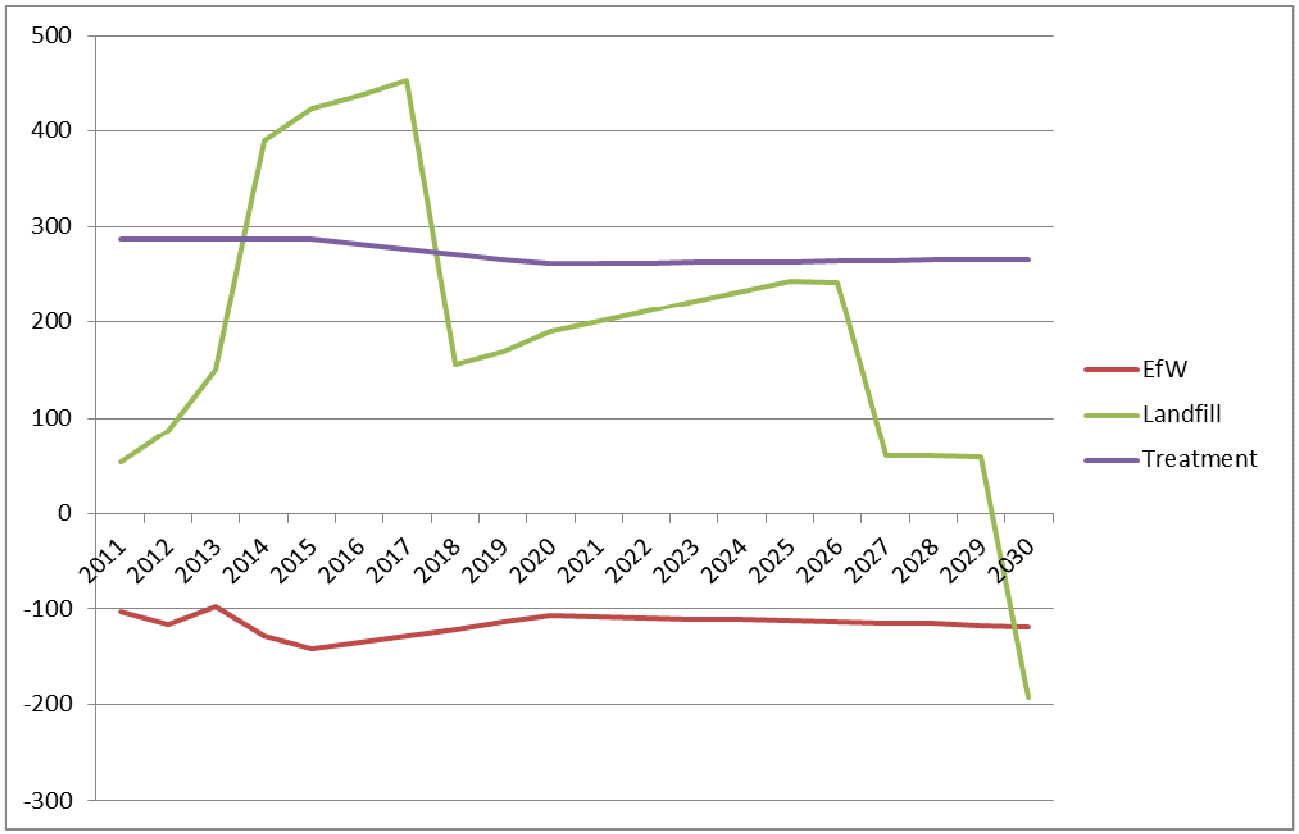


Figure 88: Tyne & Wear Residual Waste Capacity - arisings: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 70% by 2025

Scenarios Summary

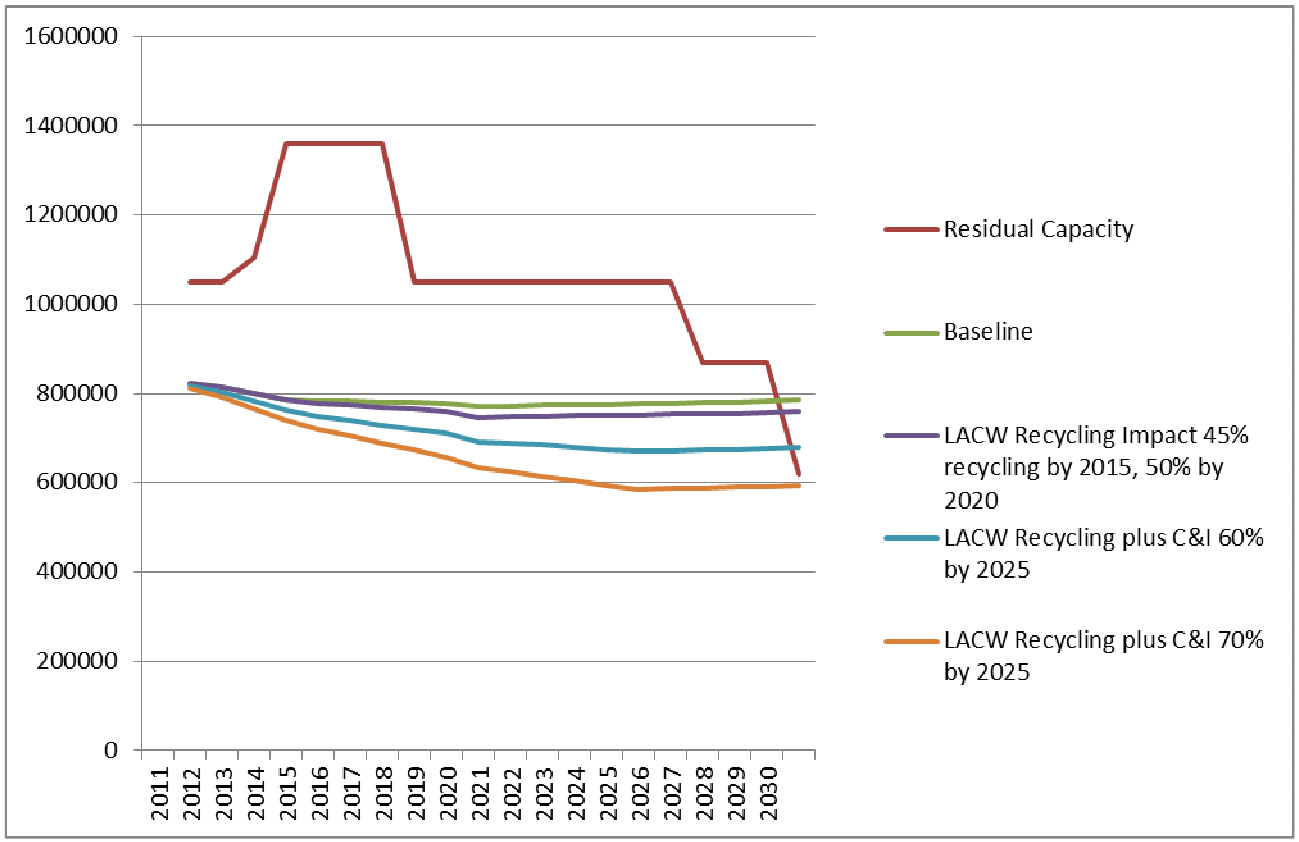


Figure 89: Tyne & Wear Residual Waste Capacity against arisings forecasts, recycling scenarios 1-3

4.2.3. Changes from baseline – increased C&I Landfill Diversion

Scenario 4: LACW as Scenario 1 plus C&I baseline with 75% diversion from landfill by 2020

LACW Arisings as Scenario 1
C&I Arisings baseline plus 75% landfill diversion by 2020 (tonnes x 1,000)

C&I	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	389	387	384	386	384	385	383	385	384	377	377	376	375	375	375	375	375	374	375	375
Composting	55	55	54	54	54	54	54	54	54	52	52	52	51	51	51	51	51	51	51	50
Energy Recovery	74	87	100	114	127	140	153	167	180	189	189	188	188	187	187	187	187	187	186	186
Landfill	344	329	312	300	285	273	258	245	231	213	213	213	212	212	212	212	211	211	211	211
Treatment	23	23	23	23	23	23	23	23	23	22	22	22	22	22	22	22	22	22	22	22
Total	886	882	872	877	873	875	870	873	871	853	853	850	849	847	847	846	846	845	844	845
% Recycling	**50.1%**	**50.1%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.4%**
% Diversion	**61.2%**	**62.7%**	**64.2%**	**65.8%**	**67.3%**	**68.8%**	**70.4%**	**71.9%**	**73.5%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	544	548	551	565	570	576	579	584	587	586	587	587	588	589	589	590	592	592	594	596
Composting	120	123	130	143	147	151	155	159	164	165	166	166	167	167	167	168	168	169	170	170
Energy Recovery	102	129	180	408	434	441	447	455	459	465	467	468	469	469	470	471	473	474	475	478
Landfill	697	663	597	355	320	305	287	272	257	233	234	234	234	235	235	236	237	237	238	239
Treatment	23	23	23	23	23	28	33	39	44	49	48	48	47	47	46	46	45	45	44	44
Total	**1,487**	**1,486**	**1,480**	**1,493**	**1,494**	**1,501**	**1,501**	**1,509**	**1,511**	**1,498**	**1,502**	**1,503**	**1,505**	**1,506**	**1,509**	**1,512**	**1,515**	**1,517**	**1,522**	**1,527**
% Recycling	**44.7%**	**45.2%**	**46.0%**	**47.4%**	**48.0%**	**48.4%**	**48.9%**	**49.3%**	**49.7%**	**50.1%**	**50.1%**	**50.1%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**
% Diversion	**53.1%**	**55.4%**	**59.7%**	**76.2%**	**78.6%**	**79.7%**	**80.9%**	**82.0%**	**83.0%**	**84.4%**	**84.4%**	**84.4%**	**84.4%**	**84.4%**	**84.4%**	**84.4%**	**84.4%**	**84.4%**	**84.4%**	**84.3%**

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-102	-129	-125	-169	-195	-202	-208	-216	-220	-226	-228	-229	-230	-230	-231	-232	-234	-235	-236	-239
Landfill	43	77	143	385	420	435	453	158	173	197	196	196	196	195	195	194	13	13	12	-239
Treatment	287	287	287	287	287	282	277	271	266	261	262	262	263	263	264	264	265	265	266	266
Total	227	235	306	503	512	515	521	214	219	232	230	230	229	228	227	226	44	43	41	-211

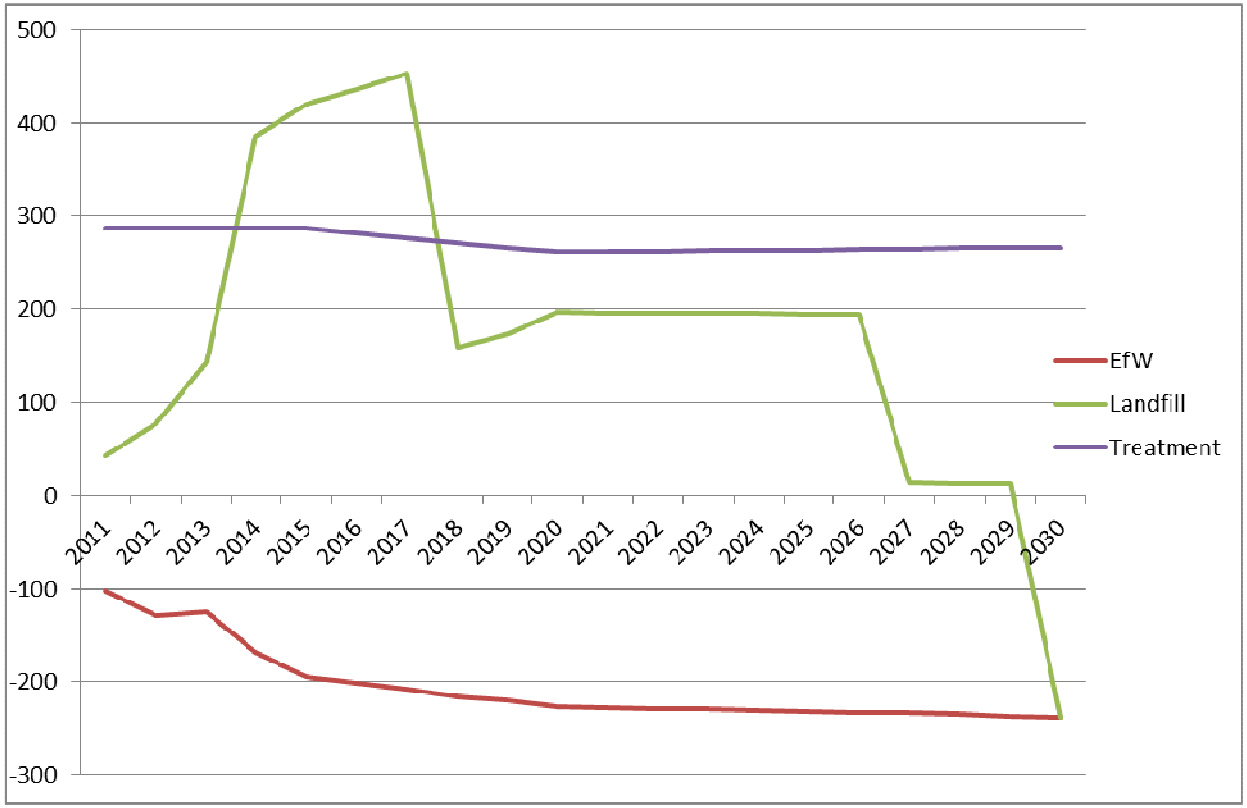


Figure 90: Tyne & Wear Residual Waste Capacity - arisings: Scenario 4: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Landfill Diversion 75% by 2020

4.3. Organic Waste Recycling Arisings and Capacities

Baseline Organic Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	65	68	76	89	92	94	97	100	104	105	106	106	107	107	108	108	109	110	111	111
From C&I	55	55	54	54	54	54	54	54	54	52	52	52	51	51	51	51	51	51	51	50
Total	120	123	130	143	146	148	151	154	157	157	158	158	158	159	159	159	160	160	161	162

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	65	68	76	89	93	97	101	105	110	113	114	115	115	116	116	117	118	118	119	120
From C&I	55	55	54	54	54	54	54	54	54	52	52	52	51	51	51	51	51	51	51	50
Total	120	123	130	143	147	151	155	159	164	165	166	166	167	167	167	168	168	169	170	170

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	65	68	76	89	93	97	101	105	110	113	114	115	115	116	116	117	118	118	119	120
From C&I	56	56	56	57	57	58	58	59	60	59	59	60	60	60	61	61	61	60	60	60
Total	121	124	132	146	151	155	160	164	170	172	173	174	175	176	177	178	178	179	179	180

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	65	68	76	89	93	97	101	105	110	113	114	115	115	116	116	117	118	118	119	120
From C&I	57	58	58	60	61	63	64	65	66	66	67	68	69	70	71	71	71	70	70	70
Total	121	126	134	148	155	160	165	170	176	179	181	183	184	186	188	188	188	189	189	190

Processing Capacity

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Composting	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

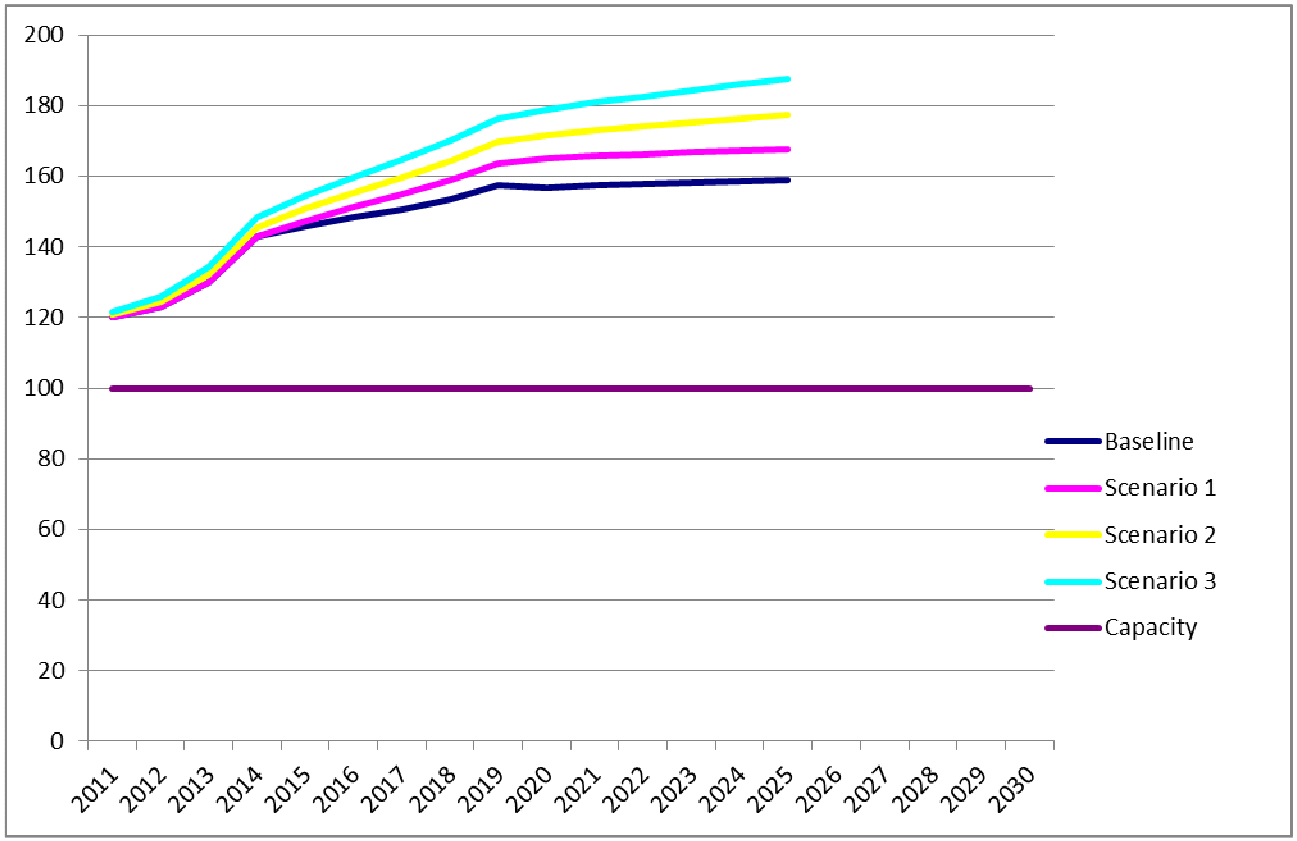


Figure 91: Tyne & Wear Sub-Regional Organic Recycling Arisings v Capacity (tonnes x 1,000)

5. Gateshead WPA

5.1. Waste Arisings Forecasts

Municipal Waste (LACW) Arisings (tonnes x 1,000)

Forecasts from WPA (contract forecasts)

LACW	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	25	27	28	30	31	32	32	33	33	34	34	34	34	34	35	35	35	35	35	35
Composting	12	12	14	17	17	18	19	19	20	21	21	21	21	21	21	21	21	21	21	22
Energy Recovery	0	0	0	57	56	56	55	55	54	54	55	55	55	55	55	55	55	56	56	56
Landfill	66	64	62	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Total	103	103	103	106	107	108	109	110	111	112	113	113	113	114	114	114	115	115	116	117
% Recycling	**35.9%**	**37.5%**	**40.3%**	**44.1%**	**44.9%**	**45.7%**	**46.6%**	**47.4%**	**48.5%**	**48.6%**	**48.6%**	**48.6%**	**48.6%**	**48.7%**	**48.7%**	**48.7%**	**48.7%**	**48.7%**	**48.8%**	**48.8%**

Commercial & Industrial Wastes (C&I) Arisings (tonnes x 1,000)

Data from North East C&I Arisings Survey, growth figures from "Projected Values derived by applying adjusted growth rates to the CE Projections"

C&I	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	110	109	107	107	106	106	104	105	104	100	100	100	100	100	100	100	100	100	100	100
Composting	17	17	17	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Energy Recovery	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	10	10
Landfill	101	100	99	99	97	97	96	96	96	92	92	92	92	92	92	92	92	92	92	92
Treatment	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7
Total	248	246	242	242	239	238	235	236	234	226	226	226	226	226	226	226	226	226	226	226
% Recycling	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**

Total Arisings (LACW + C&I) (tonnes x 1,000)

Total Arisings	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	135	136	135	138	137	137	137	137	137	134	134	134	134	135	135	135	135	135	135	136
Composting	29	29	31	33	34	34	35	36	37	36	36	36	36	37	37	37	37	37	37	37
Energy Recovery	11	11	11	68	67	67	66	66	65	65	65	65	65	65	66	66	66	66	66	67
Landfill	167	165	160	102	100	100	99	99	99	95	95	95	95	95	95	95	95	95	96	96
Treatment	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7
Total	350	349	345	348	346	346	345	346	345	337	338	339	339	339	340	340	340	341	342	343
% Recycling	**46.8%**	**47.2%**	**48.0%**	**49.1%**	**49.3%**	**49.5%**	**49.7%**	**50.0%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.4%**	**50.4%**

5.2. Waste facilities within the WPA Area

Local waste facility data was supplied by the EA along with permitted capacities. The available capacities from the 53 sites identified within the WPA area can be summarised as:

Facility	Non-operational	Operational	Grand Total
Co-disposal landfill	775,000	1,563,086	2,338,086
Composting		194,998	194,998
Haz Landfill	24,999		24,999
Haz Transfer Station		147,592	147,592
Haz Waste Transfer		20,000	20,000
HWRC		36,500	36,500
Metal Recycling and ELV	78,384	265,613	343,997
Non-Haz Landfill	2,754,909	1,029,000	3,783,909
Non-Haz Waste Transfer		580,638	580,638
Storage		4,500	4,500
Treatment	24,999		24,999
Waste Transfer		24,999	24,999
Grand Total	3,658,291	3,866,926	7,525,217

Capacity is EA licensed capacity

Source: Environment Agency

5.3. Non-Hazardous Residual Waste Arisings and Capacities

5.3.1. Baseline

From these baseline forecasts, Residual Waste Baseline Forecasts are (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Energy Recovery	11	11	11	68	67	67	66	66	65	65	65	65	65	65	66	66	66	66	66	67
Landfill	167	165	160	102	100	100	99	99	99	95	95	95	95	95	95	95	95	95	96	96
Treatment	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7
Total Residual	**186**	**184**	**180**	**177**	**175**	**175**	**173**	**173**	**171**	**167**	**168**	**168**	**168**	**168**	**168**	**169**	**169**	**169**	**169**	**170**

Residual Waste Capacity Forecasts (from key residual waste facilities) (tonnes x 1,000) – includes 56,000tpa Haverton Hill Third Line EfW capacity

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	0	0	0	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
Landfill	490	490	490	490	490	490	180	180	180	180	180	180	180	180	180	0	0	0	0	0
Treatment	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160
Total	650	650	650	706	706	706	396	396	396	396	396	396	396	396	396	216	216	216	216	216

Difference Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-11	-11	-11	-12	-11	-11	-10	-10	-9	-9	-9	-9	-9	-9	-10	-10	-10	-10	-10	-11
Landfill	323	325	330	388	390	390	81	81	81	85	85	85	85	85	85	-95	-95	-95	-96	-96
Treatment	152	152	152	152	152	152	152	152	152	153	153	153	153	153	153	153	153	153	153	153
Total	464	466	470	529	531	531	223	223	225	229	228	228	228	228	228	47	47	47	47	46

From these baseline forecasts:

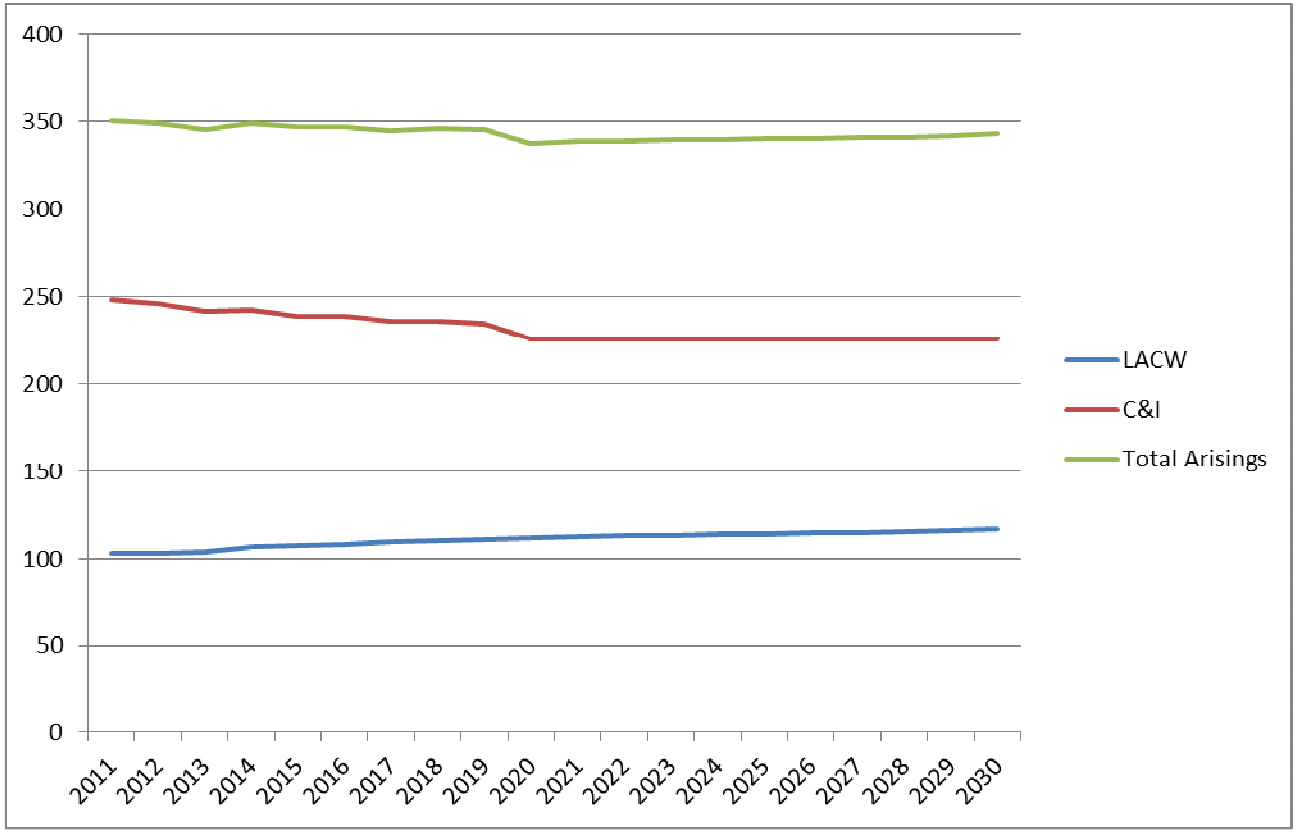


Figure 92: Gateshead Baseline Arisings Forecasts (tonnes x 1,000)

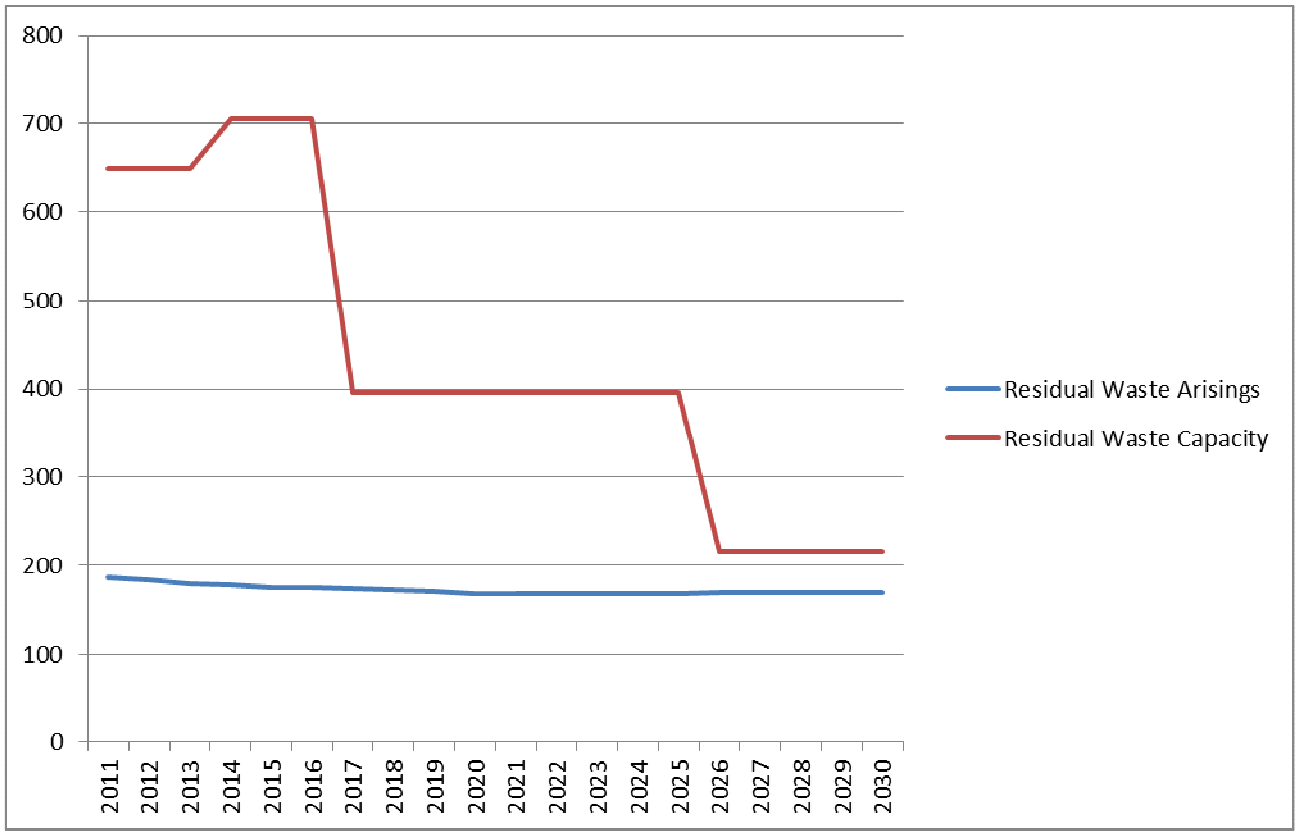


Figure 93: Gateshead Residual Waste Capacity v Arisings, all waste management methods (tonnes)

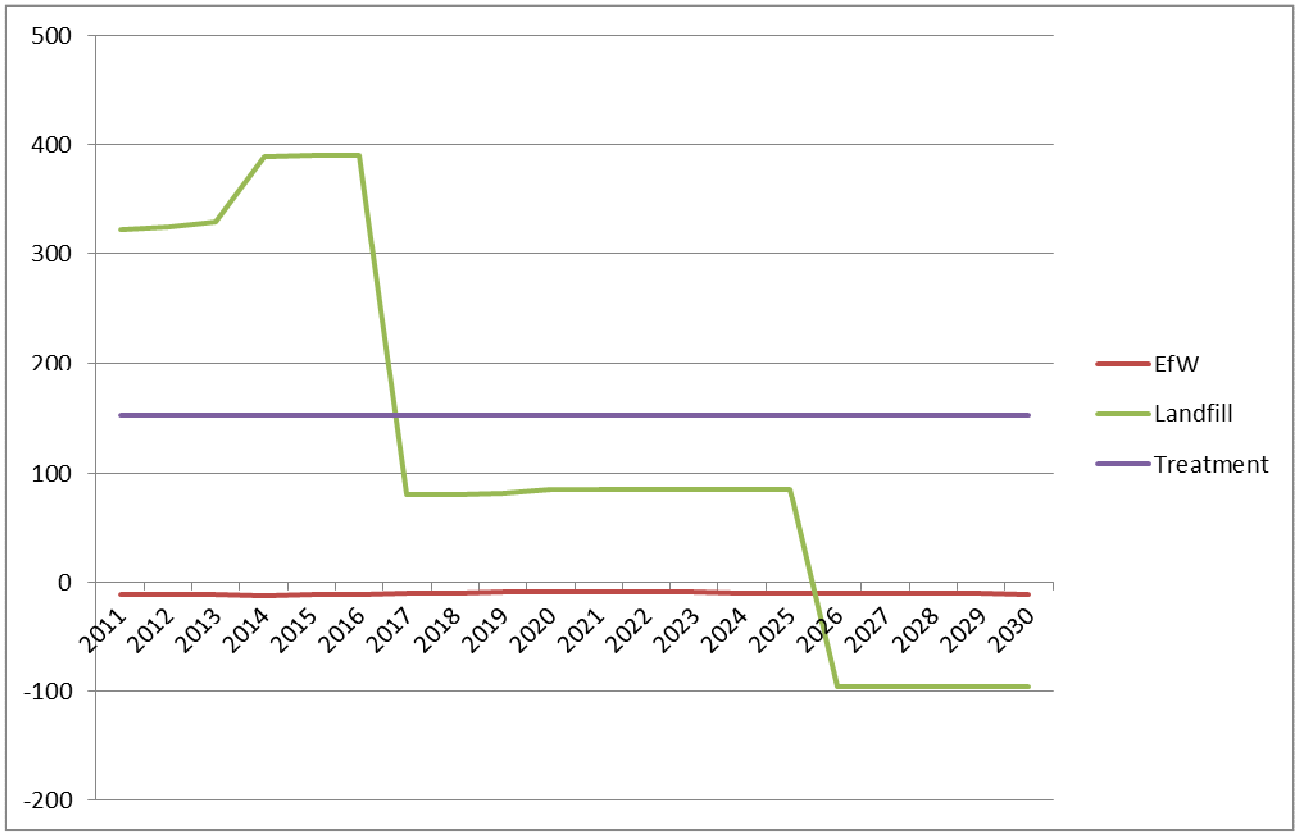


Figure 94: Gateshead Residual Waste Capacity - Arisings, per waste management method (tonnes x 1,000) – negative figures indicate a shortfall

5.3.2. Changes from Baseline: Increased Recycling

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

LACW: (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	25	27	28	29	31	32	33	33	34	35	35	35	35	35	35	36	36	36	36	36
Composting	12	12	14	16	17	18	19	20	21	21	21	21	21	22	22	22	22	22	22	22
Landfill	66	64	62	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Energy Recovery	0	0	0	58	56	55	55	54	53	53	53	53	53	53	54	54	54	54	55	55
Total Arisings	**103**	**103**	**103**	**106**	**107**	**108**	**109**	**110**	**111**	**112**	**113**	**113**	**113**	**114**	**114**	**114**	**115**	**115**	**116**	**117**
% Recycling	**36.0%**	**38.3%**	**40.5%**	**42.8%**	**45.0%**	**46.0%**	**47.0%**	**48.0%**	**49.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**

Commercial and Industrial waste – as baseline
Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	135	136	135	137	137	138	137	138	138	135	135	135	135	135	136	136	136	136	136	137
Composting	29	29	31	33	34	34	35	36	37	37	37	37	37	37	37	37	37	37	38	38
Energy Recovery	11	11	11	68	67	67	66	66	65	65	65	65	65	65	66	66	66	66	66	67
Landfill	167	164	160	103	100	100	99	99	98	94	94	94	94	94	94	94	94	94	94	94
Treatment	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7
Total	**350**	**349**	**345**	**348**	**346**	**346**	**345**	**346**	**345**	**337**	**338**	**339**	**339**	**339**	**340**	**340**	**340**	**341**	**342**	**343**
Recycling rate	46.8%	47.4%	48.1%	48.7%	49.3%	49.6%	49.9%	50.2%	50.6%	50.9%	50.9%	50.9%	50.9%	50.9%	50.9%	50.9%	50.9%	50.9%	50.9%	50.9%

Residual Waste Capacity Differences (tonnes x 1,000)

Difference	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-11	-11	-11	-13	-11	-11	-10	-9	-8	-7	-7	-8	-8	-8	-8	-8	-8	-9	-9	-9
Landfill	323	326	330	388	390	390	391	81	81	85	85	85	85	85	85	85	-95	-95	-96	-96
Treatment	152	152	152	152	152	152	152	152	152	153	153	153	153	153	153	153	153	153	153	153
Total	464	467	471	527	531	532	533	224	225	230	230	230	229	229	229	229	49	49	48	48

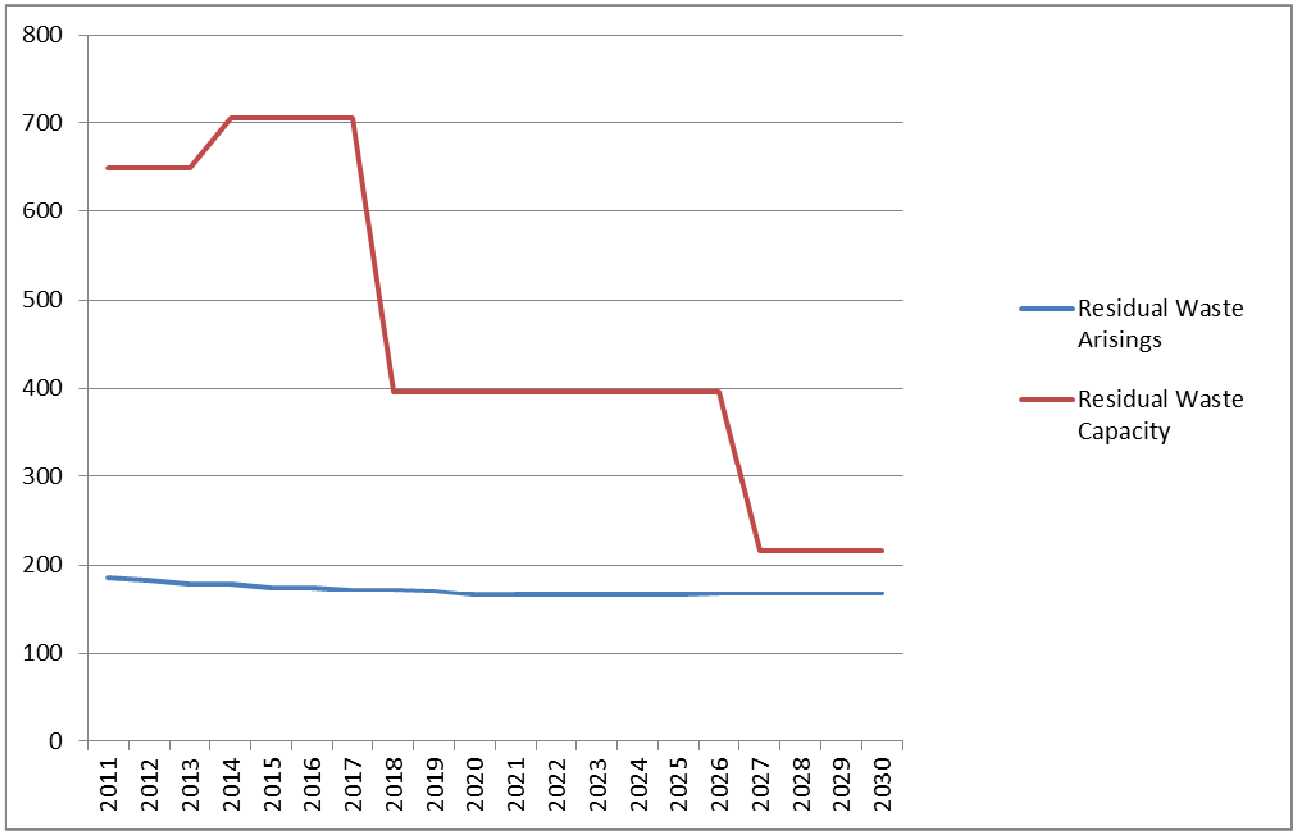


Figure 95: Gateshead Residual waste capacity v arisings all waste management methods: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

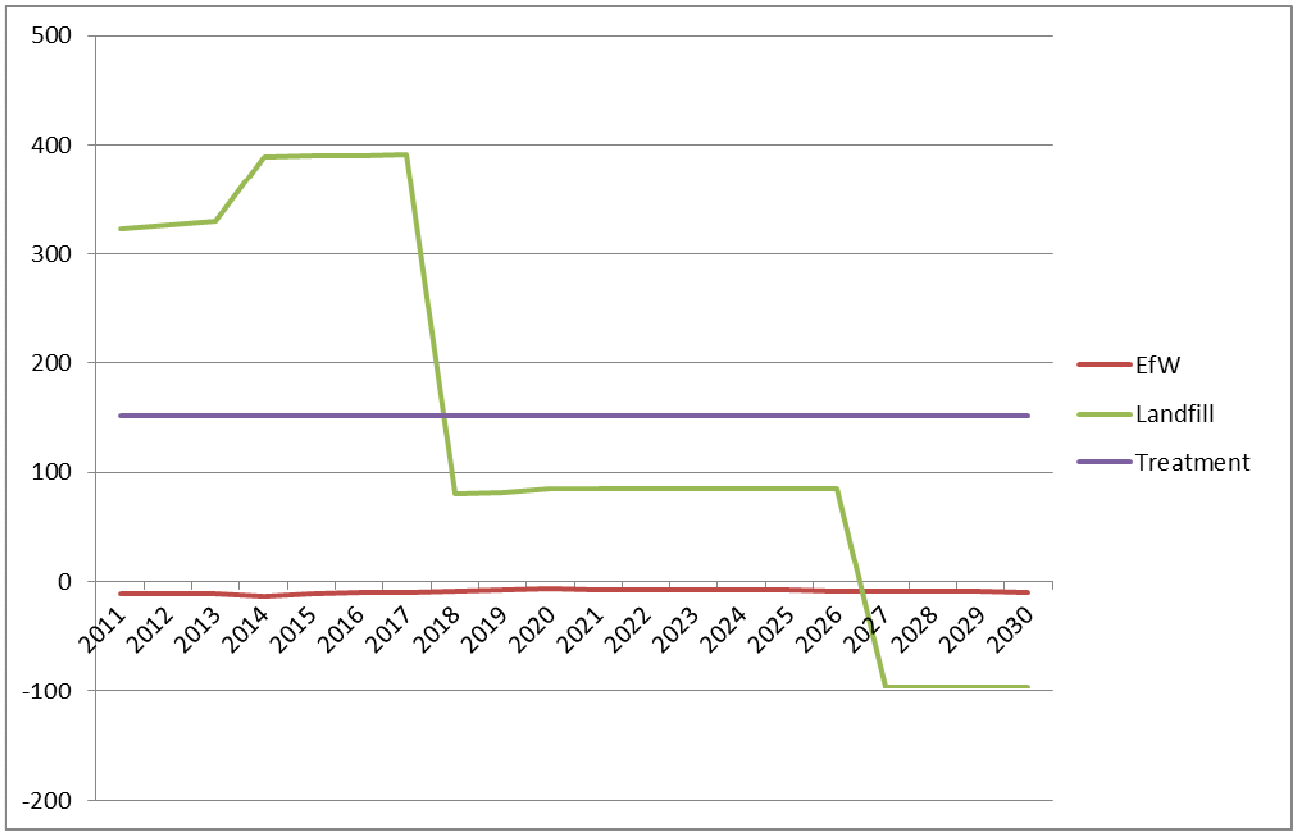


Figure 96: Gateshead Residual Waste Capacity - arisings: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

LACW – as Scenario 1

C&I Arisings, 60% recycling by 2025 (tonnes x 1,000)

C&I	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	111	112	111	112	112	113	113	114	115	112	113	114	115	117	117	117	117	117	117	117
Composting	17	17	17	17	17	18	18	18	18	17	18	18	18	18	18	18	18	18	18	18
Energy Recovery	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	10	10
Landfill	100	97	94	93	90	89	86	85	83	79	77	76	74	73	72	72	72	72	72	72
Treatment	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7
Total	248	246	242	242	239	238	235	236	234	226	226	226	226	226	226	226	226	226	226	226
% Recycling	**51.9%**	**52.5%**	**53.1%**	**53.7%**	**54.3%**	**54.9%**	**55.5%**	**56.1%**	**56.7%**	**57.3%**	**57.9%**	**58.5%**	**59.1%**	**59.7%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**

Total Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	137	139	139	142	143	145	146	148	149	147	148	149	151	152	153	153	153	153	153	154
Composting	29	30	31	33	35	36	36	37	38	39	39	39	39	40	40	40	40	40	40	40
Energy Recovery	11	11	11	69	67	67	66	65	64	63	63	64	64	64	64	64	64	65	65	65
Landfill	165	161	156	96	93	92	89	88	86	82	80	79	78	76	76	76	76	76	76	76
Treatment	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7
Total	**350**	**349**	**345**	**348**	**346**	**346**	**345**	**346**	**345**	**337**	**338**	**339**	**339**	**339**	**340**	**340**	**340**	**341**	**342**	**343**
Recycling rate	47.2%	48.3%	49.3%	50.4%	51.4%	52.1%	52.8%	53.5%	54.2%	54.9%	55.3%	55.7%	56.1%	56.4%	56.6%	56.6%	56.6%	56.6%	56.6%	56.6%

Residual Waste Capacity Differences (tonnes x 1,000)

Difference	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-11	-11	-11	-13	-11	-11	-10	-9	-8	-7	-7	-8	-8	-8	-8	-8	-8	-9	-9	-9
Landfill	325	329	334	394	397	398	401	92	94	98	100	101	102	104	104	104	-76	-76	-76	-76
Treatment	152	152	152	152	152	152	152	152	152	153	153	153	153	153	153	153	153	153	153	153
Total	465	470	475	533	538	540	543	235	238	244	245	246	247	248	249	249	68	68	68	67

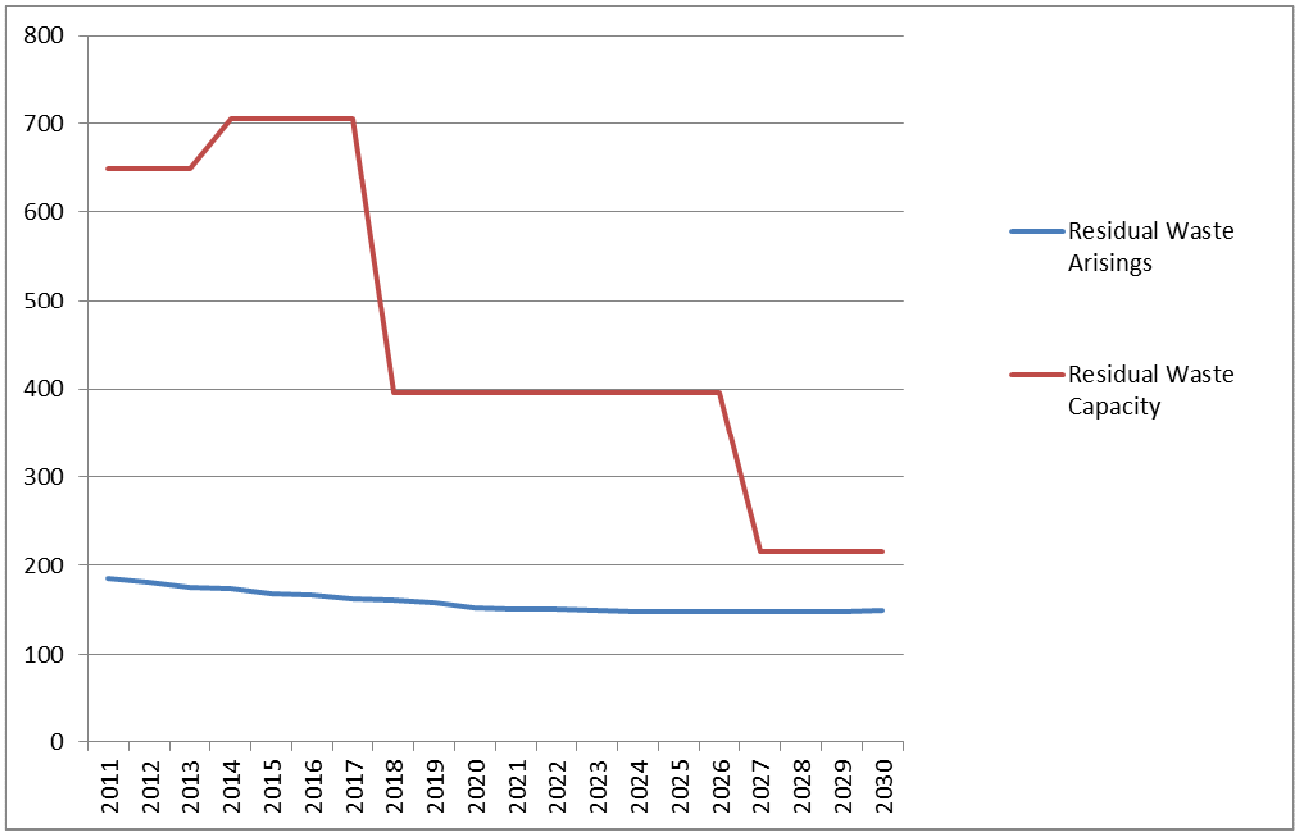


Figure 97: Gateshead Residual waste capacity v arisings all waste management methods: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 60% by 2025

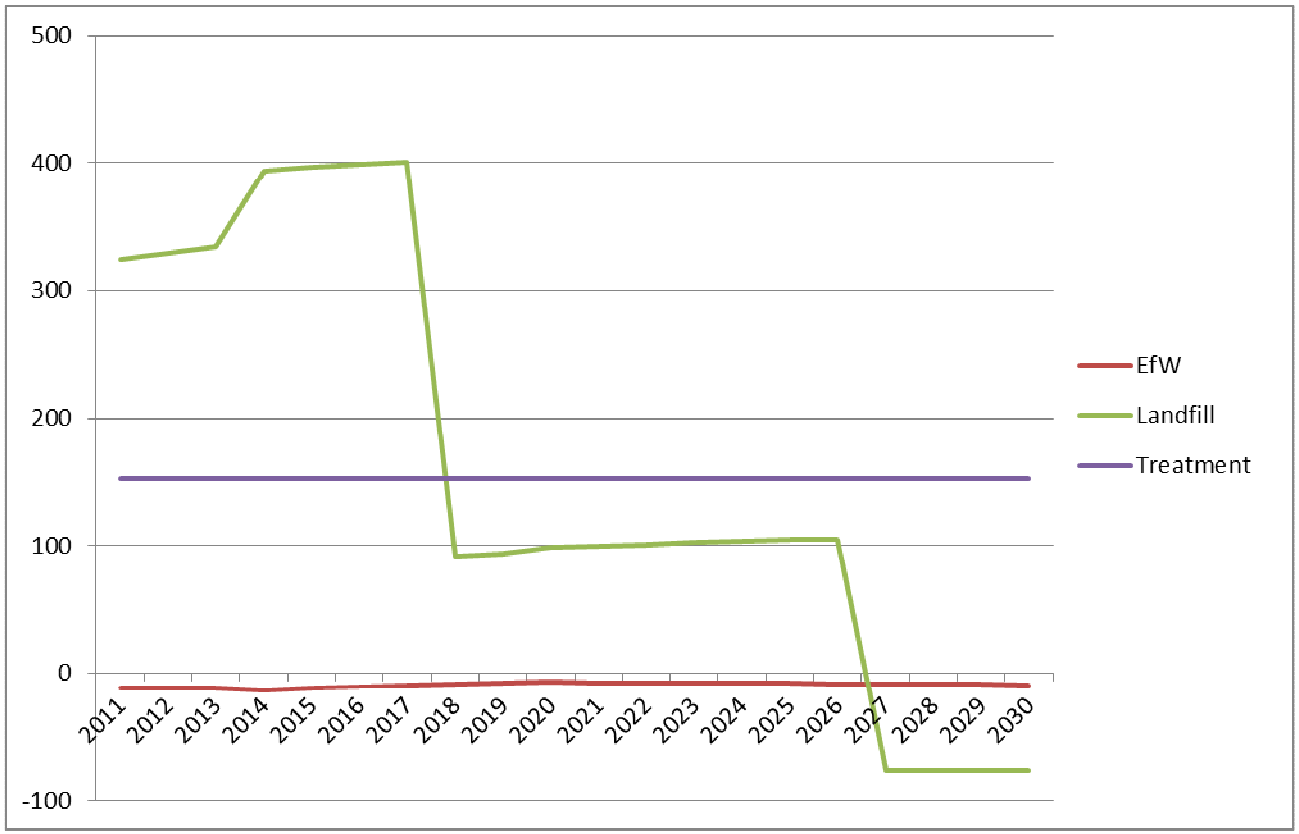


Figure 98: Gateshead Residual Waste Capacity - arisings: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 60% by 2025

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

LACW – as Scenario 1

C&I Arisings 70% recycling by 2025 (tonnes x 1,000)

C&I	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	113	115	115	118	119	122	123	125	127	125	128	130	133	135	137	137	137	137	137	137
Composting	18	18	18	18	19	19	19	20	20	19	20	20	21	21	21	21	21	21	21	21
Energy Recovery	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	10	10
Landfill	98	94	89	86	82	79	75	72	69	63	60	57	55	52	50	50	50	50	50	50
Treatment	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7
Total	248	246	242	242	239	238	235	236	234	226	226	226	226	226	226	226	226	226	226	226
% Recycling	**52.6%**	**53.9%**	**55.1%**	**56.4%**	**57.7%**	**59.0%**	**60.3%**	**61.5%**	**62.8%**	**64.1%**	**65.4%**	**66.7%**	**67.9%**	**69.2%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	138	142	143	148	150	153	155	159	161	160	163	165	168	170	172	172	172	172	173	173
Composting	29	30	32	34	36	37	38	39	40	41	41	42	42	43	43	43	43	43	43	43
Energy Recovery	11	11	11	69	67	67	66	65	64	63	63	64	64	64	64	64	64	65	65	65
Landfill	164	158	151	89	85	82	78	75	72	66	64	61	58	55	53	53	53	53	53	53
Treatment	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7
Total	**350**	**349**	**345**	**348**	**346**	**346**	**345**	**346**	**345**	**337**	**338**	**339**	**339**	**339**	**340**	**340**	**340**	**341**	**342**	**343**
Recycling rate	47.7%	49.2%	50.7%	52.2%	53.8%	54.9%	56.1%	57.2%	58.4%	59.4%	60.3%	61.1%	61.9%	62.8%	63.3%	63.3%	63.3%	63.2%	63.2%	63.2%

Residual Waste Capacity Differences (tonnes x 1,000)

Difference	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-11	-11	-11	-13	-11	-11	-10	-9	-8	-7	-7	-8	-8	-8	-8	-8	-8	-9	-9	-9
Landfill	326	332	339	401	405	408	412	105	108	114	116	119	122	125	127	127	-53	-53	-53	-53
Treatment	152	152	152	152	152	152	152	152	152	153	153	153	153	153	153	153	153	153	153	153
Total	467	473	480	540	546	550	555	248	252	259	262	264	267	270	271	271	91	91	90	90

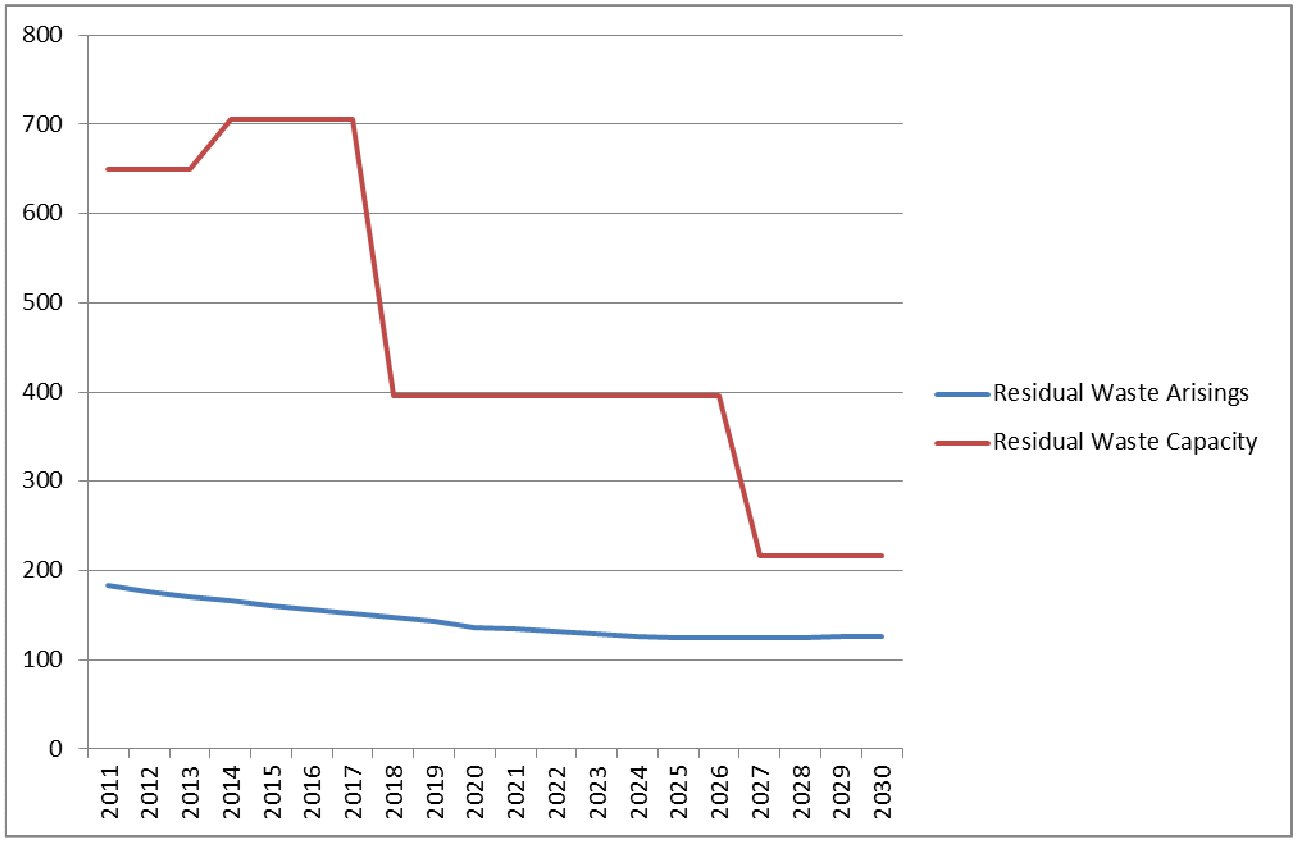


Figure 99: Gateshead Residual waste capacity v arisings all waste management methods: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 70% by 2025

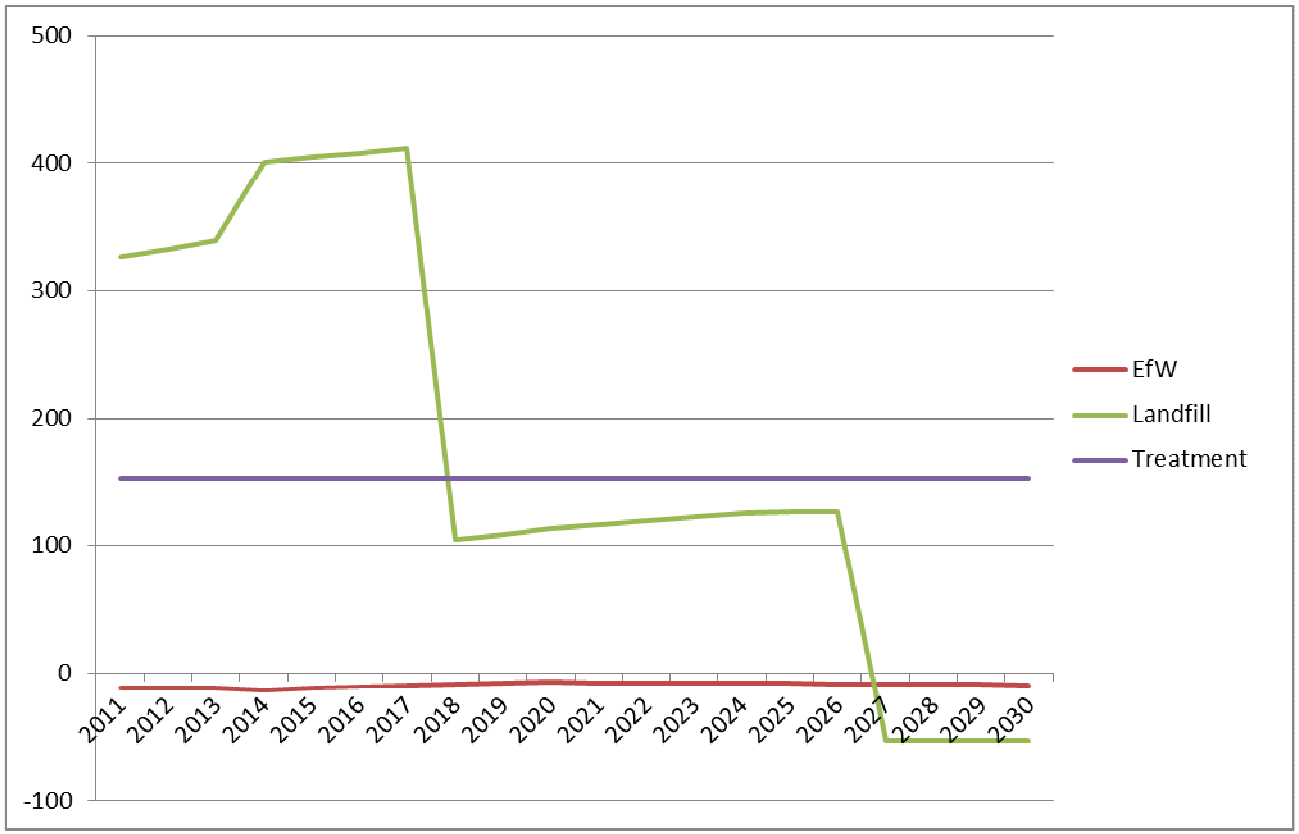


Figure 100: Gateshead Residual Waste Capacity - arisings: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 70% by 2020

Scenario Summary

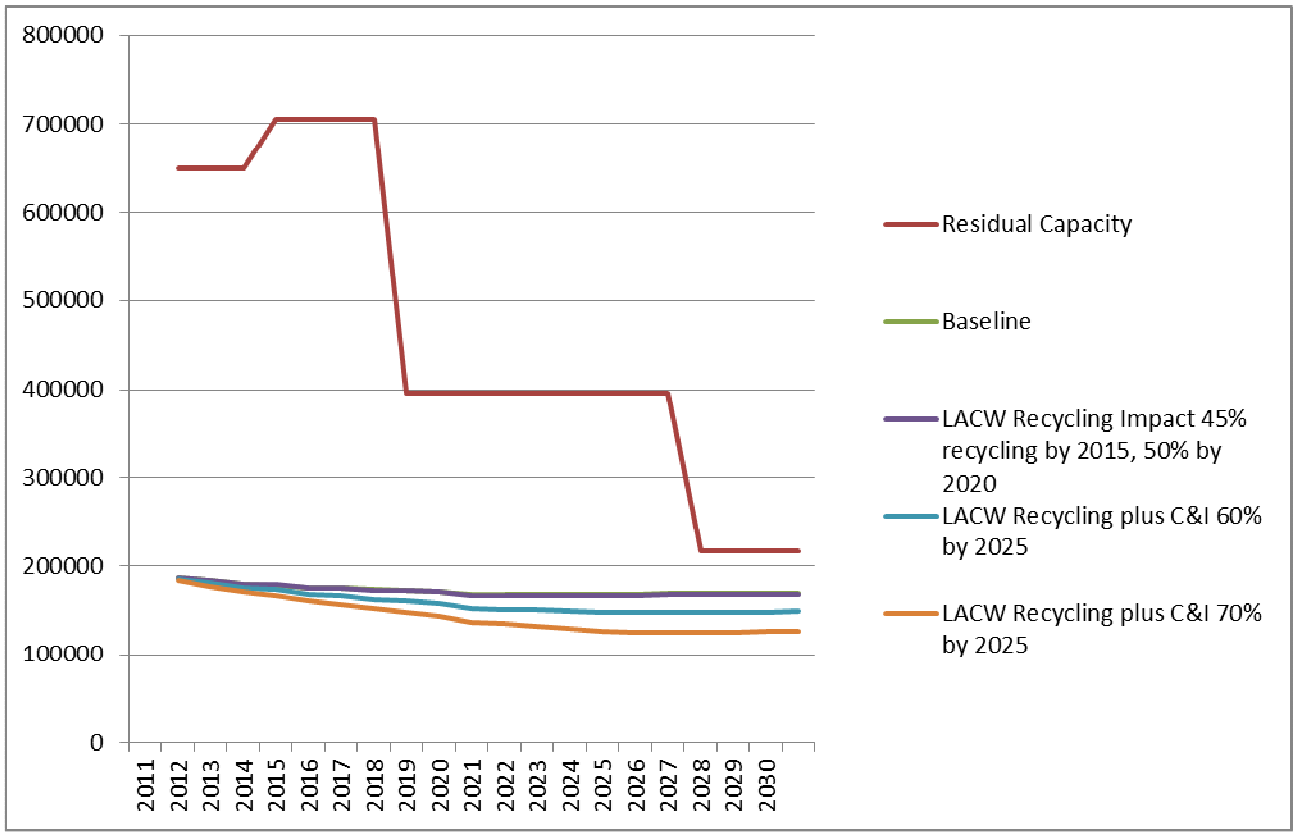


Figure 101: Gateshead Residual Waste Capacity against arisings forecasts, recycling scenarios 1-3

5.3.3. Changes from baseline – increased C&I Landfill Diversion

Scenario 4: LACW as Scenario 4 plus C&I baseline with 75% diversion from landfill by 2020

LACW Arisings as Scenario 1
C&I Arisings baseline plus 75% landfill diversion by 2020 (tonnes x 1,000)

C&I	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	110	109	107	107	106	106	104	105	104	100	100	100	100	100	100	100	100	100	100	100
Composting	17	17	17	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Energy Recovery	11	16	20	24	28	32	36	40	44	46	46	46	46	46	46	46	46	46	46	46
Landfill	101	96	90	86	81	76	71	67	63	56	56	56	56	56	56	56	56	56	56	56
Treatment	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7
Total	248	246	242	242	239	238	235	236	234	226	226	226	226	226	226	226	226	226	226	226
% Recycling	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**	**51.3%**
% Diversion	**59.2%**	**61.0%**	**62.7%**	**64.5%**	**66.2%**	**68.0%**	**69.7%**	**71.5%**	**73.2%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	135	136	135	137	137	138	137	138	138	135	135	135	135	135	136	136	136	136	136	137
Composting	29	29	31	33	34	34	35	36	37	37	37	37	37	37	37	37	37	37	38	38
Energy Recovery	11	16	20	82	84	87	90	94	97	99	99	99	99	100	100	100	100	100	101	101
Landfill	167	160	152	89	84	79	74	70	66	60	60	60	60	60	60	60	60	60	60	60
Treatment	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7
Total	**350**	**349**	**345**	**348**	**346**	**346**	**345**	**346**	**345**	**337**	**338**	**339**	**339**	**339**	**340**	**340**	**340**	**341**	**342**	**343**
% Recycling	**46.8%**	**47.4%**	**48.1%**	**48.7%**	**49.3%**	**49.6%**	**49.9%**	**50.2%**	**50.6%**	**50.9%**	**50.9%**	**50.9%**	**50.9%**	**50.9%**	**50.9%**	**50.9%**	**50.9%**	**50.9%**	**50.9%**	**50.9%**
% Diversion	**52.4%**	**54.2%**	**56.0%**	**74.5%**	**75.9%**	**77.1%**	**78.4%**	**79.7%**	**80.9%**	**82.3%**	**82.3%**	**82.4%**	**82.4%**	**82.4%**	**82.4%**	**82.4%**	**82.4%**	**82.4%**	**82.5%**	**82.5%**

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-11	-16	-20	-26	-28	-31	-34	-38	-41	-43	-43	-43	-43	-44	-44	-44	-44	-44	-45	-45
Landfill	323	330	338	401	406	411	416	110	114	120	120	120	120	120	120	120	-60	-60	-60	-60
Treatment	152	152	152	152	152	152	152	152	152	153	153	153	153	153	153	153	153	153	153	153
Total	464	467	471	527	531	532	533	224	225	230	230	230	229	229	229	229	49	49	48	48

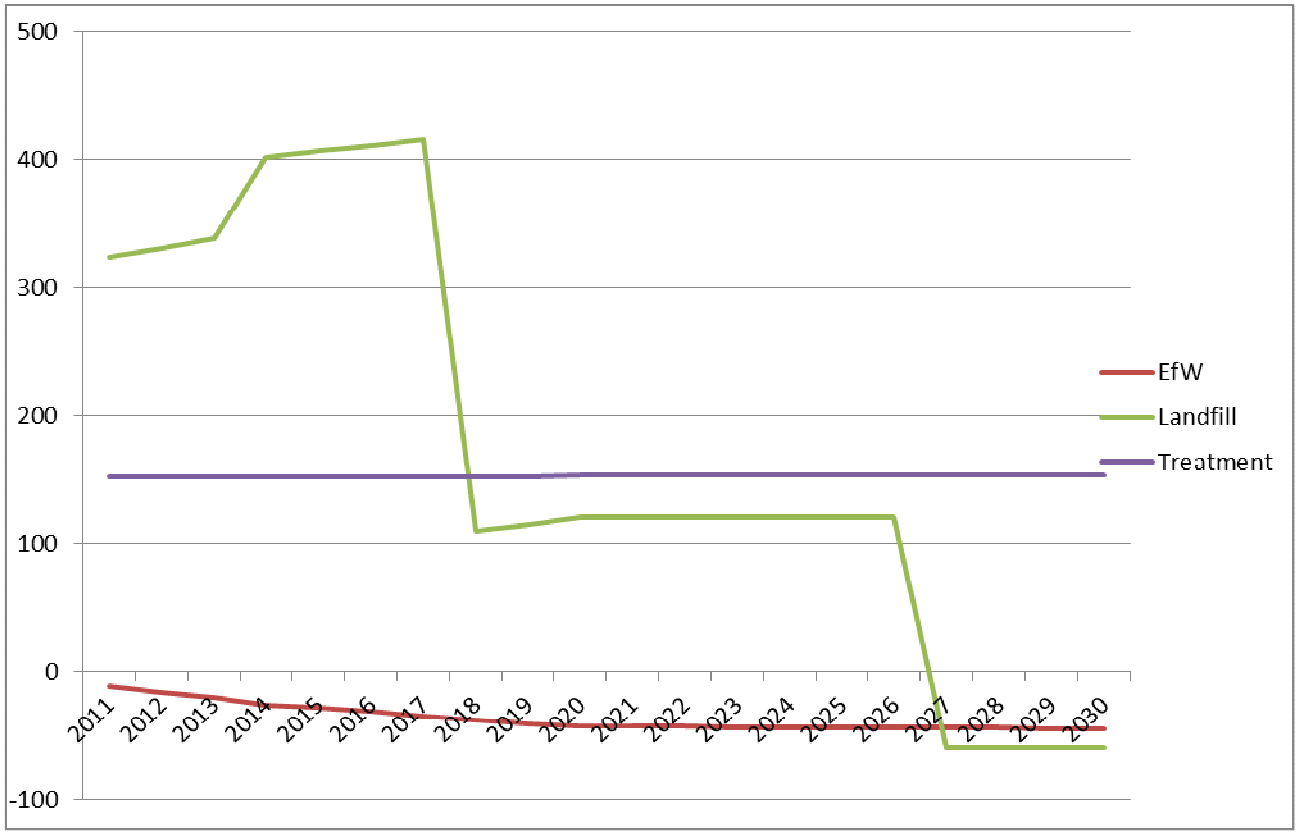


Figure 102: Gateshead Residual Waste Capacity - arisings: Scenario 4: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Landfill Diversion 75% by 2020

5.4. Organic Waste Recycling Arisings and Capacities

Baseline Organic Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	12	12	14	17	17	18	19	19	20	21	21	21	21	21	21	21	21	21	21	22
From C&I	17	17	17	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Total	29	29	31	33	34	34	35	36	37	36	36	36	36	37	37	37	37	37	37	38

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	12	12	14	16	17	18	19	20	21	21	21	21	21	22	22	22	22	22	22	22
From C&I	17	17	17	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Total	29	29	31	33	34	34	35	36	37	37	37	37	37	37	37	37	37	37	38	38

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	12	12	14	16	17	18	19	20	21	21	21	21	21	22	22	22	22	22	22	22
From C&I	17	17	17	18	18	18	18	18	19	18	18	18	18	18	18	18	18	18	18	18
Total	29	29	31	34	35	36	37	38	39	39	40	40	40	40	40	40	40	40	40	40

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	12	12	14	16	17	18	19	20	21	21	21	21	21	22	22	22	22	22	22	22
From C&I	17	18	18	19	19	20	20	21	21	21	21	21	21	21	21	21	21	21	21	21
Total	29	30	32	35	37	38	39	40	42	42	43	43	43	43	43	43	43	43	43	43

Processing Capacity

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Composting	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75

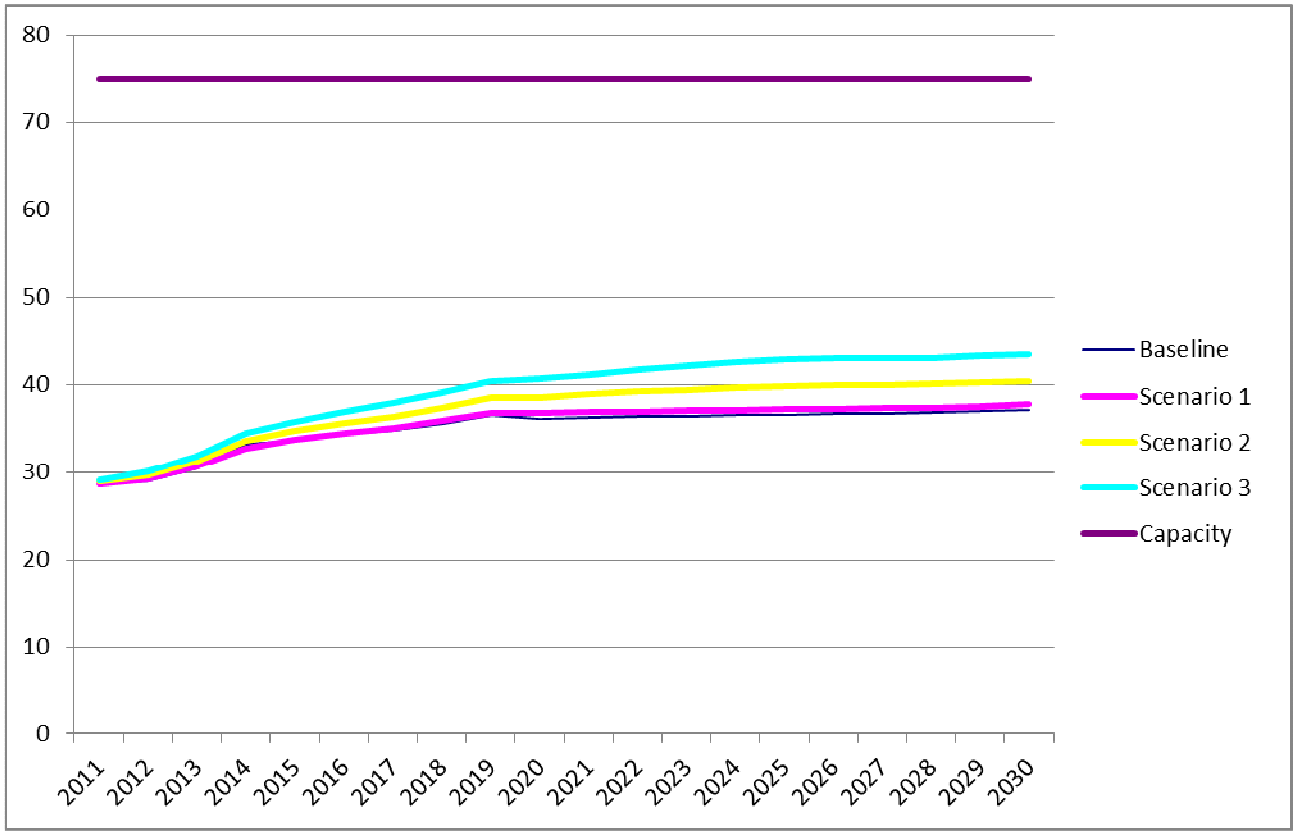


Figure 103: Gateshead - organic recycling forecast arisings v processing capacity (tonnes x 1,000)

5.5. Hazardous Waste Arisings and Capacities

Waste Fate	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Incineration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Landfill	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Recovery	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3
Treatment	11	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	9
Grand Total	**16**	**16**	**16**	**16**	**16**	**16**	**15**	**15**	**15**	**15**	**15**	**14**	**14**	**14**	**14**	**14**	**14**	**14**	**14**	**13**

Figure 104: Gateshead Forecast Hazardous Waste Arisings (tonnes x 1,000)

Facility	Non-operational	Operational	Grand Total
Haz Landfill	24999		24999
Haz Transfer Station		147592	147592
Haz Waste Transfer		20000	20000
Grand Total	24999	167592	192591

Figure 105: Gateshead Hazardous Waste Processing Capacity (tonnes)

6. Newcastle WPA

6.1. Waste Arisings Forecasts

Municipal Waste (LACW) Arisings (tonnes x 1,000)

Based upon forecasts in "Newcastle City Council Municipal Waste Management and the One Core Strategy" September 2011 table 4.4

LACW	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	44	46	47	49	50	50	50	51	51	51	51	51	52	52	52	52	53	53	53	54
Composting	23	23	24	25	25	25	25	25	25	25	26	26	26	26	26	26	26	27	27	27
Energy Recovery	14	27	41	55	68	63	58	52	47	42	42	42	42	42	43	43	43	43	44	44
Landfill	78	63	48	33	18	19	19	20	20	20	21	22	22	23	24	24	25	26	27	27
Treatment	0	0	0	0	0	5	11	16	21	27	26	26	25	25	25	24	24	23	23	22
Total	159	160	160	161	162	162	163	164	164	165	166	166	167	168	169	170	171	172	173	174
% Recycling	**42.3%**	**43.4%**	**44.5%**	**45.6%**	**46.7%**	**46.6%**	**46.5%**	**46.4%**	**46.3%**	**46.2%**	**46.2%**	**46.2%**	**46.2%**	**46.2%**	**46.2%**	**46.2%**	**46.2%**	**46.2%**	**46.2%**	**46.2%**

Commercial & Industrial Wastes (C&I) Arisings (tonnes x 1,000)

Based upon results from North East C&I Arisings Survey 2009-10, with employment growth from "Projected Values derived by applying adjusted growth rates to the CE Projections"

C&I	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	97	96	97	97	97	98	98	99	99	100	100	100	100	100	101	101	102	102	102	103
Composting	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Energy Recovery	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Landfill	89	88	89	90	89	90	90	91	91	92	92	92	92	92	92	93	93	93	94	94
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total	202	200	202	203	202	204	204	206	207	207	208	208	208	208	209	210	211	211	212	214
% Recycling	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**

Total Arisings (LACW + C&I) (tonnes x 1,000)

Total Arisings	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	141	142	144	146	147	149	149	149	150	151	151	151	152	152	153	153	154	155	155	156
Composting	28	28	29	30	30	31	31	31	31	31	31	31	31	31	31	31	32	32	32	32
Energy Recovery	20	34	48	61	75	70	64	59	54	48	49	49	49	49	50	50	50	50	51	51
Landfill	167	152	137	123	107	109	109	110	111	112	113	114	114	115	116	117	119	119	120	122
Treatment	4	4	4	4	4	9	14	20	25	30	30	30	29	29	29	28	28	27	27	26
Total	360	360	362	364	364	367	367	369	371	372	374	374	376	376	378	380	382	383	385	388
% Recycling	**46.9%**	**47.4%**	**47.9%**	**48.4%**	**48.9%**	**48.8%**	**48.8%**	**48.8%**	**48.7%**	**48.7%**	**48.7%**	**48.7%**	**48.7%**	**48.7%**	**48.7%**	**48.7%**	**48.7%**	**48.7%**	**48.7%**	**48.7%**

6.2. Waste facilities within the WPA Area

Local waste facility data was supplied by the EA along with permitted capacities. The available capacities from the 28 sites identified within the WPA area can be summarised as:

Facility	Non-operational	Operational	Grand Total
Composting		24,999	24,999
Haz Waste Transfer	4,999	180,015	185,014
HWRC		249,999	249,999
Metal Recycling and ELV	3,019	250,796	253,815
Non-Haz Landfill	241,010		241,010
Non-Haz Waste Transfer		184,675	184,675
Treatment		164,998	164,998
Grand Total	249,028	1,055,482	1,304,510

Capacity is EA licensed capacity
Source: Environment Agency

6.3. Non-Hazardous Residual Waste Arisings and Capacities

6.3.1. Baseline

From these baseline forecasts, Newcastle Residual Waste Baseline Forecasts are (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Energy Recovery	20	34	48	61	75	70	64	59	54	48	49	49	49	49	50	50	50	50	51	51
Landfill	167	152	137	123	107	109	109	110	111	112	113	114	114	115	116	117	119	119	120	122
Treatment	4	4	4	4	4	9	14	20	25	30	30	30	29	29	29	28	28	27	27	26
Total Residual	**191**	**189**	**188**	**188**	**186**	**188**	**188**	**189**	**190**	**191**	**192**	**192**	**193**	**193**	**194**	**195**	**196**	**197**	**198**	**199**

Newcastle Residual Waste Capacity Forecasts (from key residual waste facilities) (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Landfill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Treatment	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Total	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150

Difference Regional Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-20	-34	-48	-61	-75	-70	-64	-59	-54	-48	-49	-49	-49	-49	-50	-50	-50	-50	-51	-51
Landfill	-167	-152	-137	-123	-107	-109	-109	-110	-111	-112	-113	-114	-114	-115	-116	-117	-119	-119	-120	-122
Treatment	146	146	146	146	146	141	136	130	125	120	120	120	121	121	121	122	122	123	123	124
Total	-41	-39	-38	-38	-36	-38	-38	-39	-40	-41	-42	-42	-43	-43	-44	-45	-46	-47	-48	-49

Negative figures indicate a capacity shortfall

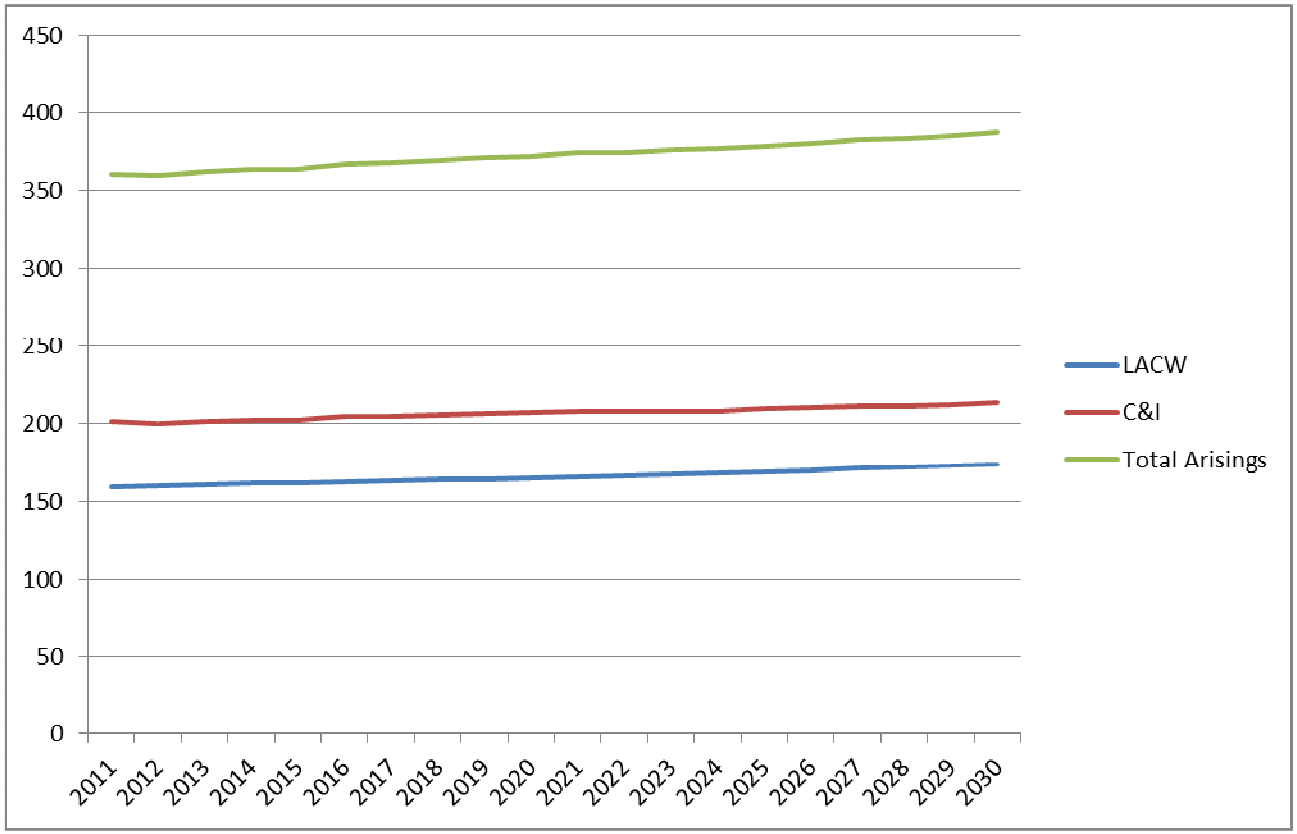


Figure 106: Newcastle Baseline Arisings Forecasts (tonnes x 1,000)

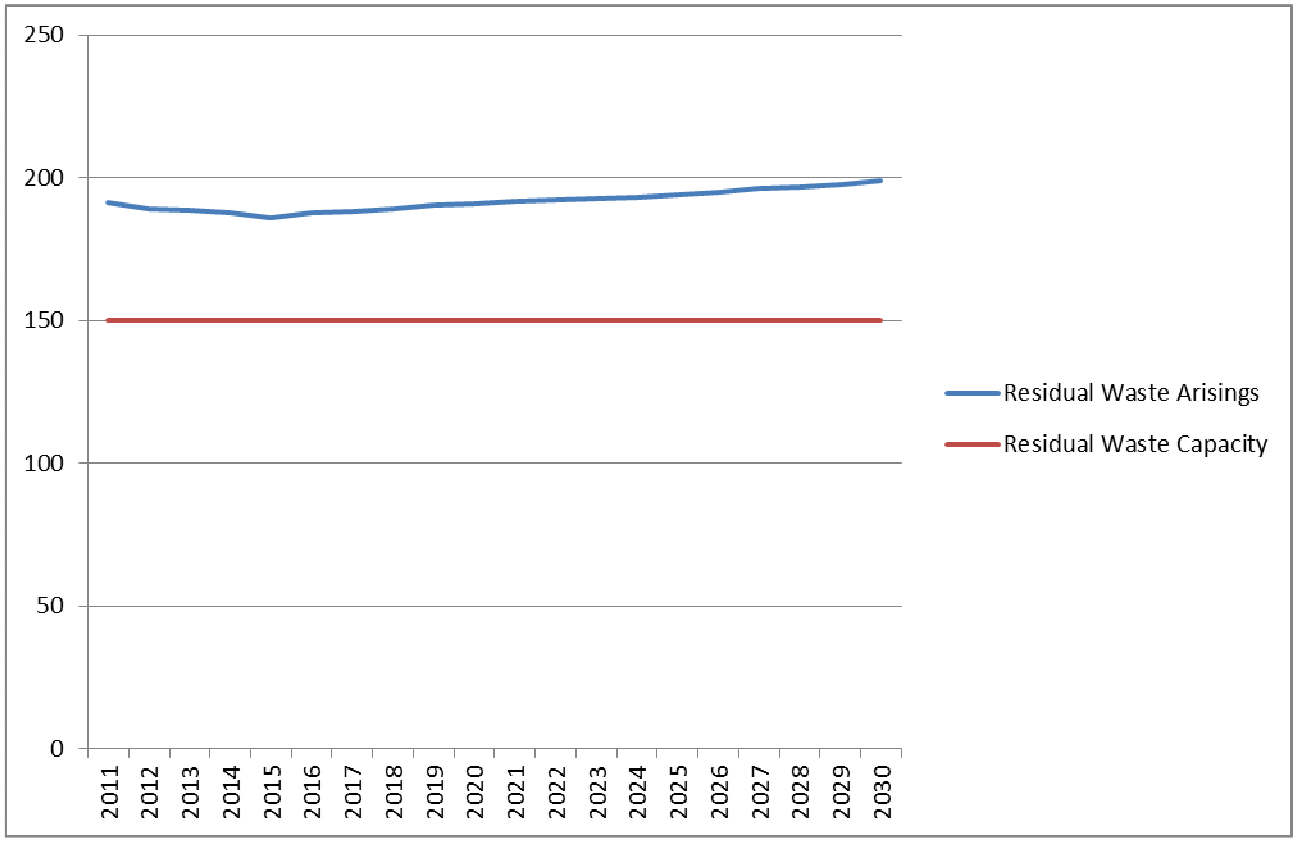


Figure 107: Newcastle Residual Waste Capacity v Arisings, all waste management methods (tonnes)

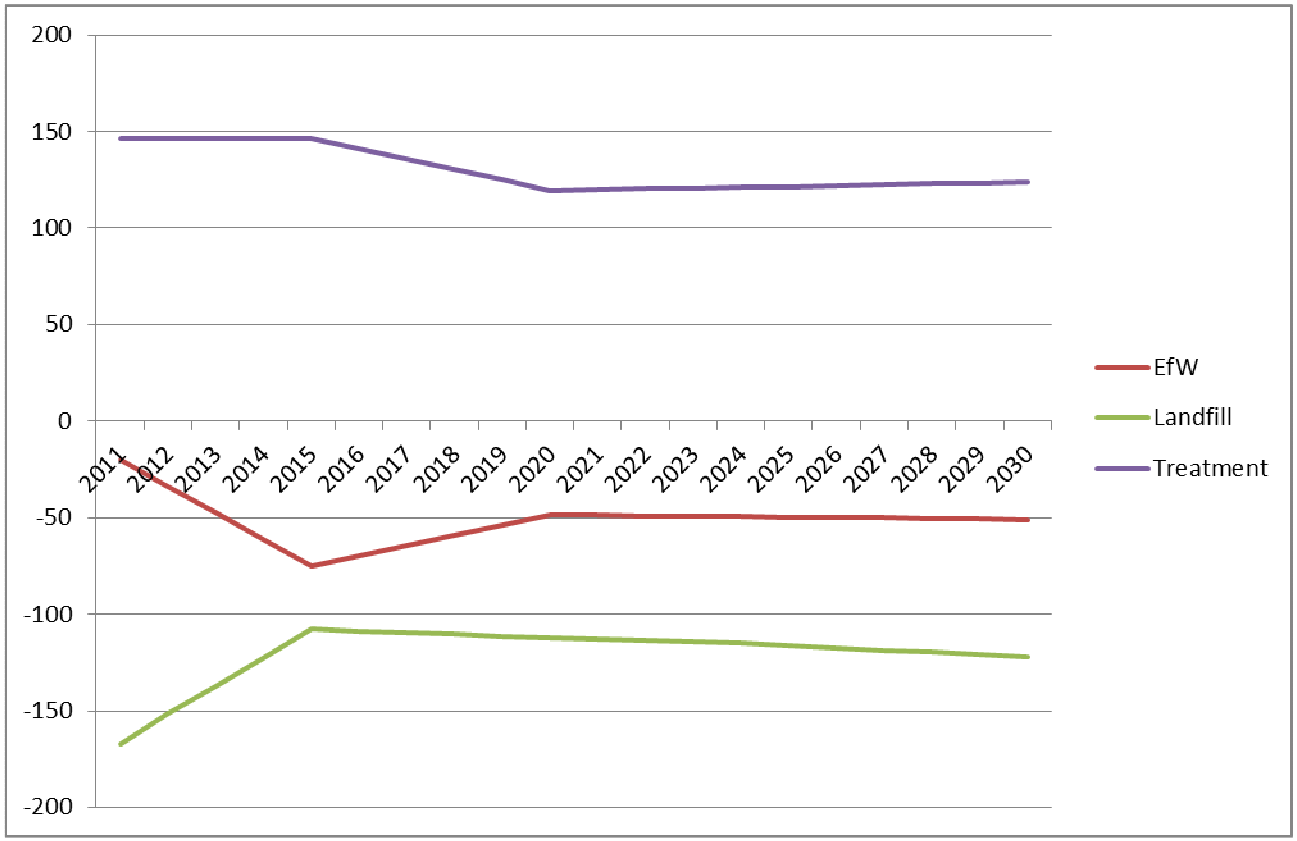


Figure 108: Newcastle Residual Waste Capacity - Arisings, per waste management method (tonnes x 1,000) – negative figures indicate a shortfall

6.3.2. Changes from Baseline: Increased Recycling

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

LACW: (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	44	46	47	49	50	50	51	52	54	55	55	55	56	56	56	57	57	57	58	58
Composting	23	23	24	25	25	25	26	26	27	27	28	28	28	28	28	28	29	29	29	29
Landfill	78	63	48	33	18	19	18	17	16	14	15	15	16	17	17	18	19	19	20	21
Energy Recovery	14	27	41	55	68	63	58	52	47	42	42	42	42	42	43	43	43	43	44	44
Other	0	0	0	0	0	5	11	16	21	27	26	26	25	25	25	24	24	23	23	22
Total Arisings	**159**	**160**	**160**	**161**	**162**	**162**	**163**	**164**	**164**	**165**	**166**	**166**	**167**	**168**	**169**	**170**	**171**	**172**	**173**	**174**
% Recycling	**42.3%**	**43.4%**	**44.5%**	**45.6%**	**46.7%**	**46.6%**	**47.0%**	**48.0%**	**49.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**

Commercial and Industrial waste – as baseline

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	141	142	144	146	147	149	149	151	153	155	155	155	156	156	157	158	159	159	160	161
Composting	28	28	29	30	30	31	31	31	32	33	33	33	33	33	33	34	34	34	34	34
Energy Recovery	20	34	48	61	75	70	64	59	54	48	49	49	49	49	50	50	50	50	51	51
Landfill	167	152	137	123	107	109	109	108	107	106	107	107	108	109	110	111	112	113	114	115
Treatment	4	4	4	4	4	9	14	20	25	30	30	30	29	29	29	28	28	27	27	26
Total	**360**	**360**	**362**	**364**	**364**	**367**	**367**	**369**	**371**	**372**	**374**	**374**	**376**	**376**	**378**	**380**	**382**	**383**	**385**	**388**
Recycling rate	46.9%	47.4%	47.9%	48.4%	48.9%	48.8%	49.0%	49.5%	49.9%	50.3%	50.3%	50.3%	50.3%	50.3%	50.3%	50.3%	50.3%	50.3%	50.3%	50.3%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-20	-34	-48	-61	-75	-70	-64	-59	-54	-48	-49	-49	-49	-49	-50	-50	-50	-50	-51	-51
Landfill	-167	-152	-137	-123	-107	-109	-109	-108	-107	-106	-107	-107	-108	-109	-110	-111	-112	-113	-114	-115
Treatment	146	146	146	146	146	141	136	130	125	120	120	120	121	121	121	122	122	123	123	124
Total	-41	-39	-38	-38	-36	-38	-37	-37	-36	-35	-36	-36	-36	-37	-38	-39	-40	-40	-41	-42

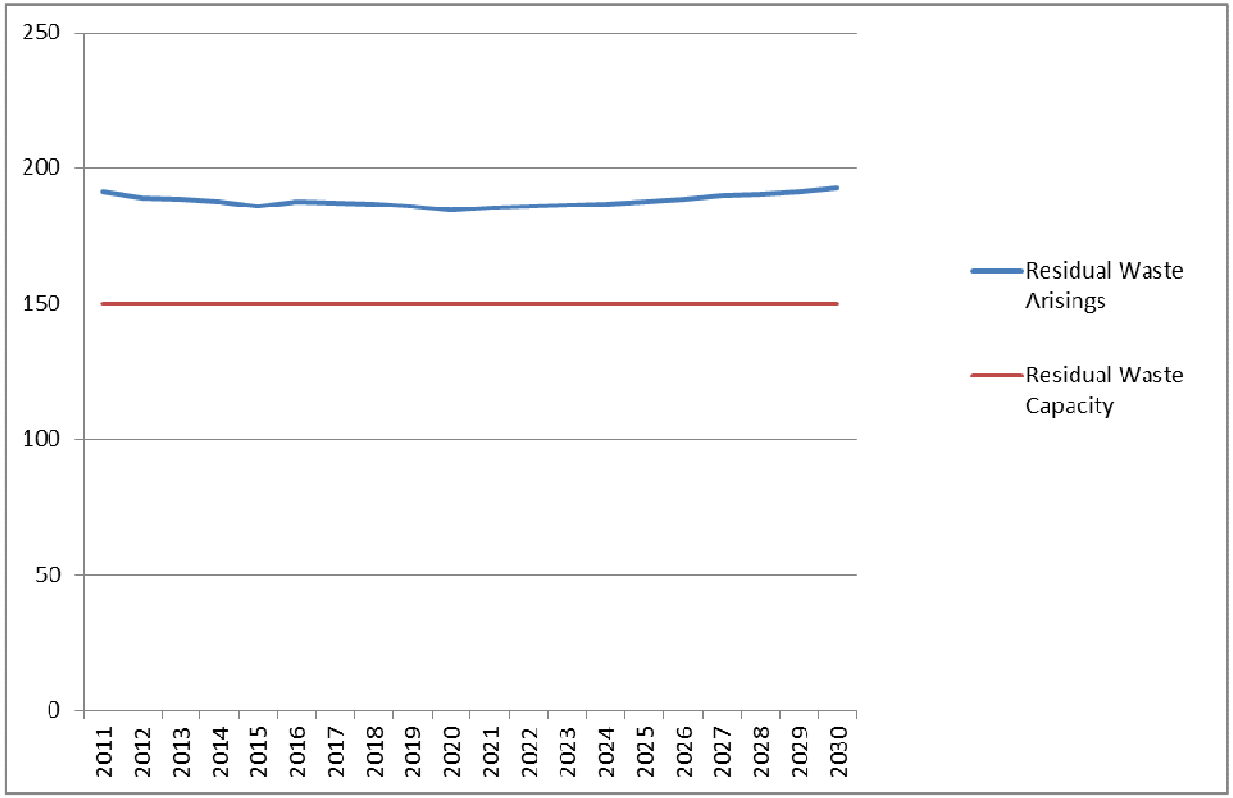


Figure 109: Newcastle Residual waste capacity v arisings all waste management methods: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

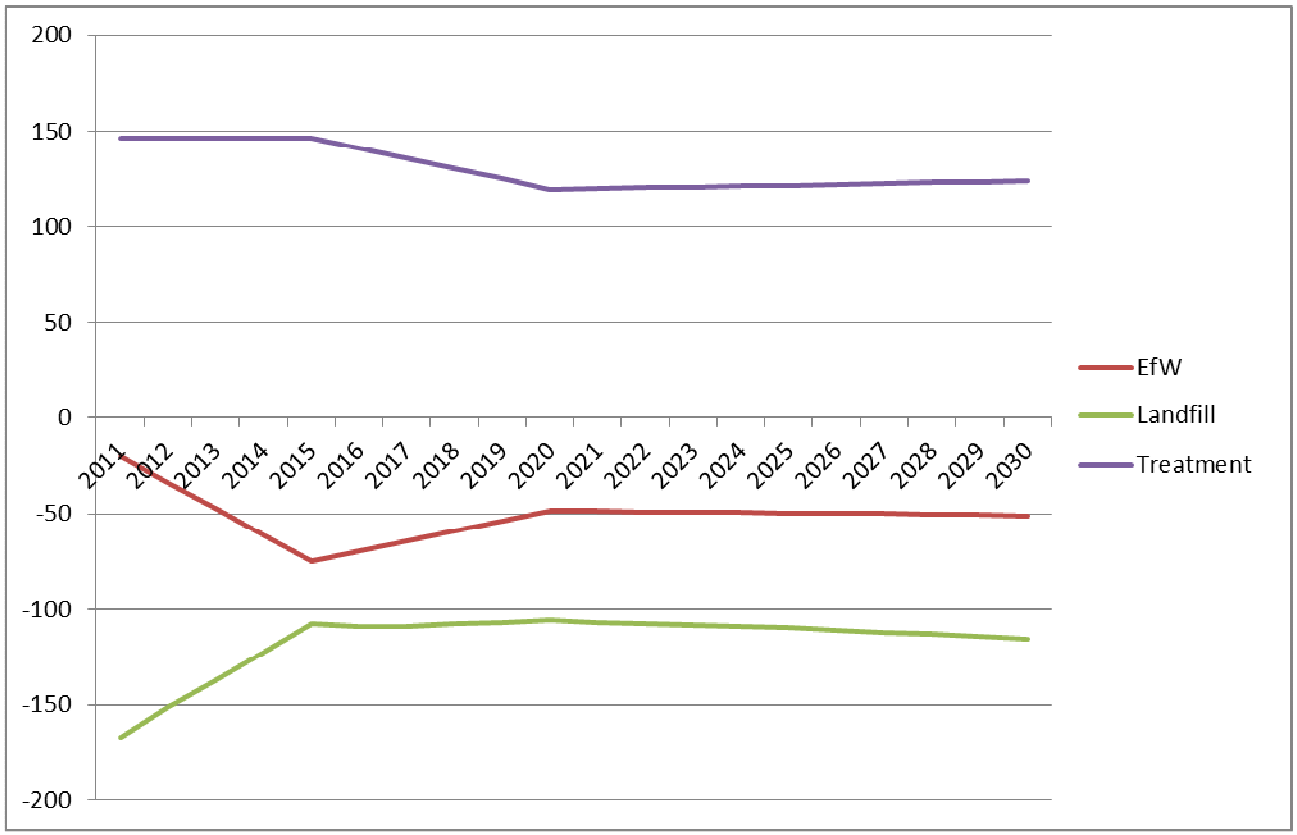


Figure 110: Newcastle Residual Waste Capacity - arisings: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

LACW – as Scenario 1

C&I Arisings, 60% recycling by 2025 (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	98	99	101	102	103	106	107	109	110	112	114	115	116	118	119	120	121	121	121	122
Composting,	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Energy Recovery	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Landfill	88	86	85	84	83	83	81	81	80	79	78	76	75	74	73	73	74	74	74	74
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total	202	200	202	203	202	204	204	206	207	207	208	208	208	208	209	210	211	211	212	214
Recycling & Reuse	**51.2%**	**51.9%**	**52.5%**	**53.1%**	**53.7%**	**54.4%**	**55.0%**	**55.6%**	**56.2%**	**56.9%**	**57.5%**	**58.1%**	**58.7%**	**59.4%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**

Total Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	143	145	148	151	153	156	158	161	164	167	169	170	172	174	176	176	177	178	179	180
Composting	28	29	29	30	31	31	31	32	33	33	34	34	34	34	34	35	35	35	35	35
Energy Recovery	20	34	48	61	75	70	64	59	54	48	49	49	49	49	50	50	50	50	51	51
Landfill	166	149	133	118	101	101	100	98	95	93	93	92	91	91	90	91	92	93	94	95
Treatment	4	4	4	4	4	9	14	20	25	30	30	30	29	29	29	28	28	27	27	26
Total	**360**	**360**	**362**	**364**	**364**	**367**	**367**	**369**	**371**	**372**	**374**	**374**	**376**	**376**	**378**	**380**	**382**	**383**	**385**	**388**
Recycling rate	47.3%	48.1%	48.9%	49.8%	50.6%	50.9%	51.4%	52.2%	53.0%	53.8%	54.2%	54.5%	54.8%	55.2%	55.5%	55.5%	55.5%	55.5%	55.5%	55.5%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-20	-34	-48	-61	-75	-70	-64	-59	-54	-48	-49	-49	-49	-49	-50	-50	-50	-50	-51	-51
Landfill	-166	-149	-133	-118	-101	-101	-100	-98	-95	-93	-93	-92	-91	-91	-90	-91	-92	-93	-94	-95
Treatment	146	146	146	146	146	141	136	130	125	120	120	120	121	121	121	122	122	123	123	124
Total	-40	-37	-35	-33	-30	-30	-28	-26	-24	-22	-21	-20	-20	-19	-18	-19	-20	-21	-21	-22

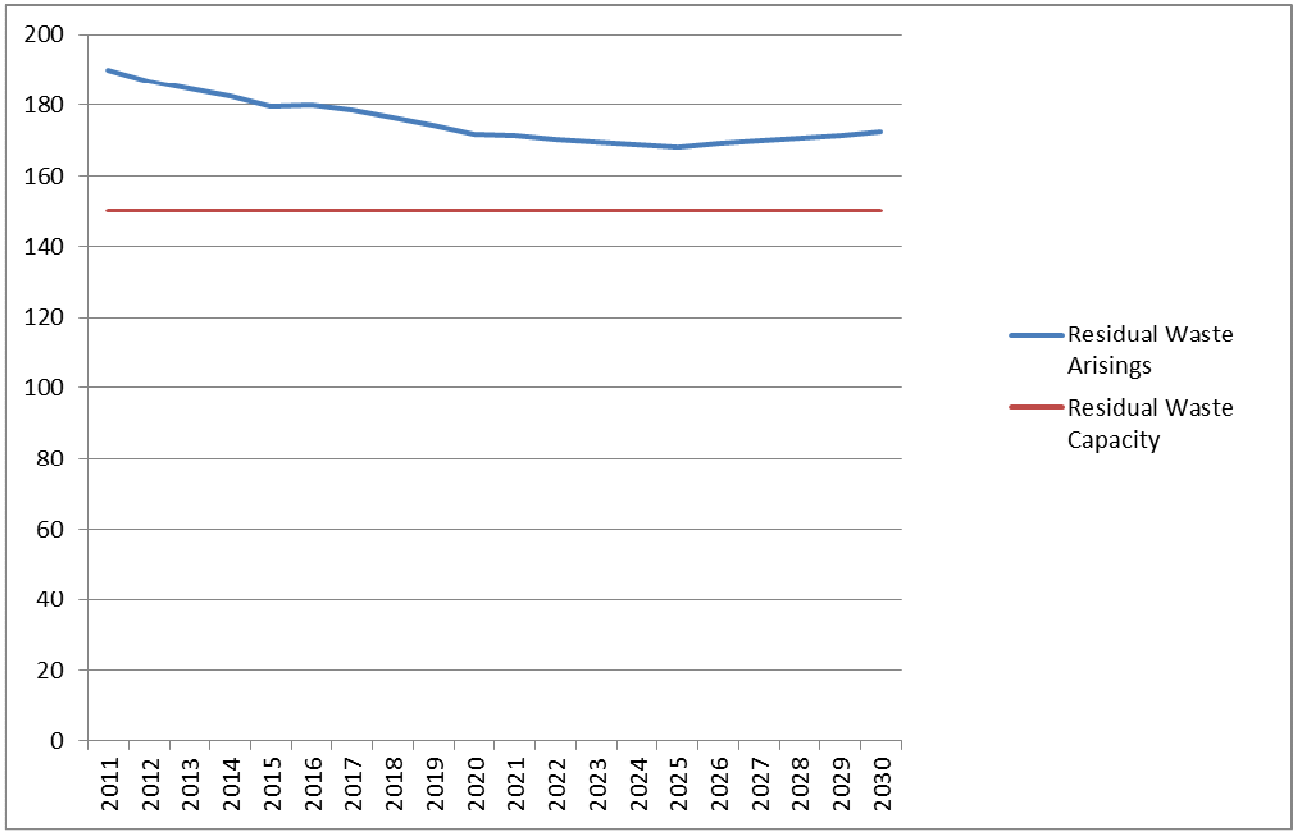


Figure 111: Newcastle Residual waste capacity v arisings all waste management methods: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 60% by 2025

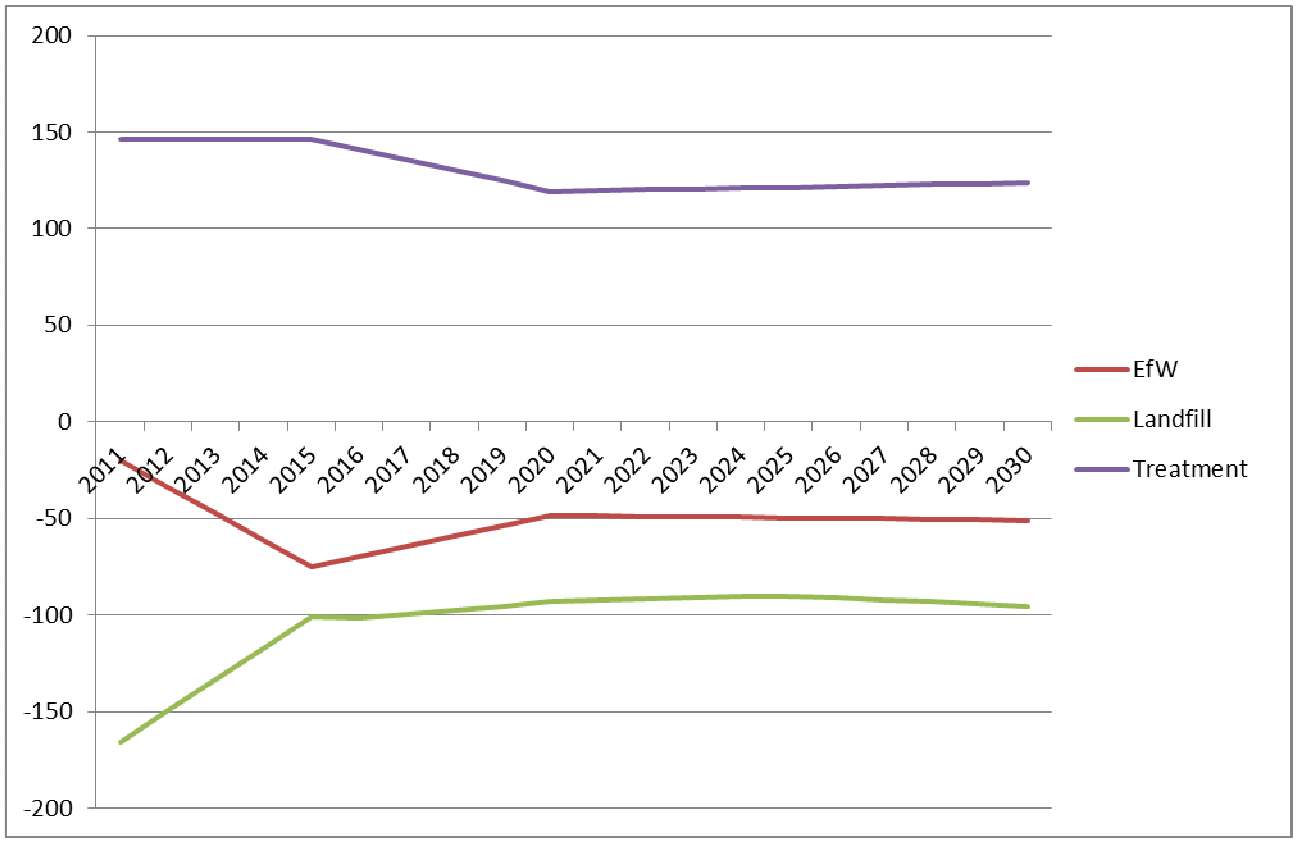


Figure 112: Newcastle Residual Waste Capacity - arisings: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 60% by 2025

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

LACW – as Scenario 1

C&I Arisings 70% recycling by 2025 (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	99	101	104	107	110	113	116	119	122	125	128	131	133	136	139	140	141	141	141	142
Composting,	5	5	5	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7
Energy Recovery	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Landfill	87	83	81	79	76	75	72	70	67	65	63	60	57	54	52	52	52	52	53	53
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total	202	200	202	203	202	204	204	206	207	207	208	208	208	208	209	210	211	211	212	214
Recycling & Reuse	**51.9%**	**53.2%**	**54.5%**	**55.8%**	**57.1%**	**58.4%**	**59.6%**	**60.9%**	**62.2%**	**63.5%**	**64.8%**	**66.1%**	**67.4%**	**68.7%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	144	147	152	156	160	164	167	171	176	180	184	186	189	192	195	196	198	198	199	200
Composting	28	29	29	30	31	31	32	32	33	34	34	35	35	35	35	36	36	36	36	36
Energy Recovery	20	34	48	61	75	70	64	59	54	48	49	49	49	49	50	50	50	50	51	51
Landfill	165	146	129	112	94	93	90	87	83	79	77	75	73	71	69	70	71	72	73	74
Treatment	4	4	4	4	4	9	14	20	25	30	30	30	29	29	29	28	28	27	27	26
Total	**360**	**360**	**362**	**364**	**364**	**367**	**367**	**369**	**371**	**372**	**374**	**374**	**376**	**376**	**378**	**380**	**382**	**383**	**385**	**388**
Recycling rate	47.7%	48.8%	50.1%	51.3%	52.4%	53.1%	54.0%	55.2%	56.4%	57.5%	58.2%	58.9%	59.6%	60.3%	61.0%	61.1%	61.1%	61.0%	61.0%	61.0%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-20	-34	-48	-61	-75	-70	-64	-59	-54	-48	-49	-49	-49	-49	-50	-50	-50	-50	-51	-51
Landfill	-165	-146	-129	-112	-94	-93	-90	-87	-83	-79	-77	-75	-73	-71	-69	-70	-71	-72	-73	-74
Treatment	146	146	146	146	146	141	136	130	125	120	120	120	121	121	121	122	122	123	123	124
Total	-39	-34	-31	-27	-23	-22	-19	-15	-12	-8	-6	-4	-2	1	3	2	1	1	0	-1

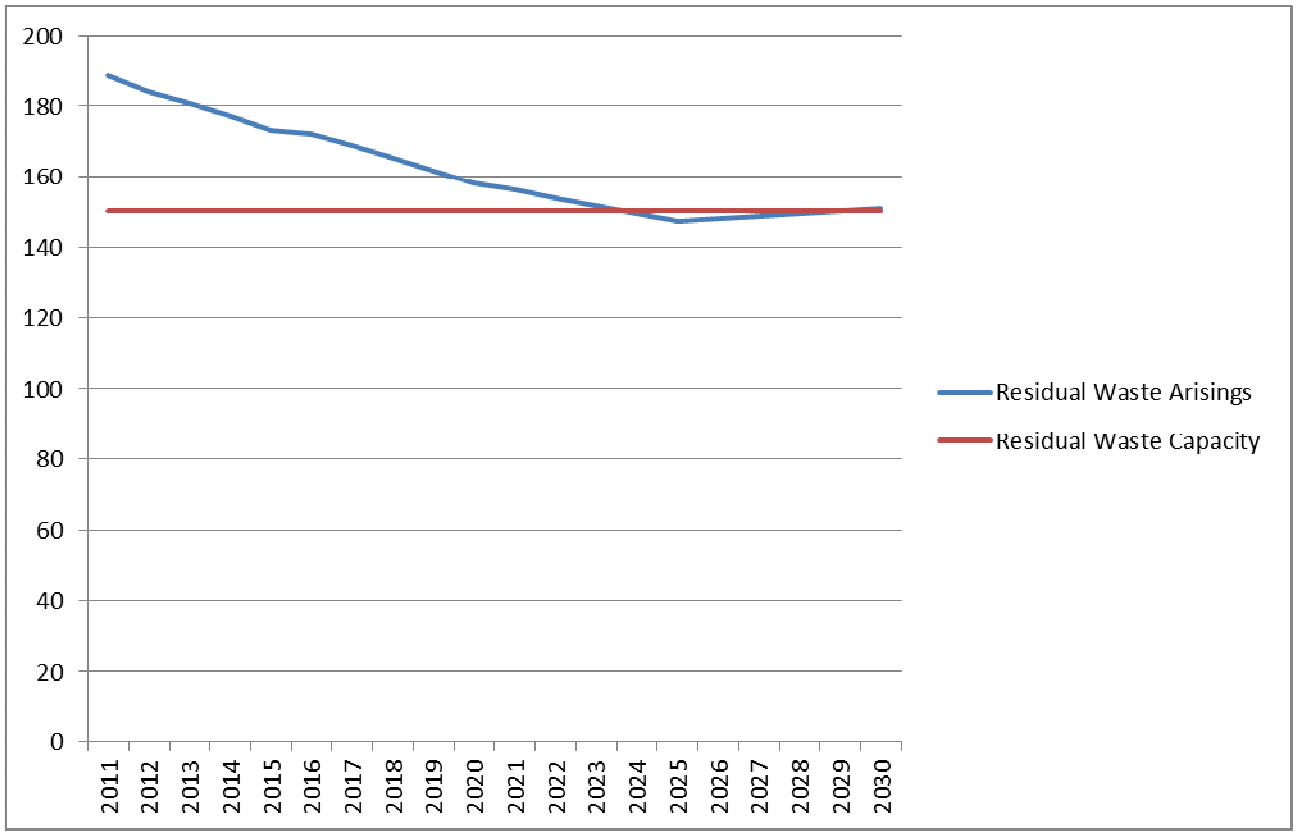


Figure 113: Newcastle Residual waste capacity v arisings all waste management methods: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 70% by 2025

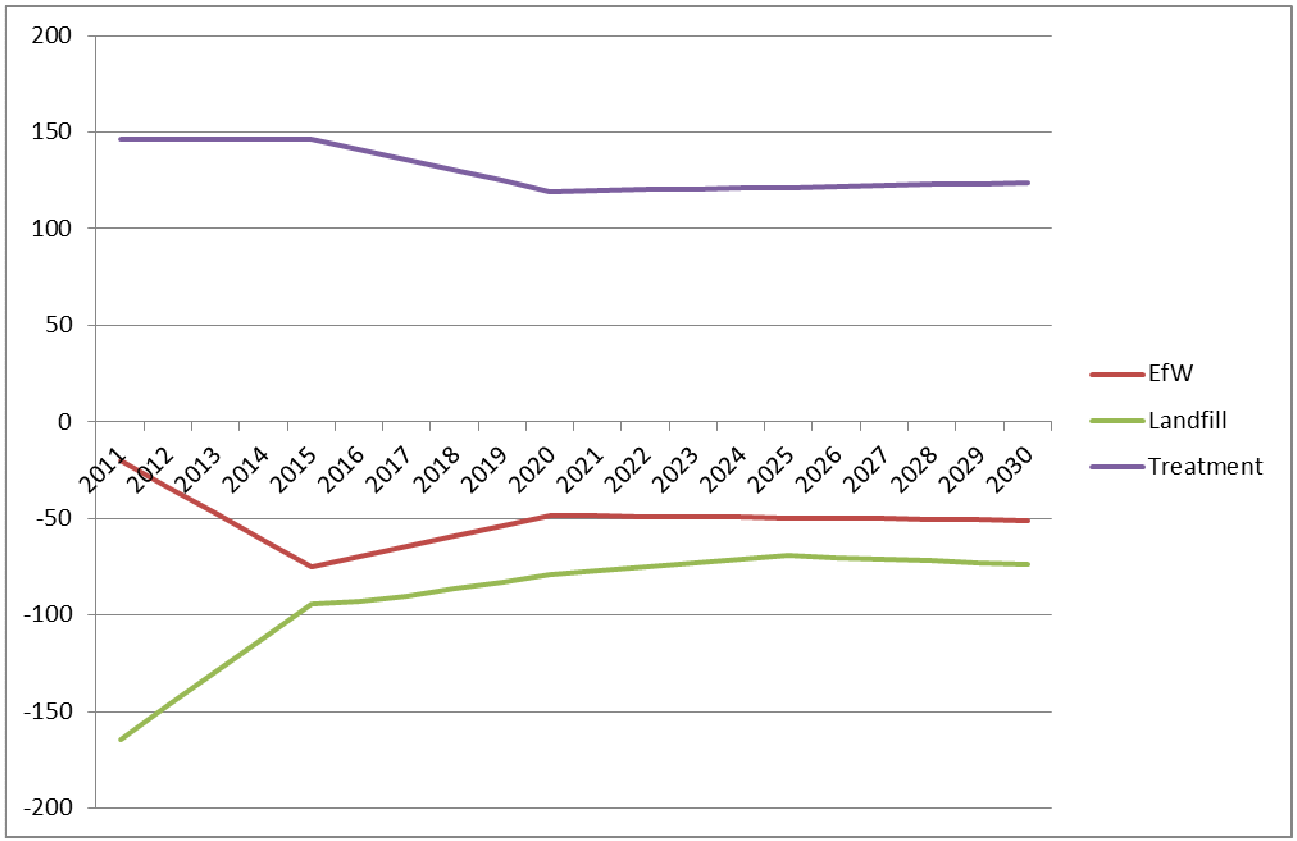


Figure 114: Newcastle Residual Waste Capacity - arisings: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 70% by 2025

Scenarios Summary

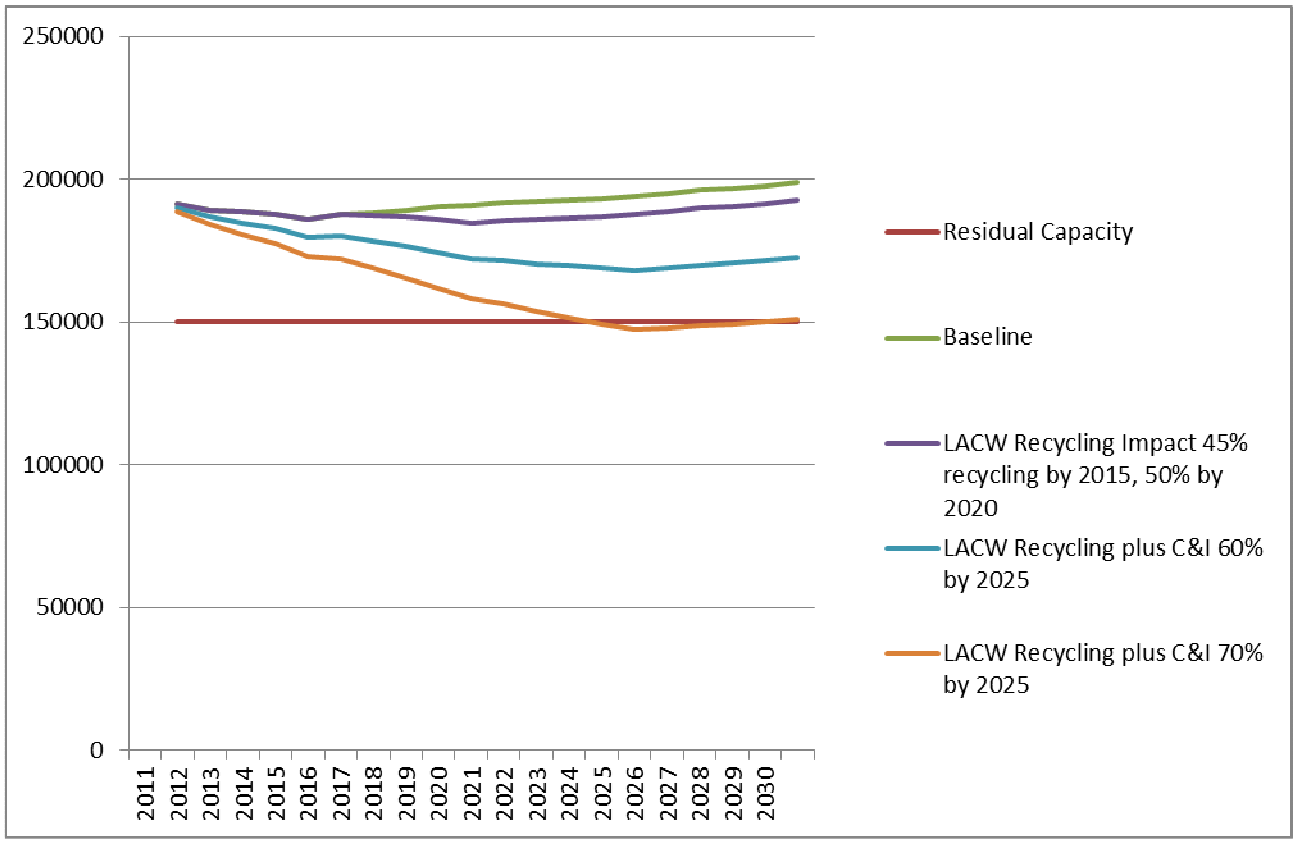


Figure 115: Newcastle Residual Waste Capacity against arisings forecasts, recycling scenarios 1-3

6.3.3. Changes from baseline – increased C&I Landfill Diversion

Scenario 4: LACW as Scenario 1 plus C&I baseline with 75% diversion from landfill by 2020

LACW Arisings as Scenario 1
C&I Arisings baseline plus 75% landfill diversion by 2020 (tonnes x 1,000)

C&I	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	97	96	97	97	97	98	98	99	99	100	100	100	100	100	101	101	102	102	102	103
Composting	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Energy Recovery	7	11	15	20	24	29	33	37	42	47	47	47	47	47	47	47	48	48	48	48
Landfill	89	84	80	77	72	69	64	60	56	52	52	52	52	52	52	53	53	53	53	53
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total	202	200	202	203	202	204	204	206	207	207	208	208	208	208	209	210	211	211	212	214
% Recycling	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**	**50.6%**
% Diversion	**55.8%**	**57.9%**	**60.1%**	**62.2%**	**64.3%**	**66.5%**	**68.6%**	**70.7%**	**72.9%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	141	142	144	146	147	149	149	151	153	155	155	155	156	156	157	158	159	159	160	161
Composting	28	28	29	30	30	31	31	31	32	33	33	33	33	33	33	34	34	34	34	34
Energy Recovery	20	38	56	74	92	91	90	90	89	88	89	89	89	89	90	90	91	91	91	92
Landfill	167	147	129	110	90	87	82	77	72	66	67	67	68	69	70	71	72	72	73	74
Treatment	4	4	4	4	4	9	14	20	25	30	30	30	29	29	29	28	28	27	27	26
Total	**360**	**360**	**362**	**364**	**364**	**367**	**367**	**369**	**371**	**372**	**374**	**374**	**376**	**376**	**378**	**380**	**382**	**383**	**385**	**388**
% Recycling	**46.9%**	**47.4%**	**47.9%**	**48.4%**	**48.9%**	**48.8%**	**49.0%**	**49.5%**	**49.9%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**
% Diversion	**53.6%**	**59.1%**	**64.5%**	**69.8%**	**75.2%**	**76.2%**	**77.6%**	**79.1%**	**80.7%**	**82.2%**	**82.1%**	**82.0%**	**81.9%**	**81.7%**	**81.6%**	**81.4%**	**81.3%**	**81.1%**	**81.0%**	**80.8%**

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-20	-38	-56	-74	-92	-91	-90	-90	-89	-88	-89	-89	-89	-89	-90	-90	-91	-91	-91	-92
Landfill	-167	-147	-129	-110	-90	-87	-82	-77	-72	-66	-67	-67	-68	-69	-70	-71	-72	-72	-73	-74
Treatment	146	146	146	146	146	141	136	130	125	120	120	120	121	121	121	122	122	123	123	124
Total	-41	-39	-38	-38	-36	-38	-37	-37	-36	-35	-36	-36	-36	-37	-38	-39	-40	-40	-41	-42

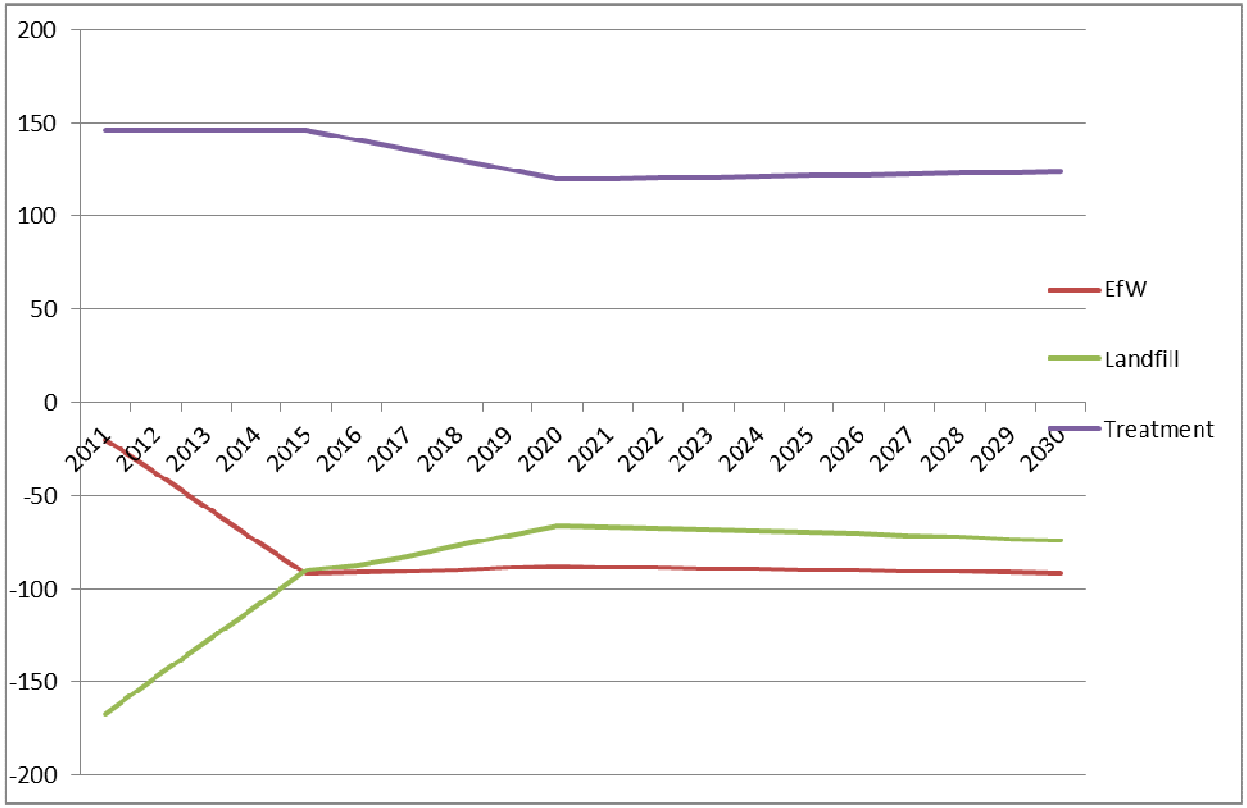


Figure 116: Newcastle Residual Waste Capacity - arisings: Scenario 4: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Landfill Diversion 75% by 2020

6.4. Organic Waste Recycling Arisings and Capacities

Baseline Organic Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	23	23	24	25	25	25	25	25	25	25	26	26	26	26	26	26	26	27	27	27
From C&I	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Total	28	28	29	30	30	31	31	31	31	31	31	31	31	31	31	31	32	32	32	32

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	23	23	24	25	25	25	26	26	27	27	28	28	28	28	28	28	29	29	29	29
From C&I	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Total	28	28	29	30	30	31	31	31	32	33	33	33	33	33	33	34	34	34	34	34

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	23	23	24	25	25	25	26	26	27	27	28	28	28	28	28	28	29	29	29	29
From C&I	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Total	28	29	29	30	31	31	31	32	33	33	34	34	34	34	34	35	35	35	35	35

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	23	23	24	25	25	25	26	26	27	27	28	28	28	28	28	28	29	29	29	29
From C&I	5	5	5	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7
Total	28	29	29	30	31	31	32	32	33	34	34	35	35	35	35	36	36	36	36	36

Processing Capacity

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Composting	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

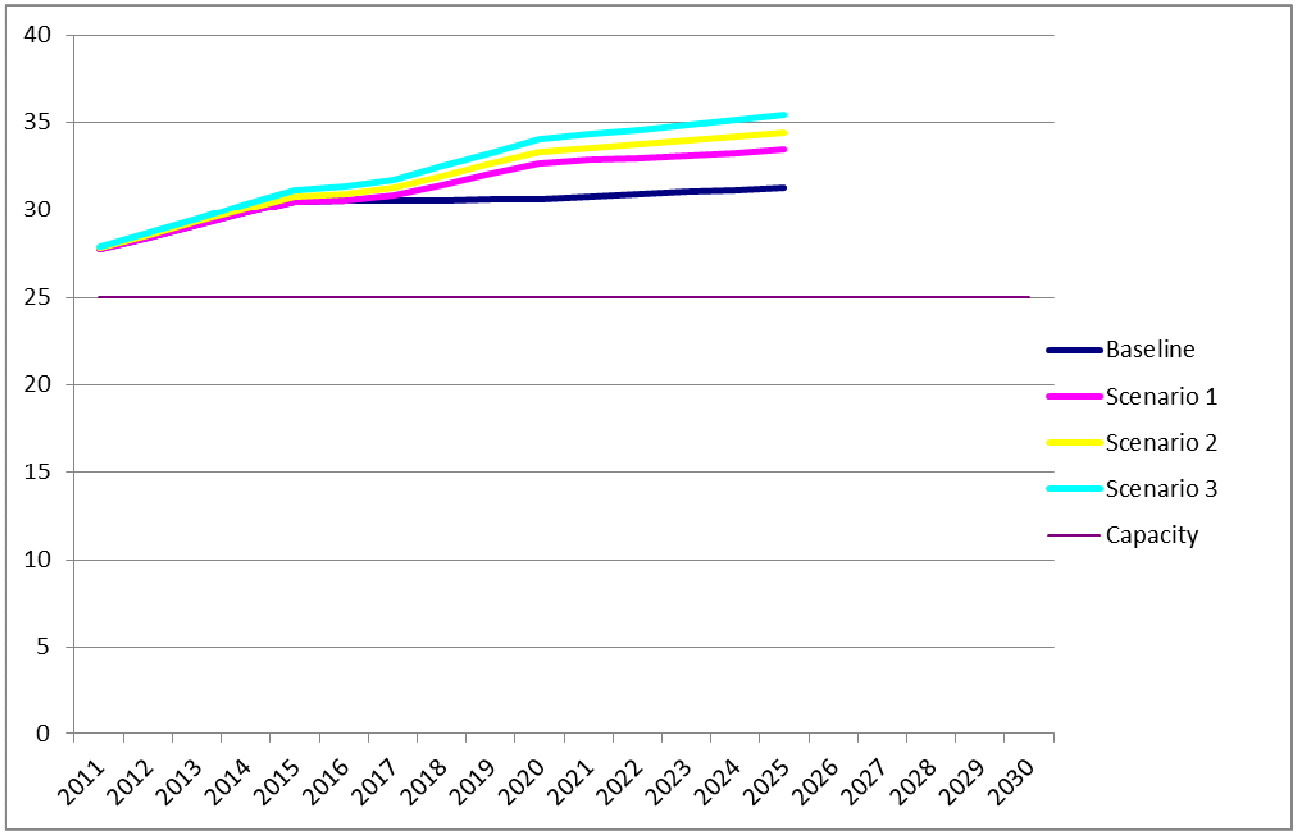


Figure 117: Newcastle - organic recycling forecast arisings v processing capacity (tonnes x 1,000)

6.5. Hazardous Waste Arisings and Capacities

Waste Fate	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Incineration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Landfill	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Recovery	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Grand Total	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**

Figure 118: Newcastle Forecast Hazardous Waste Arisings (tonnes x 1,000)

Facility	Non-operational	Operational	Grand Total
Haz Waste Transfer	4,999	180,015	185,014
Treatment		14,998	14,998
Grand Total	4,999	195,013	200,012

Figure 119: Newcastle Hazardous Waste Processing Capacity (tonnes)

7. North Tyneside WPA

7.1. Waste Arisings Forecasts

Municipal Waste (LACW) Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	31	32	32	32	32	32	32	32	32	32	32	32	32	33	33	33	33	33	34	34
Composting	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8
Energy Recovery	14	14	39	55	55	55	55	55	55	55	55	56	56	56	57	57	58	58	58	59
Landfill	52	53	28	12	12	12	12	12	12	12	12	12	12	12	12	12	12	13	13	13
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Arisings	105	106	106	106	106	106	106	106	106	106	107	107	108	109	109	110	111	112	112	113
% Recycling	**36.7%**	**36.7%**	**36.7%**	**36.7%**	**36.7%**	**36.8%**	**36.8%**	**36.8%**	**36.8%**	**36.8%**	**36.8%**	**36.8%**	**36.8%**	**36.8%**	**36.8%**	**36.8%**	**36.8%**	**36.8%**	**36.8%**	**36.8%**

Commercial & Industrial Wastes (C&I) Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	67	67	65	65	65	65	65	65	64	62	61	61	60	60	59	59	58	58	57	57
Composting	21	20	20	20	20	20	20	20	20	19	19	19	18	18	18	18	18	18	18	17
Energy Recovery	46	45	44	44	44	44	44	44	44	42	42	41	41	41	40	40	40	39	39	39
Landfill	62	61	59	60	60	60	59	59	59	57	56	56	55	55	54	54	53	53	52	52
Treatment	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
Total	202	200	194	195	195	195	194	194	193	185	184	182	180	179	177	176	174	173	172	170
Recycling & Reuse	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**

Total Arisings (LACW + C&I) (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	99	98	96	97	97	97	96	96	96	94	93	93	92	92	92	92	91	91	91	91
Composting	28	28	27	27	27	27	27	27	27	26	26	26	26	26	26	26	25	25	25	25
Energy Recovery	60	60	83	99	99	99	99	99	99	97	97	97	97	97	97	97	97	97	97	97
Landfill	114	114	87	72	72	72	71	71	71	69	68	68	67	67	67	66	66	65	65	65
Treatment	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
Total	307	306	300	301	301	301	300	300	299	291	290	289	288	288	287	286	285	285	284	283
Recycling rate	**41.2%**	**41.2%**	**41.1%**	**41.1%**	**41.1%**	**41.2%**	**41.2%**	**41.2%**	**41.2%**	**41.1%**	**41.1%**	**41.1%**	**41.0%**	**41.0%**	**41.0%**	**41.0%**	**40.9%**	**40.9%**	**40.9%**	**40.9%**

7.2. Waste facilities within the WPA Area

Local waste facility data was supplied by the WPA along with permitted and operational capacities in many cases. The available capacities from the 20 sites identified within the WPA area can be summarised as:

Facility	Non-operational	Operational	Permanently closed	Grand Total
Inert Transfer Station		200,000		200,000
Metal Recycling and ELV		217,595		217,595
Non-Haz Landfill			391,200	391,200
Non-Haz Transfer Station	87,600	457,119		544,719
Treatment		324,998		324,998
Grand Total	87,600	1,199,712	391,200	1,678,512

Capacity is EA licensed capacity and/or planning capacity
Source: Environment Agency and WPA

7.3. Non-Hazardous Residual Waste Arisings and Capacities

7.3.1. Baseline

From these baseline forecasts, Residual Waste Baseline Forecasts are (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Energy Recovery	60	60	83	99	99	99	99	99	99	97	97	97	97	97	97	97	97	97	97	97
Landfill	114	114	87	72	72	72	71	71	71	69	68	68	67	67	67	66	66	65	65	65
Treatment	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
Total Residual	**181**	**180**	**177**	**177**	**177**	**177**	**176**	**177**	**176**	**172**	**171**	**171**	**170**	**170**	**169**	**169**	**168**	**168**	**168**	**168**

Residual Waste Capacity Forecasts (from key residual waste facilities) (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	0	0	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Landfill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Treatment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Residual	0	0	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55

Difference Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-60	-60	-28	-44	-44	-44	-44	-44	-44	-42	-42	-42	-42	-42	-42	-42	-42	-42	-42	-42
Landfill	-114	-114	-87	-72	-72	-72	-71	-71	-71	-69	-68	-68	-67	-67	-67	-66	-66	-65	-65	-65
Treatment	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-5
Total	-181	-180	-122	-122	-122	-122	-121	-122	-121	-117	-116	-116	-115	-115	-114	-114	-113	-113	-113	-113

Negative figures indicate a capacity shortfall

From these baseline forecasts:

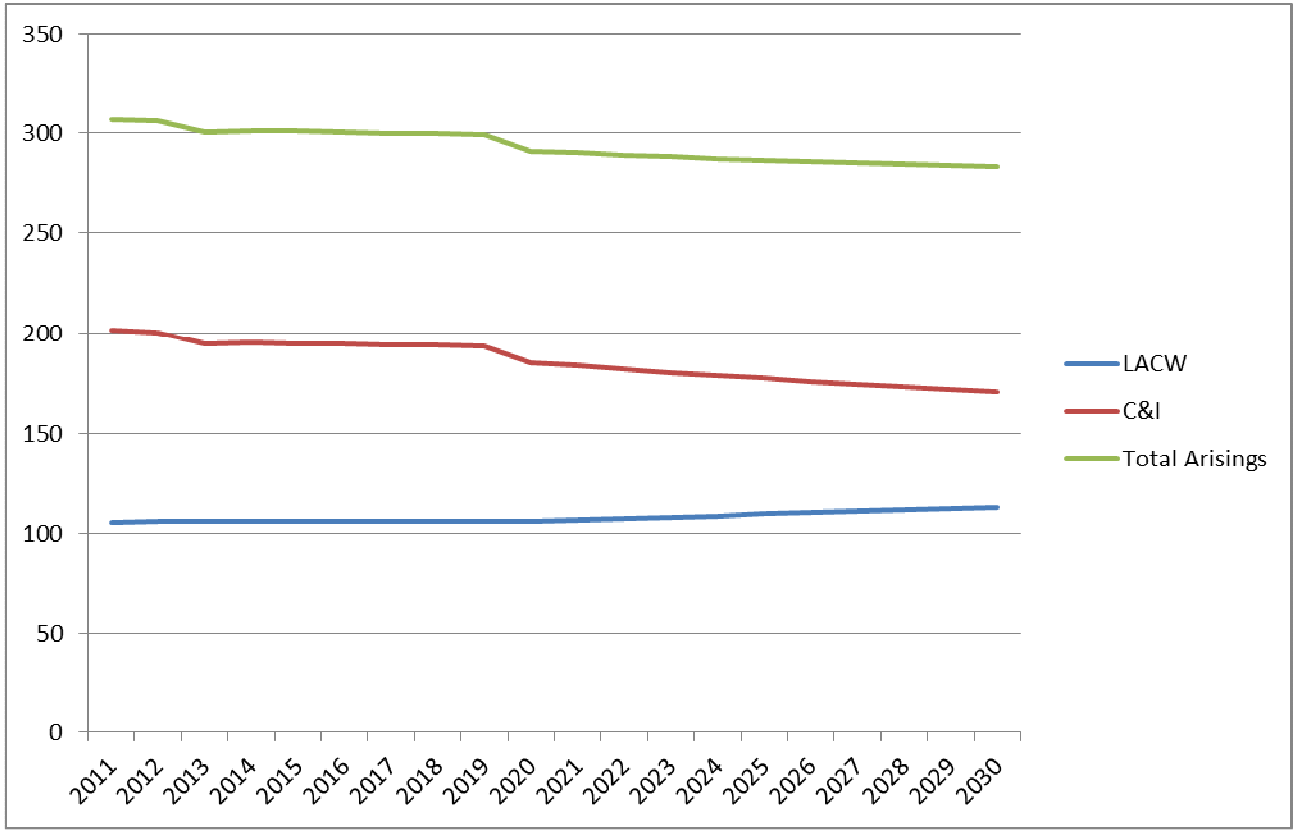


Figure 120: North Tyneside Baseline Arisings Forecasts (tonnes x 1,000)

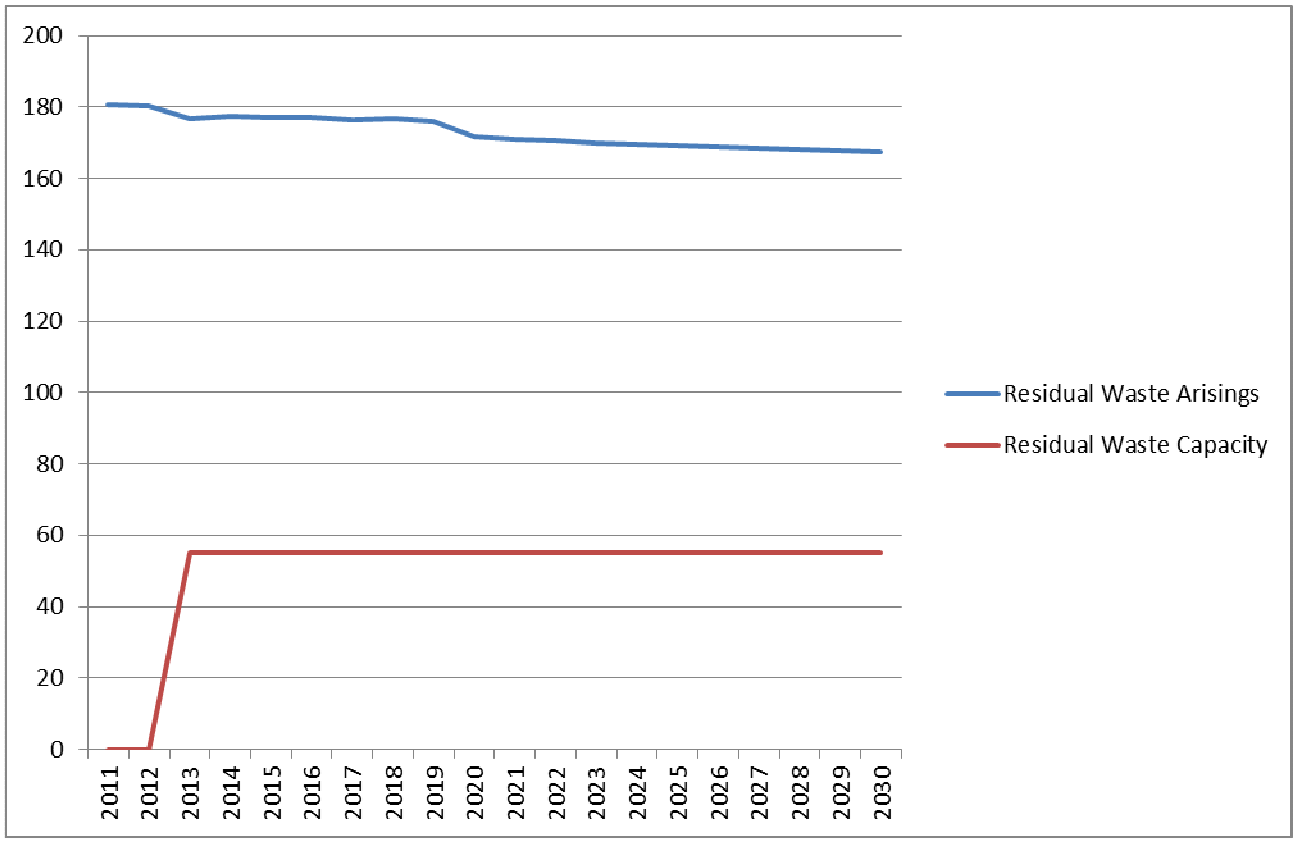


Figure 121: North Tyneside Residual Waste Capacity v Arisings, all waste management methods (tonnes)

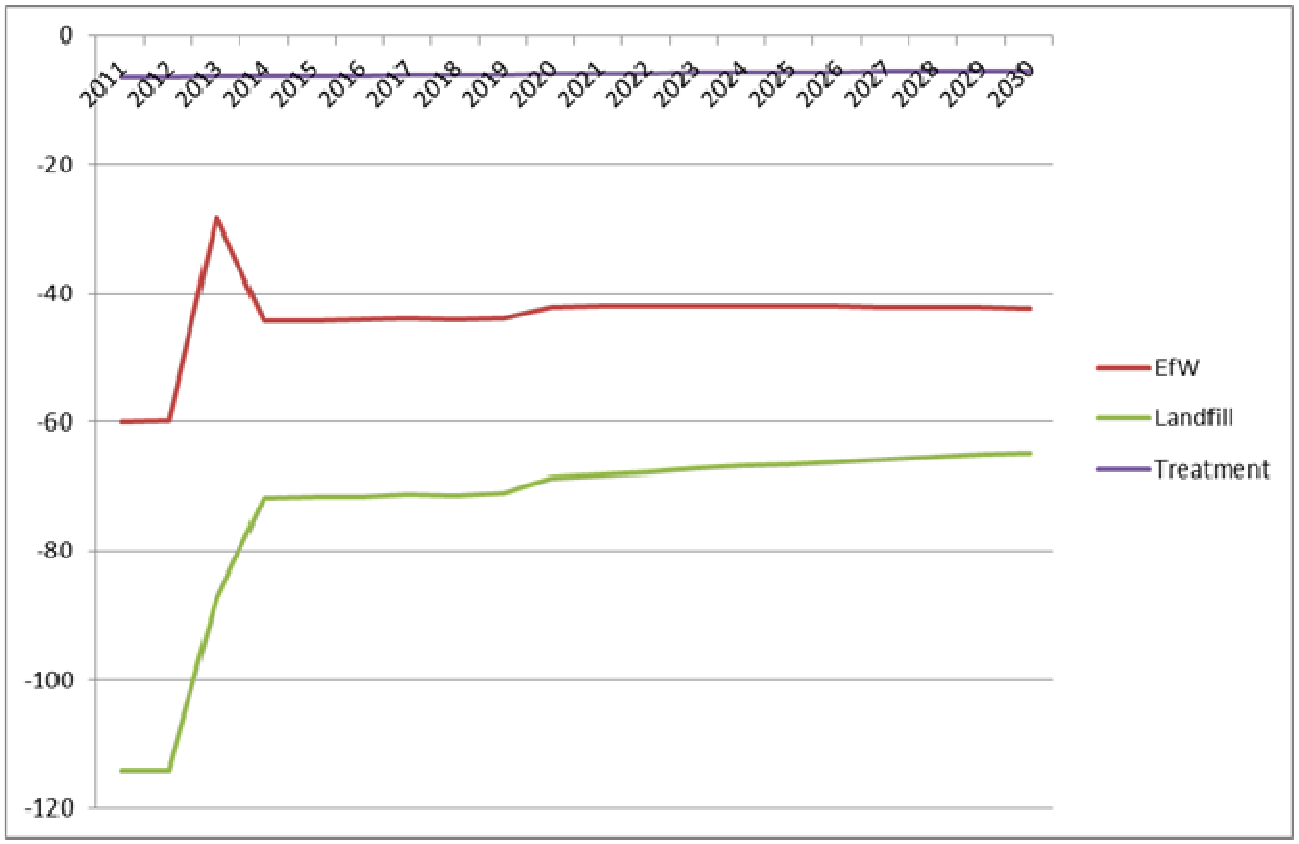


Figure 122: North Tyneside Residual Waste Capacity - Arisings, per waste management method (tonnes x 1,000) – negative figures indicate a shortfall

7.3.2. Changes from Baseline: Increased Recycling

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

LACW: (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	33	34	35	37	39	40	41	41	42	43	43	44	44	44	45	45	45	45	46	46
Composting	7	8	8	8	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	11
Landfill	51	50	24	6	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Recovery	14	14	39	55	55	55	55	55	54	53	53	54	54	54	55	55	55	56	56	56
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Arisings	**105**	**106**	**106**	**106**	**106**	**106**	**106**	**106**	**106**	**106**	**107**	**107**	**108**	**109**	**109**	**110**	**111**	**112**	**112**	**113**
% Recycling	**38.0%**	**39.0%**	**40.5%**	**42.8%**	**45.0%**	**46.0%**	**47.0%**	**48.0%**	**49.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**

Commercial and Industrial waste – as baseline

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	100	100	100	102	104	105	105	106	107	105	105	104	104	104	104	103	103	103	103	103
Composting	28	28	28	28	29	29	29	29	29	29	29	29	29	28	28	28	28	28	28	28
Energy Recovery	60	60	83	99	99	99	99	99	98	95	95	95	95	95	95	95	95	95	95	95
Landfill	113	112	83	65	63	62	60	59	59	57	56	56	55	55	54	54	53	53	52	52
Treatment	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
Total	**307**	**306**	**300**	**301**	**301**	**301**	**300**	**300**	**299**	**291**	**290**	**289**	**288**	**288**	**287**	**286**	**285**	**285**	**284**	**283**
Recycling rate	41.6%	42.0%	42.5%	43.3%	44.1%	44.4%	44.8%	45.1%	45.5%	45.9%	45.9%	45.9%	46.0%	46.0%	46.0%	46.0%	46.1%	46.1%	46.1%	46.1%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-60	-60	-28	-44	-44	-44	-44	-44	-43	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40
Landfill	-113	-112	-83	-65	-63	-62	-60	-59	-59	-57	-56	-56	-55	-55	-54	-54	-53	-53	-52	-52
Treatment	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-5
Total	-179	-178	-118	-116	-113	-112	-111	-110	-108	-103	-102	-101	-101	-100	-100	-99	-99	-98	-98	-98

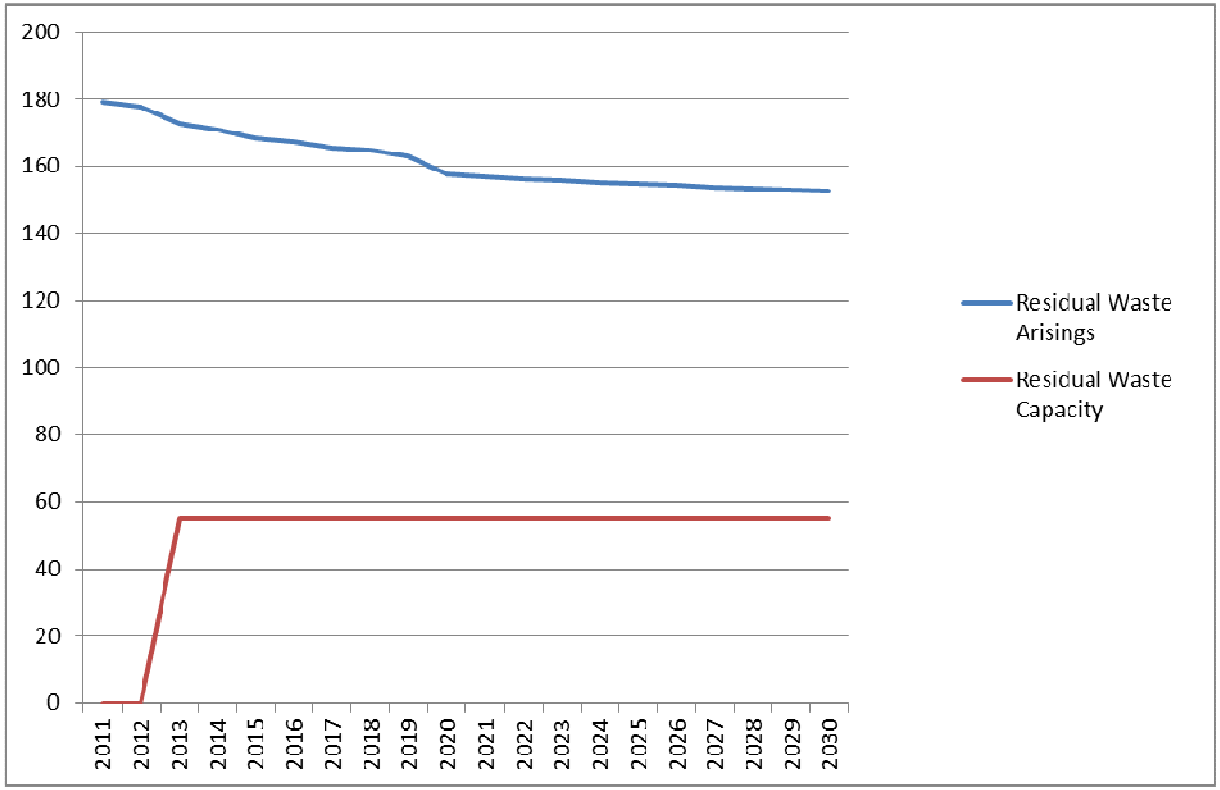


Figure 123: North Tyneside Residual waste capacity v arisings all waste management methods: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

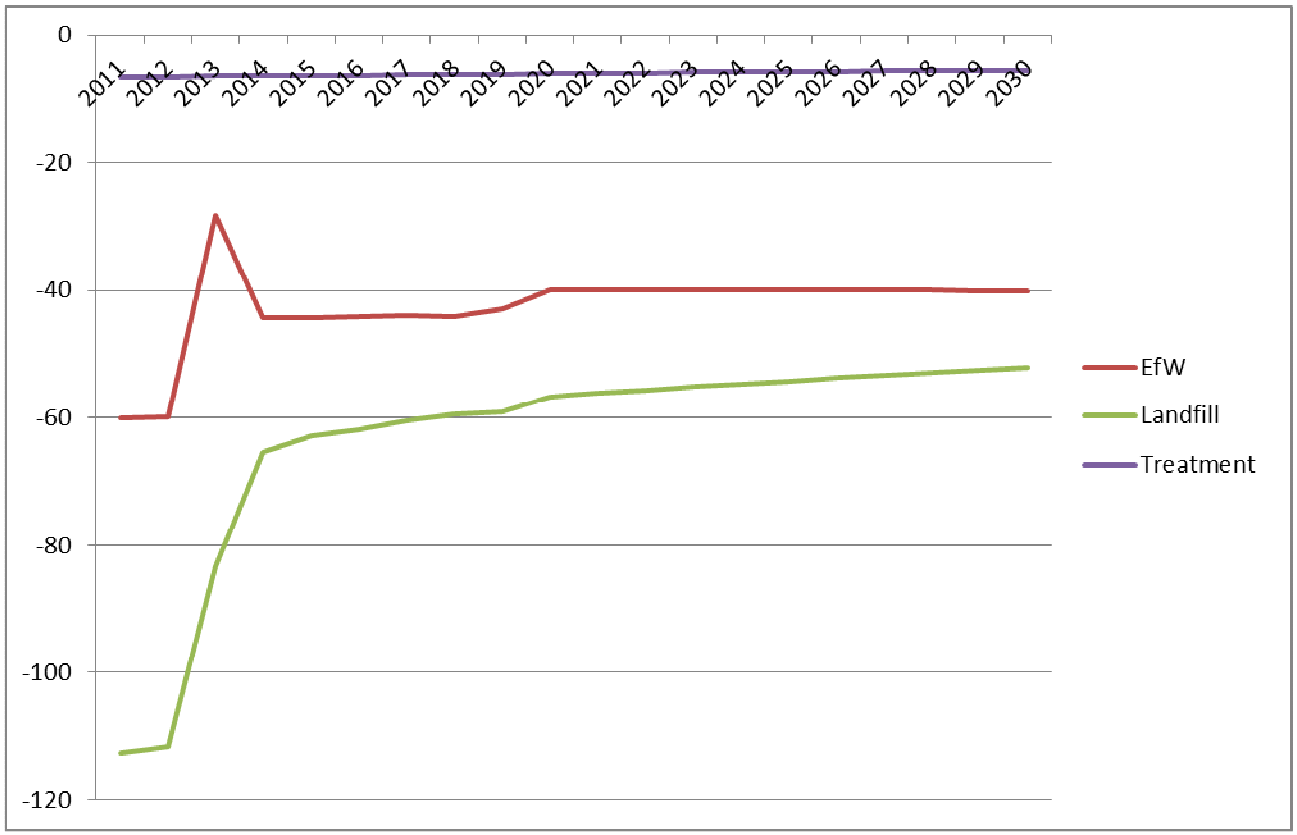


Figure 124: North Tyneside Residual Waste Capacity - arisings: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

LACW – as Scenario 1

C&I Arisings, 60% recycling by 2025 (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	69	70	69	71	72	74	75	77	78	76	77	77	78	79	81	81	80	79	79	78
Composting,	21	21	21	22	22	23	23	24	24	23	24	24	24	24	25	25	25	24	24	24
Energy Recovery	46	45	44	44	44	44	44	44	44	42	42	41	41	41	40	40	40	39	39	39
Landfill	60	57	54	52	50	48	46	44	42	38	36	34	32	30	25	25	25	24	24	24
Treatment	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
Total	202	200	194	195	195	195	194	194	193	185	184	182	180	179	177	176	174	173	172	170
Recycling & Reuse	**44.5%**	**45.5%**	**46.5%**	**47.5%**	**48.5%**	**49.5%**	**50.5%**	**51.5%**	**52.5%**	**53.5%**	**54.5%**	**55.5%**	**56.5%**	**57.5%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**

Total Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	101	103	104	108	111	114	115	118	120	119	120	121	122	123	126	126	125	125	124	124
Composting	29	29	29	30	31	32	32	33	34	33	33	34	34	34	35	35	35	35	35	35
Energy Recovery	60	60	83	99	99	99	99	99	98	95	95	95	95	95	95	95	95	95	95	95
Landfill	111	108	78	58	53	50	47	44	42	38	36	34	32	30	25	25	25	24	24	24
Treatment	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
Total	**307**	**306**	**300**	**301**	**301**	**301**	**300**	**300**	**299**	**291**	**290**	**289**	**288**	**288**	**287**	**286**	**285**	**285**	**284**	**283**
Recycling rate	42.3%	43.3%	44.4%	45.9%	47.3%	48.3%	49.3%	50.3%	51.3%	52.3%	52.9%	53.5%	54.1%	54.7%	56.2%	56.1%	56.1%	56.1%	56.0%	56.0%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-60	-60	-28	-44	-44	-44	-44	-44	-43	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40
Landfill	-111	-108	-78	-58	-53	-50	-47	-44	-42	-38	-36	-34	-32	-30	-25	-25	-25	-24	-24	-24
Treatment	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-5
Total	-177	-174	-112	-108	-104	-101	-97	-94	-91	-84	-82	-80	-77	-75	-71	-70	-70	-70	-70	-70

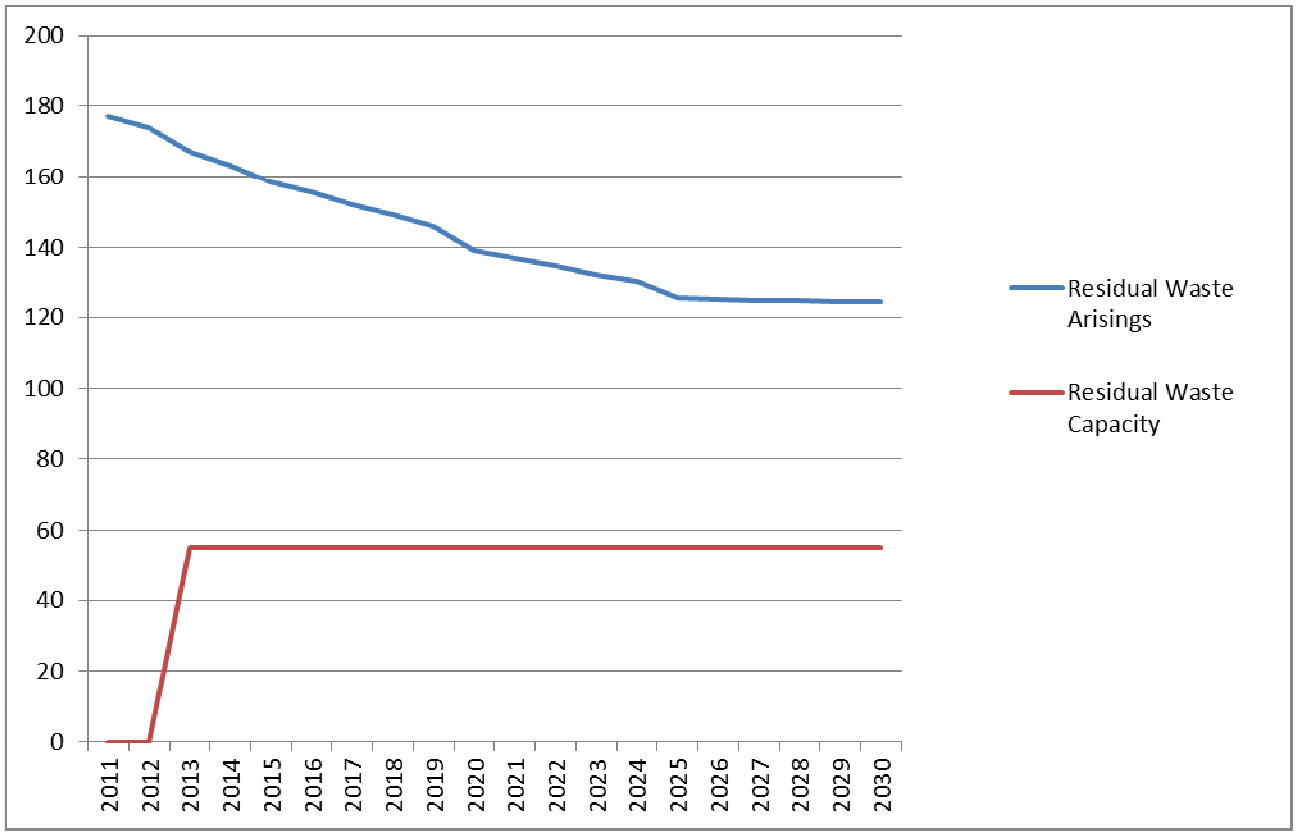


Figure 125: North Tyneside Residual waste capacity v arisings all waste management methods: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 60% by 2025

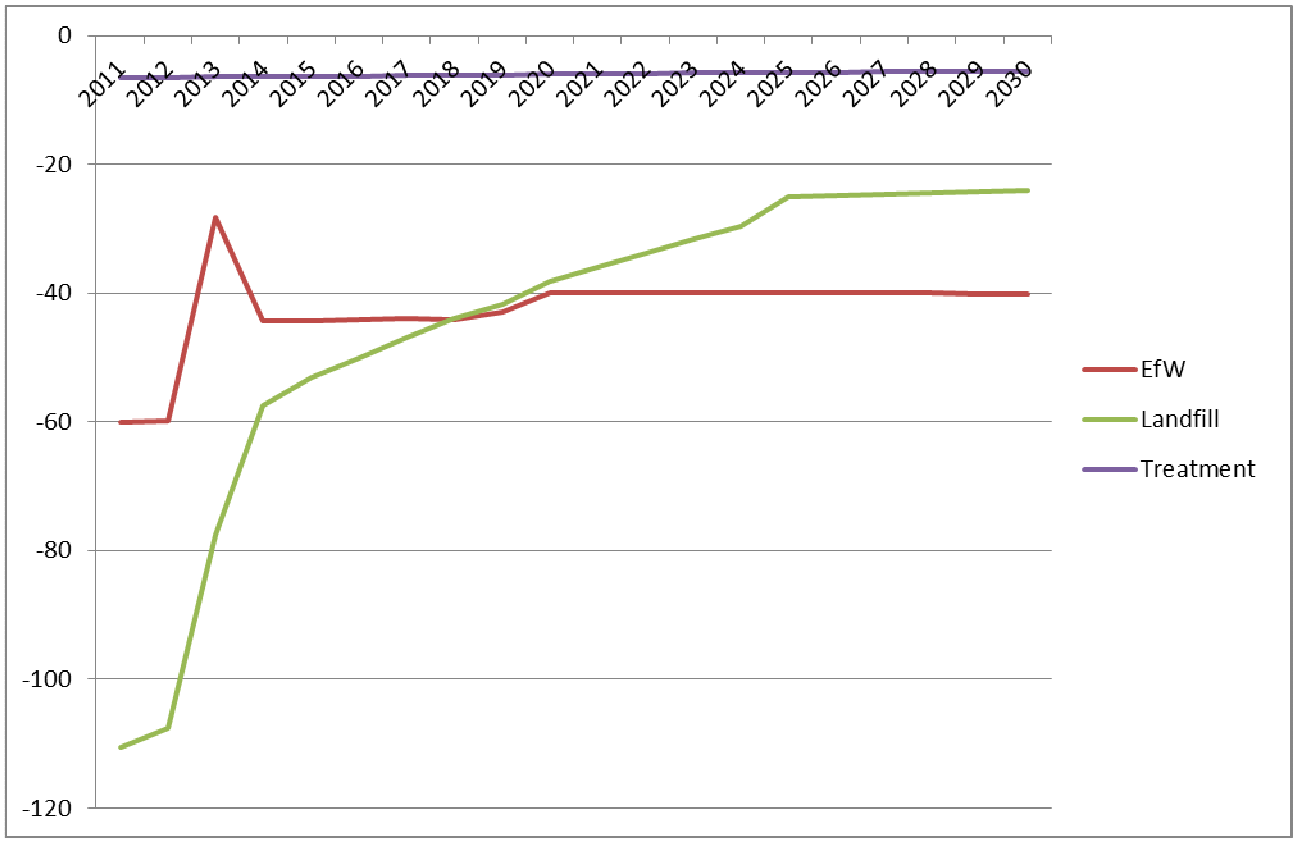


Figure 126: North Tyneside Residual Waste Capacity - arisings: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 60% by 2025

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

LACW – as Scenario 1

C&I Arisings 70% recycling by 2025 (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	70	72	73	76	78	81	83	86	88	87	89	91	92	94	95	94	93	93	92	91
Composting,	21	22	22	23	24	25	26	26	27	27	27	28	28	29	29	29	29	28	28	28
Energy Recovery	46	45	44	44	44	44	44	44	44	42	42	41	41	41	40	40	40	39	39	39
Landfill	58	54	49	46	42	38	35	31	28	23	20	16	13	10	7	7	7	7	7	7
Treatment	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
Total	202	200	194	195	195	195	194	194	193	185	184	182	180	179	177	176	174	173	172	170
Recycling & Reuse	**45.3%**	**47.1%**	**48.9%**	**50.7%**	**52.5%**	**54.3%**	**56.1%**	**57.9%**	**59.7%**	**61.5%**	**63.3%**	**65.1%**	**66.9%**	**68.7%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	103	106	108	113	117	121	124	128	131	130	132	134	136	138	139	139	138	138	138	137
Composting	29	30	30	32	33	34	35	36	37	37	37	38	38	39	39	39	39	39	39	39
Energy Recovery	60	60	83	99	99	99	99	99	98	95	95	95	95	95	95	95	95	95	95	95
Landfill	109	104	73	51	45	41	36	31	28	23	20	16	13	10	7	7	7	7	7	7
Treatment	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
Total	**307**	**306**	**300**	**301**	**301**	**301**	**300**	**300**	**299**	**291**	**290**	**289**	**288**	**288**	**287**	**286**	**285**	**285**	**284**	**283**
Recycling rate	42.8%	44.3%	46.0%	47.9%	49.9%	51.4%	52.9%	54.4%	55.9%	57.3%	58.4%	59.5%	60.6%	61.7%	62.4%	62.3%	62.2%	62.2%	62.1%	62.0%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-60	-60	-28	-44	-44	-44	-44	-44	-43	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40
Landfill	-109	-104	-73	-51	-45	-41	-36	-31	-28	-23	-20	-16	-13	-10	-7	-7	-7	-7	-7	-7
Treatment	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-5
Total	-176	-171	-107	-102	-96	-91	-86	-82	-77	-69	-66	-62	-59	-55	-53	-53	-53	-53	-53	-53

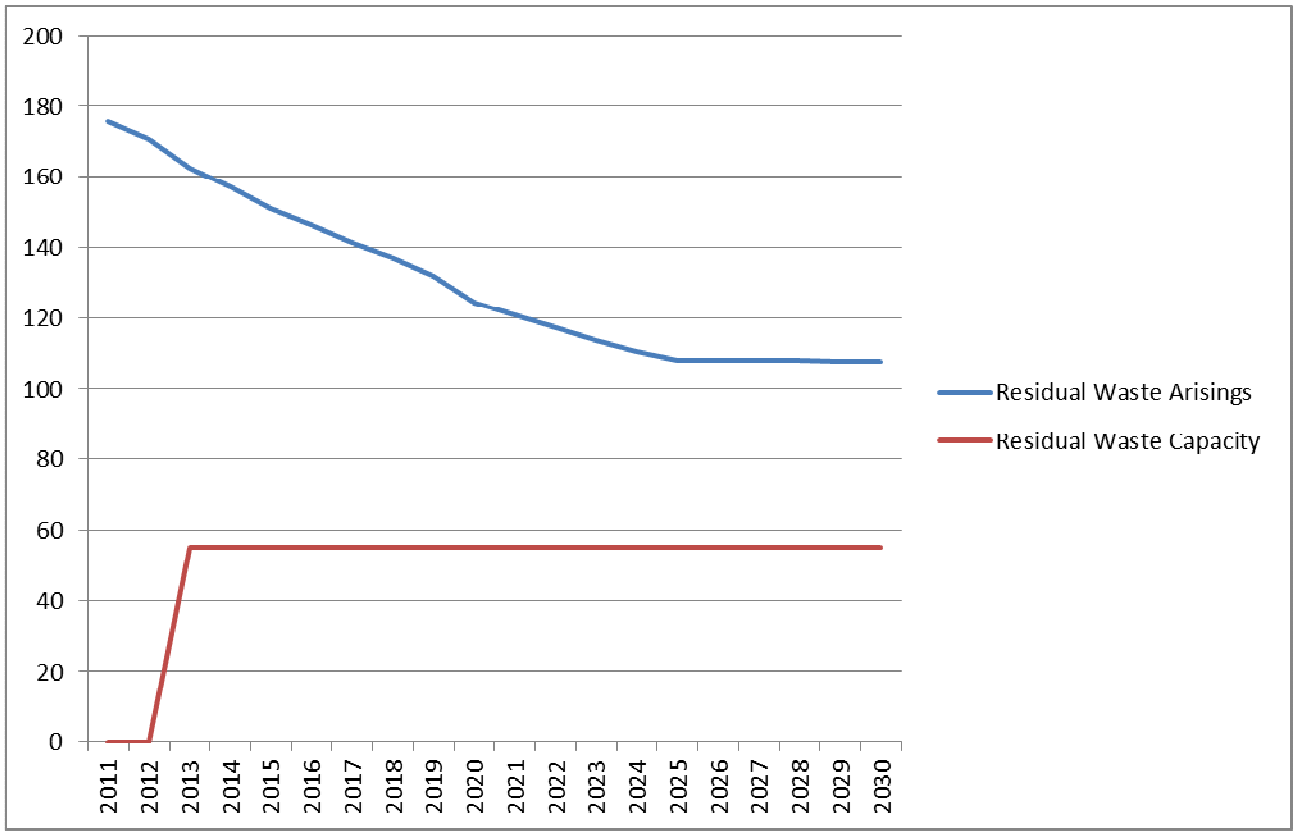


Figure 127: North Tyneside Residual waste capacity v arisings all waste management methods: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 70% by 2025

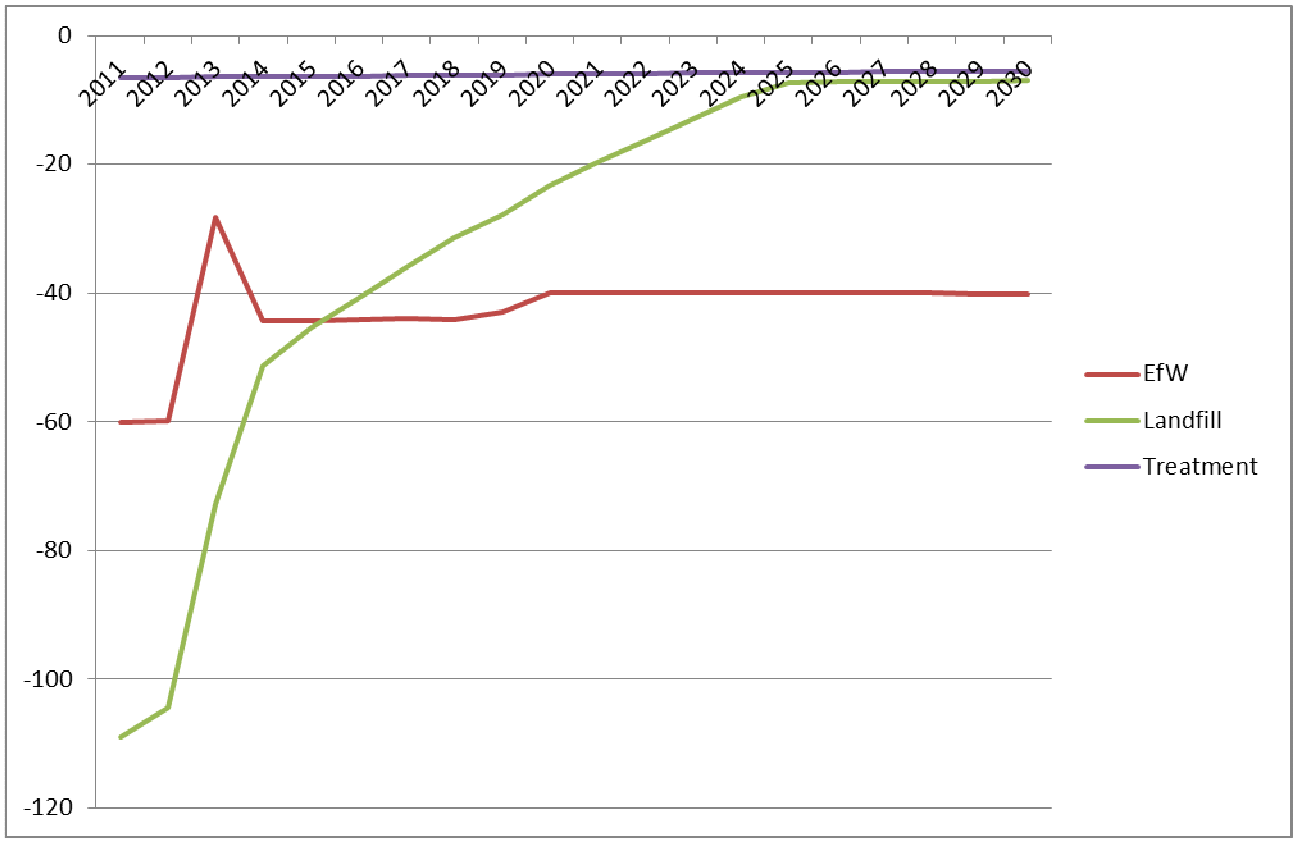


Figure 128: North Tyneside Residual Waste Capacity - arisings: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 70% by 2025

Scenario Summary

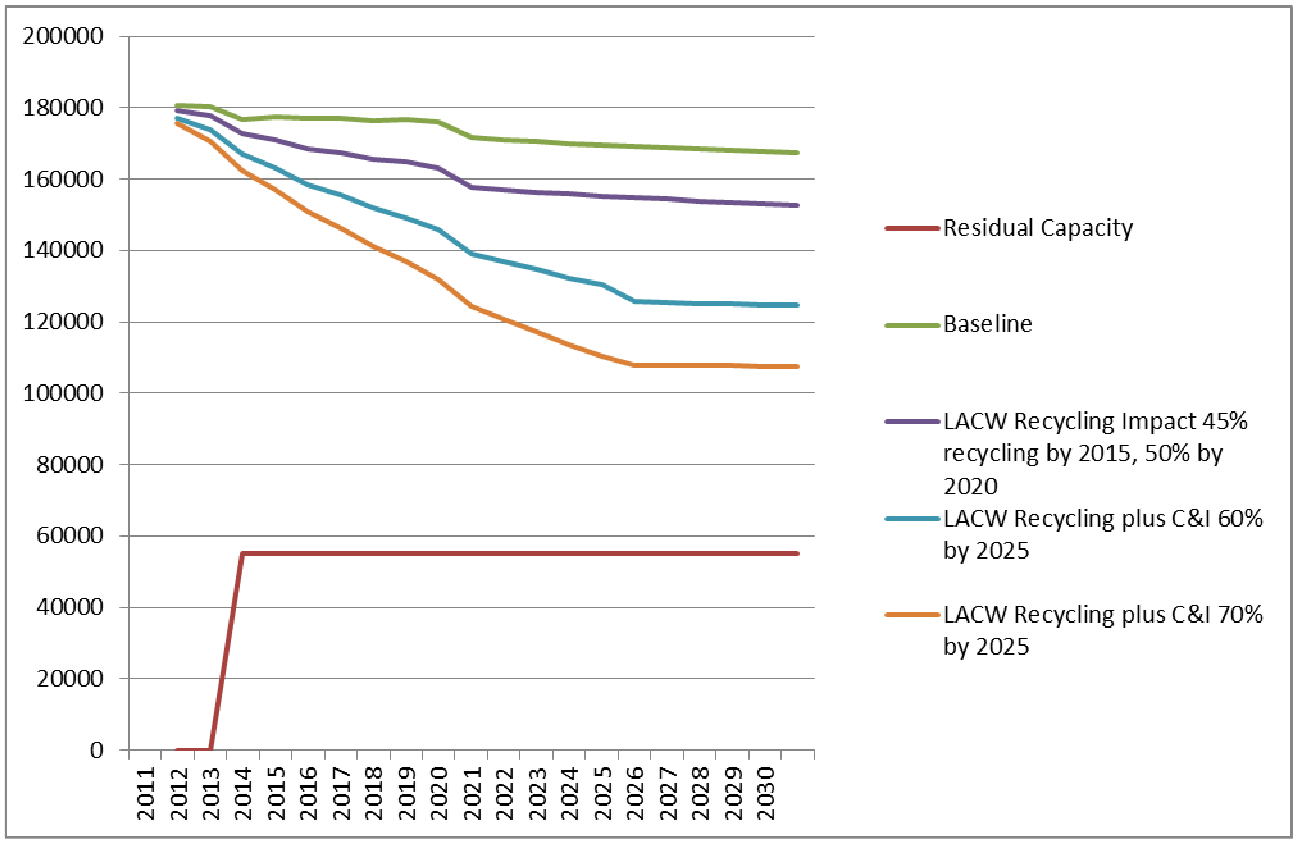


Figure 129: North Tyneside Residual Waste Capacity against arisings forecasts, recycling scenarios 1-3

7.3.3. Changes from baseline – increased C&I Landfill Diversion

Scenario 4: LACW as Scenario 1 plus C&I baseline with 75% diversion from landfill by 2020

LACW Arisings as Scenario 1
C&I Arisings baseline plus 75% landfill diversion by 2020 (tonnes x 1,000)

C&I	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	67	67	65	65	65	65	65	65	64	62	61	61	60	60	59	59	58	58	57	57
Composting	21	20	20	20	20	20	20	20	20	19	19	19	18	18	18	18	18	18	18	17
Energy Recovery	46	47	47	48	49	50	51	52	53	52	52	51	51	51	50	50	49	49	48	48
Landfill	62	60	57	56	55	54	52	51	50	46	46	45	45	45	44	44	44	43	43	43
Treatment	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
Total	202	200	194	195	195	195	194	194	193	185	184	182	180	179	177	176	174	173	172	170
% Recycling	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**	**43.5%**
% Diversion	**69.4%**	**70.1%**	**70.7%**	**71.3%**	**71.9%**	**72.5%**	**73.1%**	**73.8%**	**74.4%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	100	100	100	102	104	105	105	106	107	105	105	104	104	104	104	103	103	103	103	103
Composting	28	28	28	28	29	29	29	29	29	29	29	29	29	28	28	28	28	28	28	28
Energy Recovery	60	61	86	103	104	105	106	107	107	105	105	105	105	105	105	105	105	105	105	105
Landfill	113	110	81	62	58	56	53	51	50	46	46	45	45	45	44	44	44	43	43	43
Treatment	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
Total	**307**	**306**	**300**	**301**	**301**	**301**	**300**	**300**	**299**	**291**	**290**	**289**	**288**	**288**	**287**	**286**	**285**	**285**	**284**	**283**
% Recycling	**41.6%**	**42.0%**	**42.5%**	**43.3%**	**44.1%**	**44.4%**	**44.8%**	**45.1%**	**45.5%**	**45.9%**	**45.9%**	**45.9%**	**46.0%**	**46.0%**	**46.0%**	**46.0%**	**46.1%**	**46.1%**	**46.1%**	**46.1%**
% Diversion	**63.3%**	**64.0%**	**73.1%**	**79.5%**	**80.7%**	**81.5%**	**82.2%**	**83.0%**	**83.5%**	**84.1%**	**84.2%**	**84.3%**	**84.4%**	**84.5%**	**84.5%**	**84.6%**	**84.7%**	**84.8%**	**84.9%**	**85.0%**

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-60	-61	-31	-48	-49	-50	-51	-52	-52	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50
Landfill	-113	-110	-81	-62	-58	-56	-53	-51	-50	-46	-46	-45	-45	-45	-44	-44	-44	-43	-43	-43
Treatment	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-5
Total	-179	-178	-118	-116	-113	-112	-111	-110	-108	-103	-102	-101	-101	-100	-100	-99	-99	-98	-98	-98

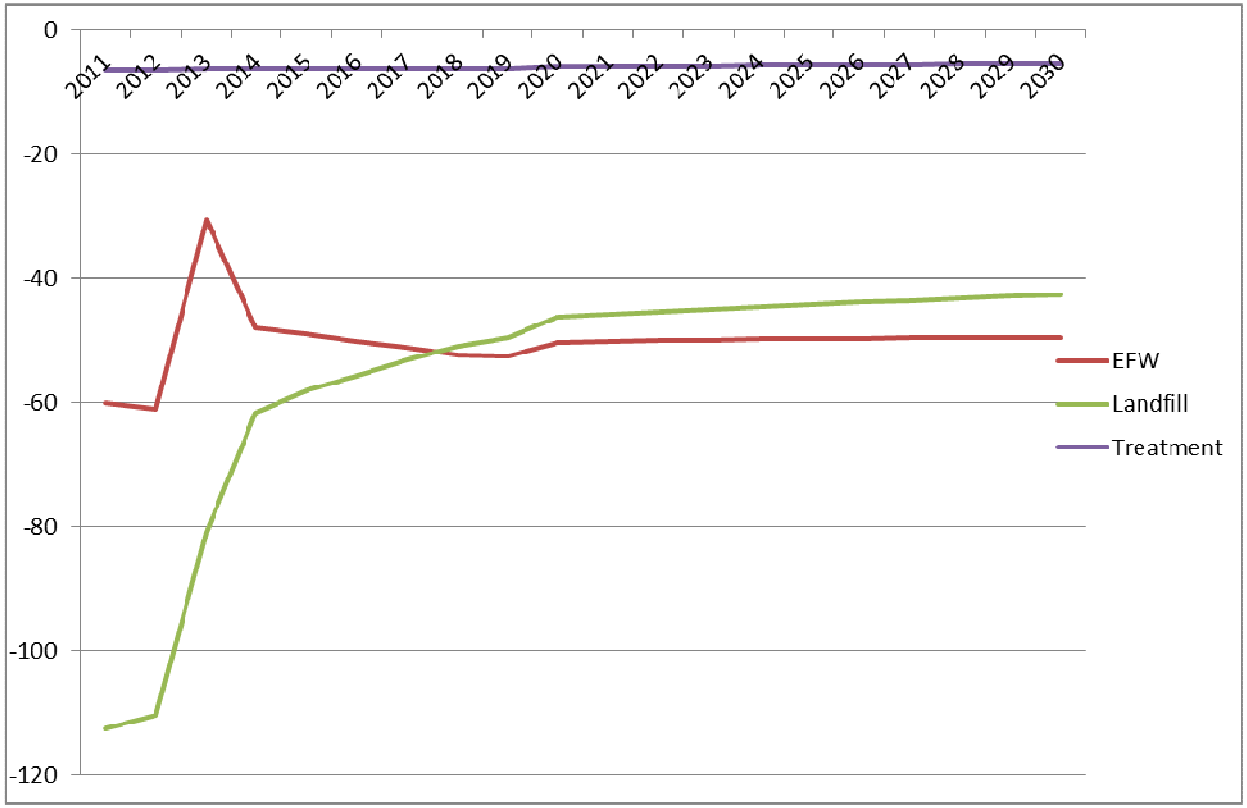


Figure 130: North Tyneside Residual Waste Capacity - arisings: Scenario 4: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Landfill Diversion 75% by 2020

7.4. Organic Waste Recycling Arisings and Capacities

Baseline Organic Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8
From C&I	21	20	20	20	20	20	20	20	20	19	19	19	18	18	18	18	18	18	18	17
Total	28	28	27	27	27	27	27	27	27	26	26	26	26	26	26	26	25	25	25	25

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	7	8	8	8	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	11
From C&I	21	20	20	20	20	20	20	20	20	19	19	19	18	18	18	18	18	18	18	17
Total	28	28	28	28	29	29	29	29	29	29	29	29	29	28	28	28	28	28	28	28

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	7	8	8	8	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	11
From C&I	21	21	21	22	22	23	23	24	24	23	24	24	24	24	25	25	25	24	24	24
Total	29	29	29	30	31	32	32	33	34	33	33	34	34	34	35	35	35	35	35	35

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	7	8	8	8	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	11
From C&I	21	22	22	23	24	25	26	26	27	27	27	28	28	29	29	29	29	28	28	28
Total	29	30	30	32	33	34	35	36	37	37	37	38	38	39	39	39	39	39	39	39

Processing Capacity

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Composting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

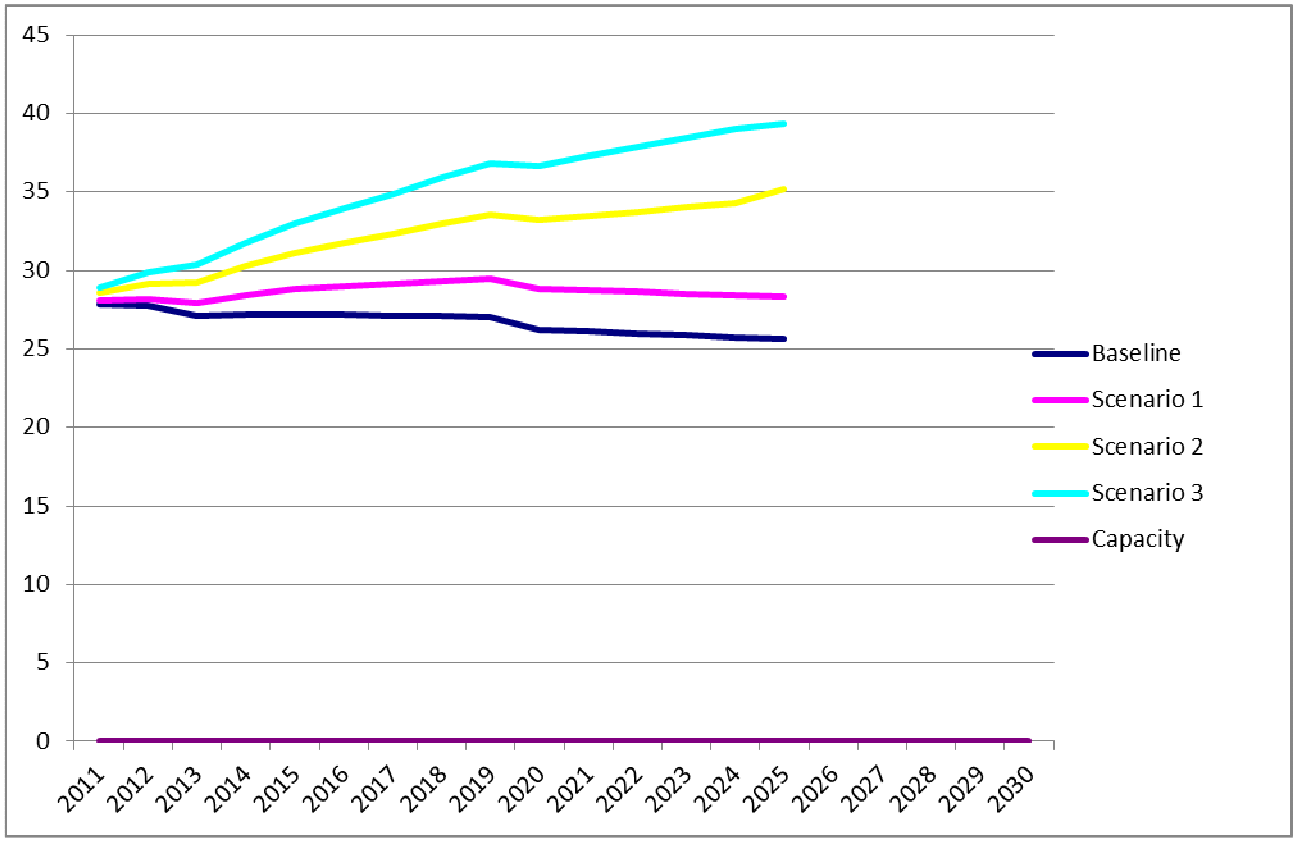


Figure 131: North Tyneside - organic recycling forecast arisings v processing capacity (tonnes x 1,000)

7.5. Hazardous Waste Arisings and Capacities

Waste Fate	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Incineration	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Landfill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recovery	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5
Treatment	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Grand Total	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**

Figure 132: North Tyneside Forecast Hazardous Waste Arisings (tonnes x 1,000)

Facility	Non Operational	Operational	Grand Total
Treatment		74999	74999
Grand Total		74999	74999

Figure 133: North Tyneside Hazardous Waste Processing Capacity (tonnes)

8. South Tyneside WPA

8.1. Waste Arisings Forecasts

Municipal Waste (LACW) Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	20	21	22	25	25	26	26	27	27	27	27	27	28	28	28	28	28	28	28	28
Composting	8	9	10	13	13	14	14	15	16	16	16	16	16	16	16	16	16	16	17	17
Energy Recovery	0	0	0	48	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48
Landfill	58	56	54	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Arisings	85	86	86	88	88	89	90	91	92	93	93	94	94	94	94	94	95	95	95	96
% Recycling	**36.0%**	**39.0%**	**39.0%**	**40.0%**	**40.0%**	**40.0%**	**42.0%**	**42.0%**	**42.0%**	**42.0%**	**42.0%**	**42.0%**	**42.0%**	**43.0%**	**43.0%**	**43.0%**	**44.0%**	**44.0%**	**44.0%**	**45.0%**

Commercial & Industrial Wastes (C&I) Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	29	29	30	30	30	31	31	31	31	32	32	32	32	33	33	33	33	34	34	34
Composting	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Energy Recovery	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Landfill	24	24	24	24	25	25	25	25	25	25	26	26	26	26	26	27	27	27	27	28
Treatment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	57	57	58	59	59	60	60	61	61	62	62	63	63	64	64	65	65	66	66	67
Recycling & Reuse	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**

Total Arisings (LACW + C&I) (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	49	50	52	55	56	56	57	58	58	59	59	60	60	60	61	61	61	62	62	63
Composting	9	10	12	14	15	15	16	16	17	17	18	18	18	18	18	18	18	18	18	18
Energy Recovery	2	2	2	50	49	49	49	49	49	49	49	49	50	50	50	50	50	50	50	51
Landfill	81	80	78	27	27	27	27	27	28	28	28	28	29	29	29	29	29	30	30	30
Treatment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	142	143	145	146	148	149	150	152	153	154	155	156	157	157	158	159	160	160	162	163
Recycling rate	**40.9%**	**42.0%**	**43.9%**	**47.3%**	**47.7%**	**48.0%**	**48.4%**	**48.8%**	**49.4%**	**49.4%**	**49.4%**	**49.4%**	**49.5%**	**49.5%**	**49.5%**	**49.5%**	**49.5%**	**49.5%**	**49.6%**	**49.6%**

8.2. Waste facilities within the WPA Area

Local waste facility data was supplied by the WPA along with permitted capacities. The available capacities from the 10 sites identified within the WPA area can be summarised as:

Facility	Non-operational	Operating but time limited	Operational	Grand Total
Haz Incinerator			100	100
HWRC			24,999	24,999
Inert Landfill		382,500		382,500
Inert Recycling			60,000	60,000
Metal Recycling and ELV			13,720	13,720
MRF			165,500	165,500
Non-Haz Recycling	24,000			24,000
Non-Haz Transfer Station			110,000	110,000
Treatment			22,000	22,000
Grand Total	24,000	382,500	396,319	802,819

Capacity is operational or planning capacity
Source: WPA

8.3. Non-Hazardous Residual Waste Arisings and Capacities

8.3.1. Baseline

From these baseline forecasts, Residual Waste Baseline Forecasts are (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Energy Recovery	2	2	2	50	49	49	49	49	49	49	49	49	50	50	50	50	50	50	50	51
Landfill	81	80	78	27	27	27	27	27	28	28	28	28	29	29	29	29	29	30	30	30
Treatment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total Residual	**84**	**83**	**81**	**77**	**77**	**77**	**77**	**78**	**77**	**78**	**79**	**79**	**79**	**80**	**80**	**80**	**81**	**81**	**82**	**82**

Residual Waste Capacity Forecasts (from key residual waste facilities) (tonnes x 1,000) – includes 48,000tpa Haverton Hill Third Line EfW capacity

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	0	0	0	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Landfill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Treatment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Residual	0	0	0	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85

Difference Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-2	-2	-2	-2	-1	-1	-1	-1	-1	-1	-1	-1	-2	-2	-2	-2	-2	-2	-2	-3
Landfill	-81	-80	-78	-27	-27	-27	-27	-27	-28	-28	-28	-28	-29	-29	-29	-29	-29	-30	-30	-30
Treatment	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Total	-84	-83	-81	-29	-29	-29	-29	-30	-29	-30	-31	-31	-31	-32	-32	-32	-33	-33	-34	-34

Negative figures indicate a capacity shortfall

From these baseline forecasts:

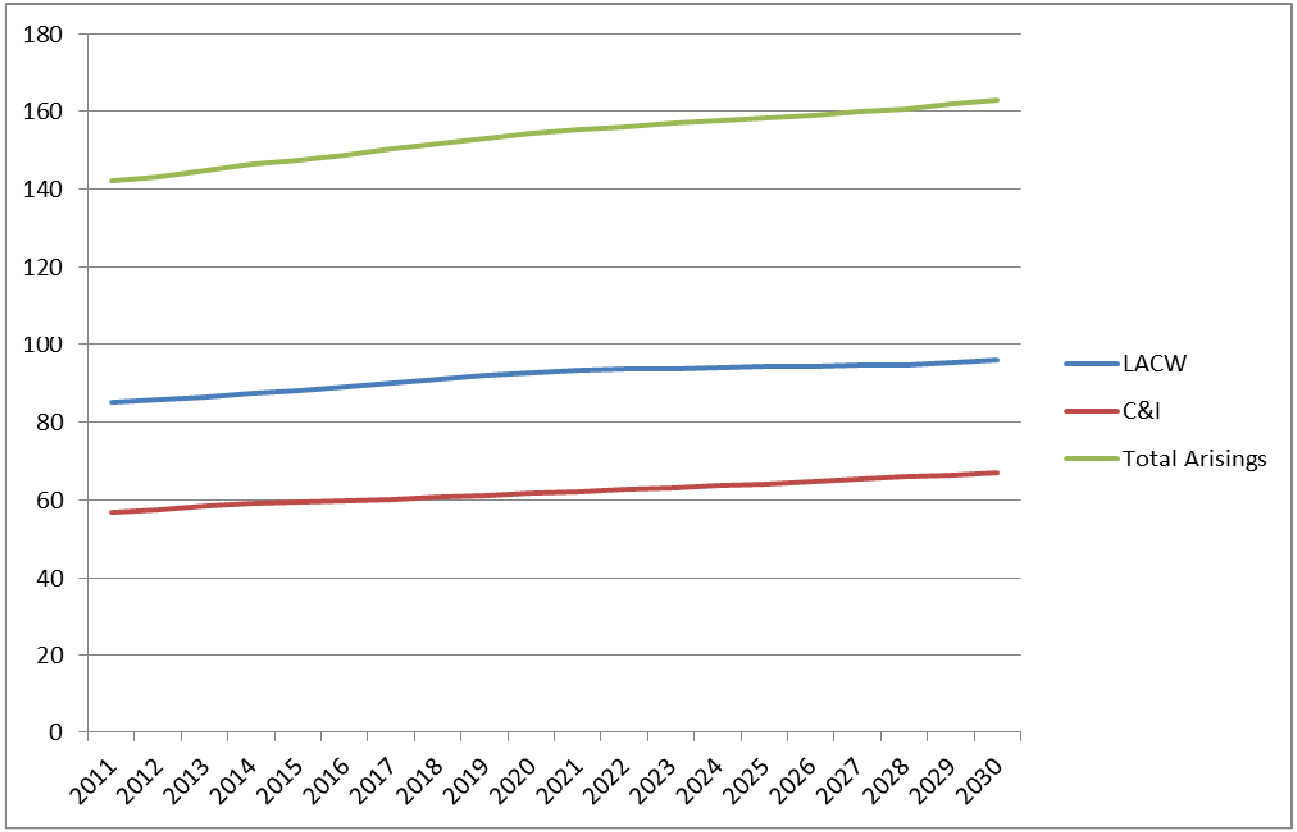


Figure 134: South Tyneside Baseline Arisings Forecasts (tonnes x 1,000)

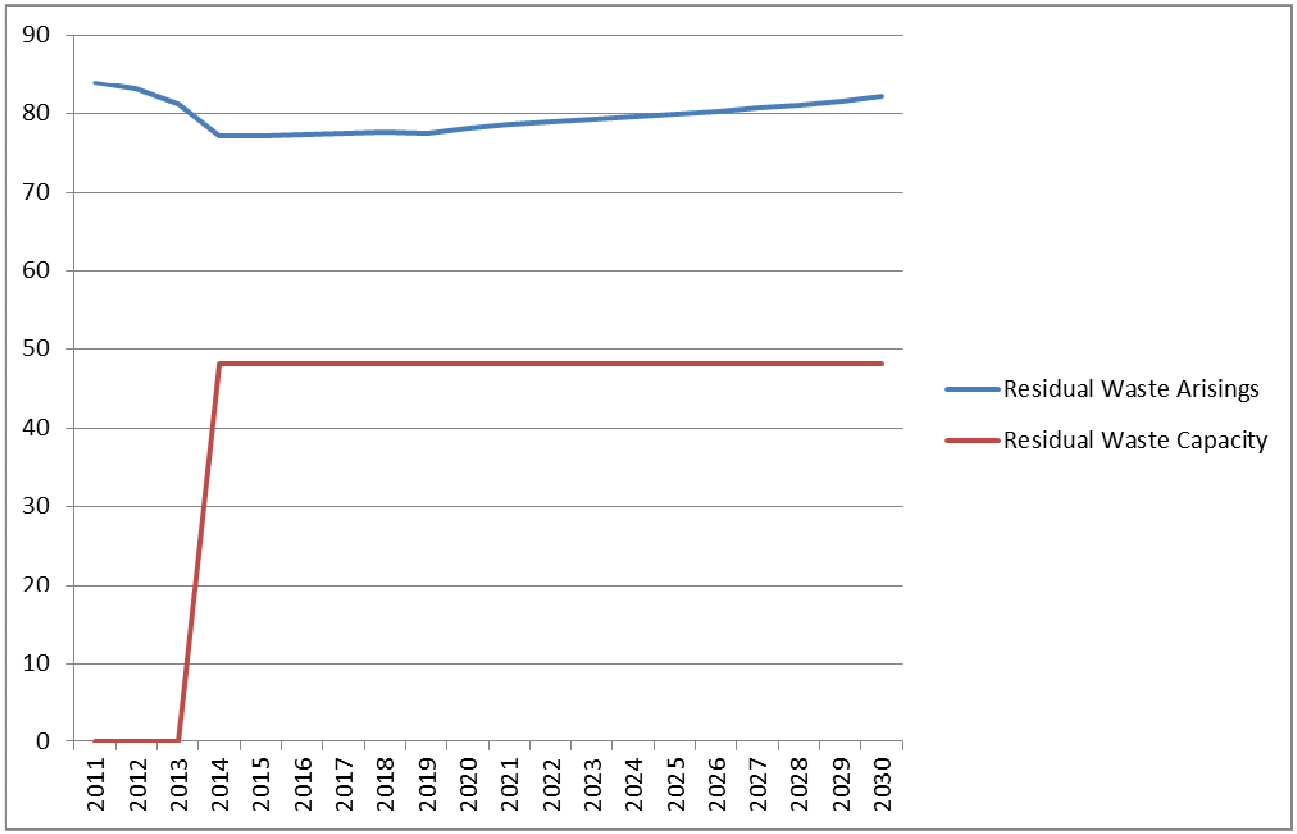


Figure 135: South Tyneside Residual Waste Capacity v Arisings, all waste management methods (tonnes)

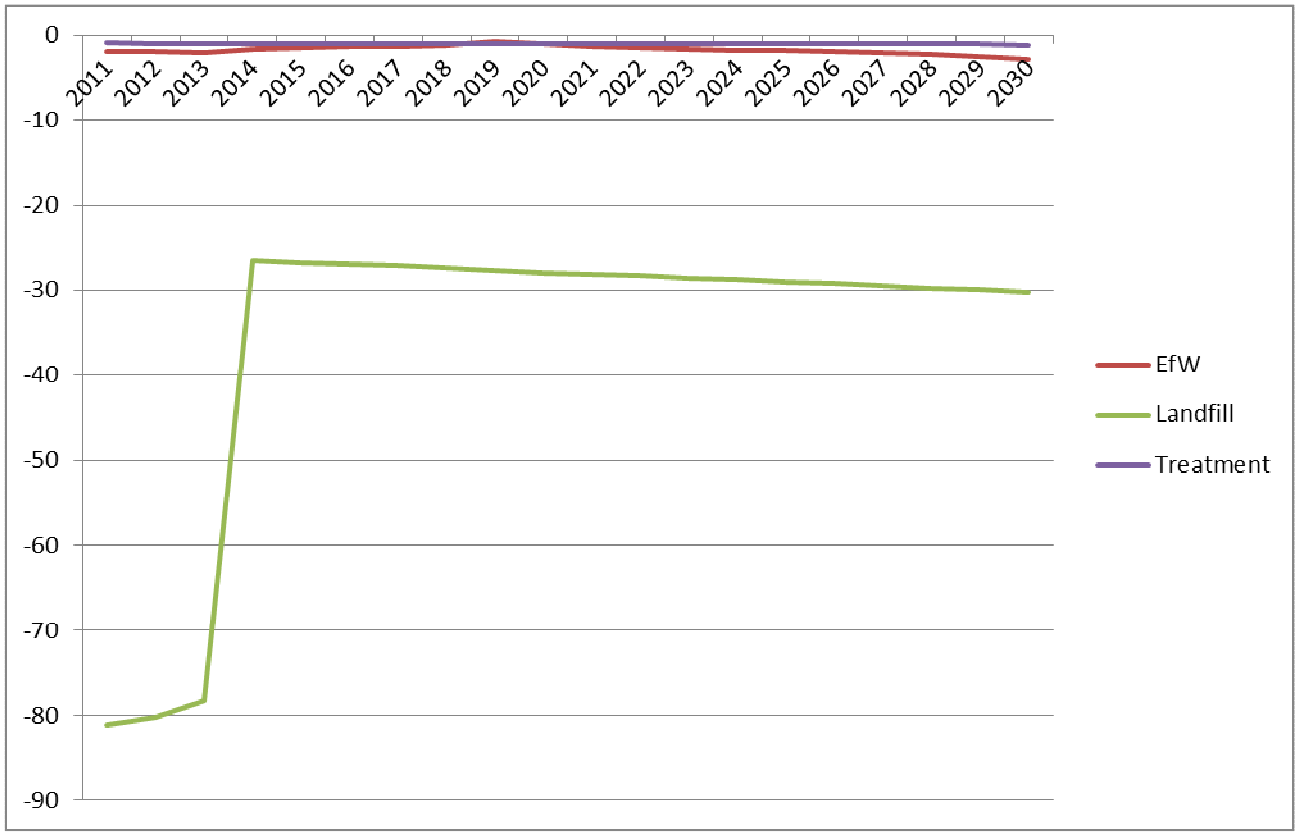


Figure 136: South Tyneside Residual Waste Capacity - Arisings, per waste management method (tonnes x 1,000) – negative figures indicate a shortfall

8.3.2. Changes from Baseline: Increased Recycling

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

LACW: (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	20	22	23	24	26	27	27	28	28	29	29	29	29	30	30	30	30	30	30	30
Composting	8	9	11	12	14	14	15	16	17	17	17	17	17	17	17	17	18	18	18	18
Landfill	57	55	53	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
Energy Recovery	0	0	0	49	46	46	45	45	44	44	44	44	44	44	45	45	45	45	45	45
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Arisings	**85**	**86**	**86**	**88**	**88**	**89**	**90**	**91**	**92**	**93**	**93**	**94**	**94**	**94**	**94**	**94**	**95**	**95**	**95**	**96**
% Recycling	**33.0%**	**36.0%**	**39.0%**	**42.0%**	**45.0%**	**46.0%**	**47.0%**	**48.0%**	**49.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**50.0%**

Commercial and Industrial waste – as baseline

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	49	51	53	55	57	57	58	59	60	61	61	62	62	62	62	63	63	64	64	64
Composting	10	10	12	14	15	16	16	17	18	19	19	19	19	19	19	19	19	19	19	19
Energy Recovery	2	2	2	51	48	48	47	47	47	46	46	46	46	47	47	47	47	47	47	48
Landfill	81	79	77	27	27	27	27	27	28	28	28	28	29	29	29	29	29	30	30	30
Treatment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	**142**	**143**	**145**	**146**	**148**	**149**	**150**	**152**	**153**	**154**	**155**	**156**	**157**	**157**	**158**	**159**	**160**	**160**	**162**	**163**
Recycling rate	41.3%	43.1%	44.9%	46.7%	48.5%	49.0%	49.6%	50.2%	50.8%	51.4%	51.4%	51.4%	51.4%	51.5%	51.5%	51.5%	51.5%	51.5%	51.5%	51.5%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-2	-2	-2	-3	0	0	1	1	1	2	2	2	2	1	1	1	1	1	1	0
Landfill	-81	-79	-77	-27	-27	-27	-27	-27	-28	-28	-28	-28	-29	-29	-29	-29	-29	-30	-30	-30
Treatment	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Total	-83	-82	-80	-30	-28	-28	-28	-27	-27	-27	-27	-28	-28	-28	-29	-29	-30	-30	-30	-31

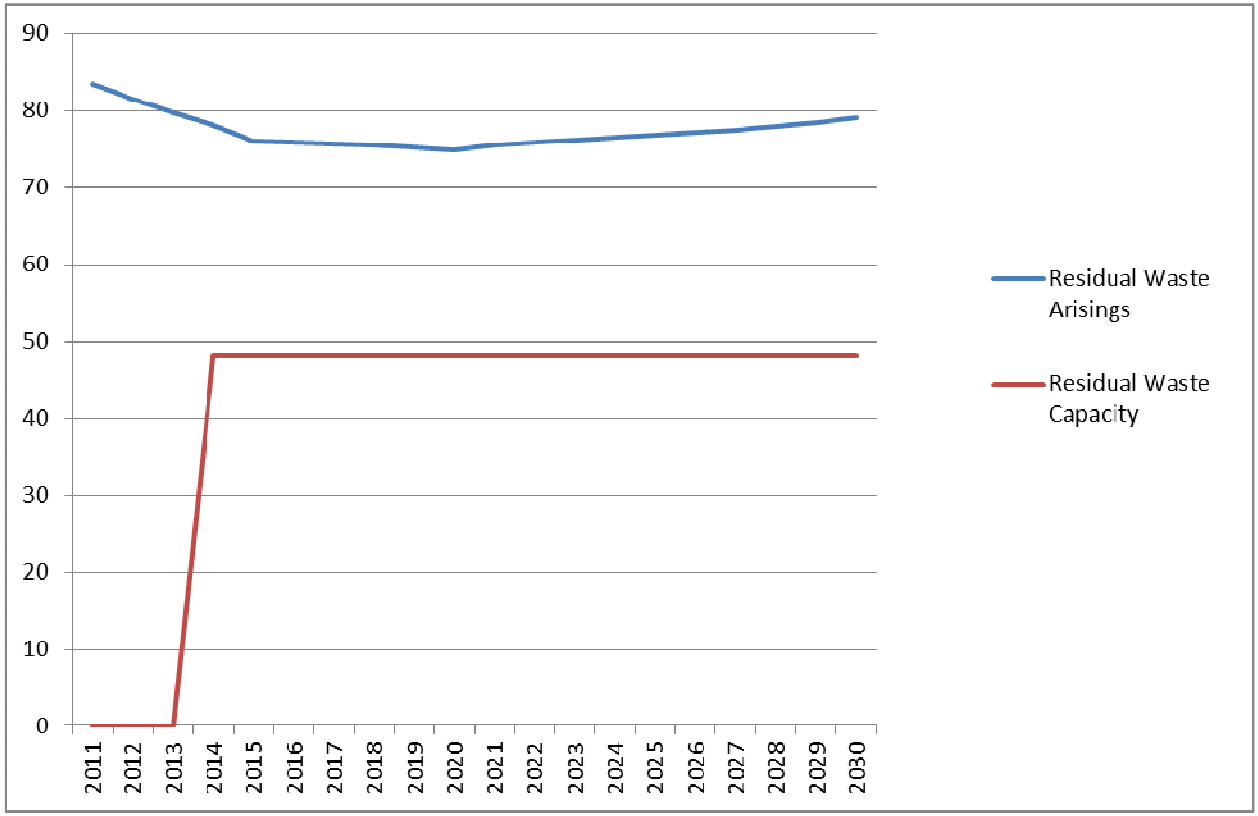


Figure 137: South Tyneside Residual waste capacity v arisings all waste management methods: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

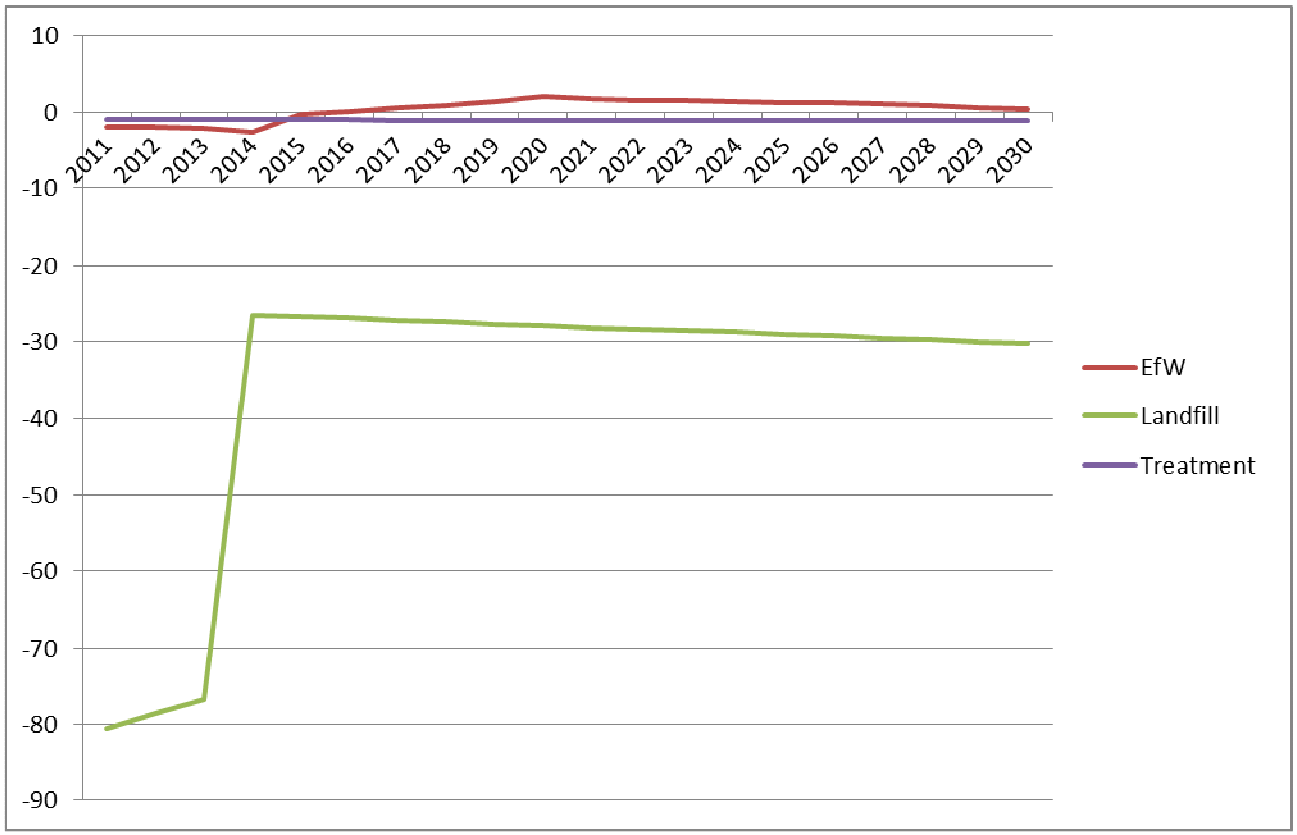


Figure 138: South Tyneside Residual Waste Capacity - arisings: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

LACW – as Scenario 1

C&I Arisings, 60% recycling by 2025 (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	29	30	31	31	32	32	33	33	34	34	35	35	36	36	37	37	37	38	38	38
Composting,	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
Energy Recovery	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Landfill	23	23	23	23	23	23	23	23	23	23	23	23	23	22	22	23	23	23	23	23
Treatment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	57	57	58	59	59	60	60	61	61	62	62	63	63	64	64	65	65	66	66	67
Recycling & Reuse	**54.0%**	**54.5%**	**54.9%**	**55.3%**	**55.7%**	**56.2%**	**56.6%**	**57.0%**	**57.5%**	**57.9%**	**58.3%**	**58.8%**	**59.2%**	**59.6%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**

Total Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	49	52	54	56	58	59	60	61	62	63	64	65	65	66	66	67	67	68	68	69
Composting	10	10	12	14	15	16	16	17	18	19	19	19	19	19	19	19	19	19	19	20
Energy Recovery	2	2	2	51	48	48	47	47	47	46	46	46	46	47	47	47	47	47	47	48
Landfill	80	78	76	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	26	26
Treatment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	**142**	**143**	**145**	**146**	**148**	**149**	**150**	**152**	**153**	**154**	**155**	**156**	**157**	**157**	**158**	**159**	**160**	**160**	**162**	**163**
Recycling rate	41.4%	43.4%	45.4%	47.4%	49.3%	50.1%	50.8%	51.6%	52.4%	53.2%	53.3%	53.5%	53.7%	53.9%	54.1%	54.1%	54.1%	54.1%	54.1%	54.1%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-2	-2	-2	-3	0	0	1	1	1	2	2	2	2	1	1	1	1	1	1	0
Landfill	-80	-78	-76	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-26	-26	-26
Treatment	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Total	-83	-81	-79	-29	-27	-26	-26	-25	-25	-24	-25	-25	-25	-25	-25	-25	-25	-26	-26	-27

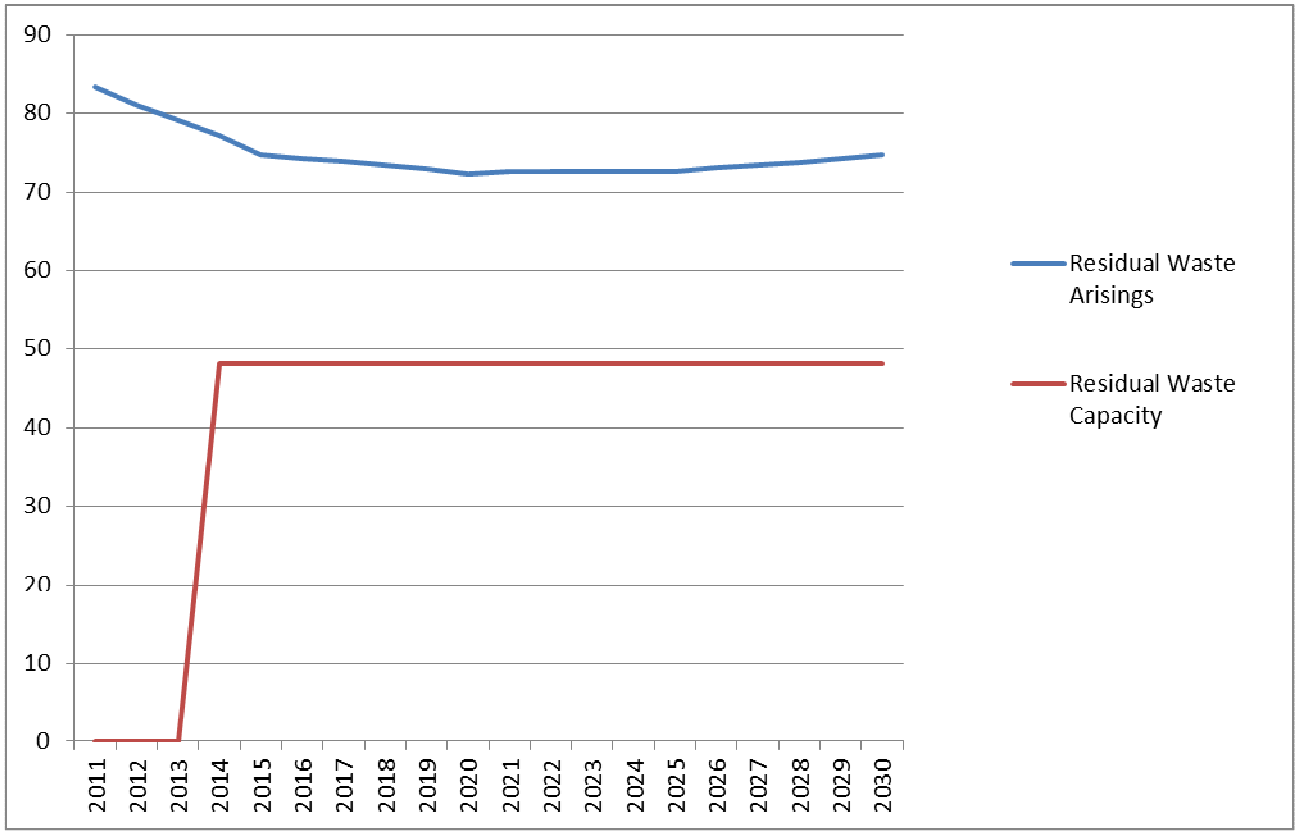


Figure 139: South Tyneside Residual waste capacity v arisings all waste management methods: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 60% by 2025

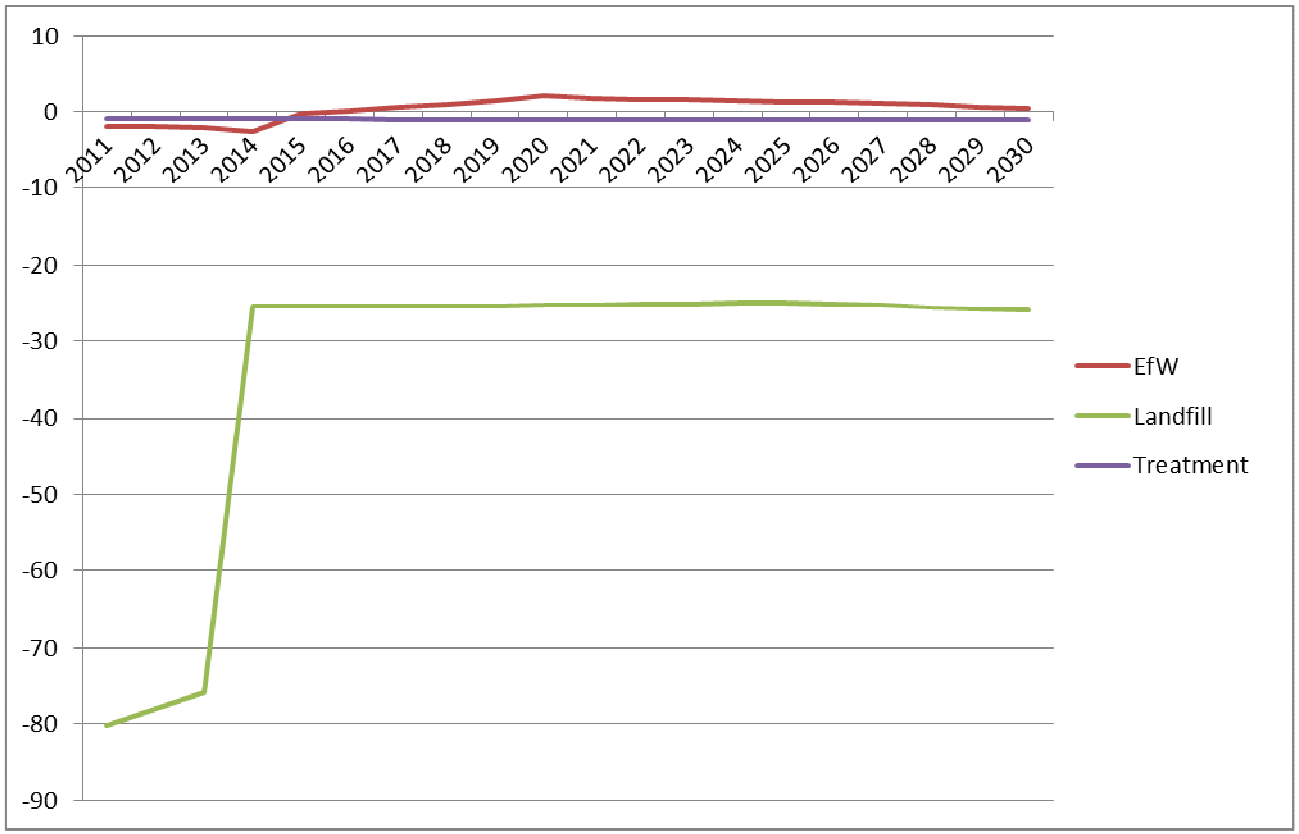


Figure 140: South Tyneside Residual Waste Capacity - arisings: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 60% by 2025

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

LACW – as Scenario 1

C&I Arisings 70% recycling by 2025 (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	30	31	32	33	34	34	35	36	37	38	39	40	41	42	43	43	44	44	44	45
Composting,	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Energy Recovery	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Landfill	23	22	22	22	21	21	20	20	19	19	18	18	17	17	16	16	16	16	17	17
Treatment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	57	57	58	59	59	60	60	61	61	62	62	63	63	64	64	65	65	66	66	67
Recycling & Reuse	**54.7%**	**55.8%**	**56.9%**	**58.0%**	**59.0%**	**60.1%**	**61.2%**	**62.3%**	**63.4%**	**64.5%**	**65.6%**	**66.7%**	**67.8%**	**68.9%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	50	52	55	57	60	61	63	64	65	67	68	69	70	71	73	73	73	74	74	75
Composting	10	11	12	14	15	16	17	17	18	19	19	19	19	19	19	19	19	20	20	20
Energy Recovery	2	2	2	51	48	48	47	47	47	46	46	46	46	47	47	47	47	47	47	48
Landfill	80	77	75	24	24	23	23	22	22	21	21	20	20	19	19	19	19	19	19	19
Treatment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	**142**	**143**	**145**	**146**	**148**	**149**	**150**	**152**	**153**	**154**	**155**	**156**	**157**	**157**	**158**	**159**	**160**	**160**	**162**	**163**
Recycling rate	41.7%	43.9%	46.2%	48.4%	50.7%	51.7%	52.7%	53.7%	54.8%	55.8%	56.2%	56.7%	57.1%	57.6%	58.1%	58.1%	58.2%	58.2%	58.2%	58.2%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-2	-2	-2	-3	0	0	1	1	1	2	2	2	2	1	1	1	1	1	1	0
Landfill	-80	-77	-75	-24	-24	-23	-23	-22	-22	-21	-21	-20	-20	-19	-19	-19	-19	-19	-19	-19
Treatment	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Total	-83	-80	-78	-28	-25	-24	-23	-22	-21	-20	-20	-20	-19	-19	-18	-19	-19	-19	-20	-20

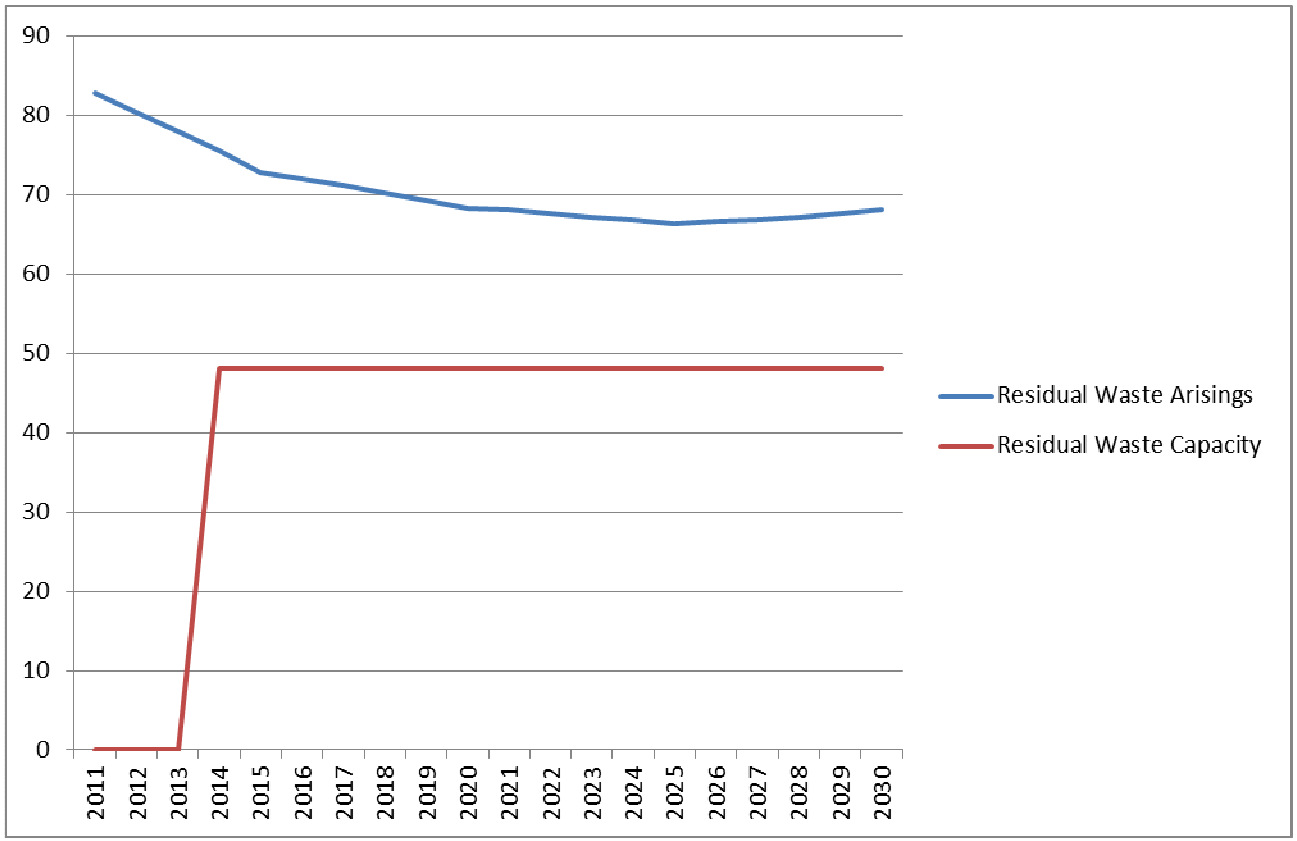


Figure 141: South Tyneside Residual waste capacity v arisings all waste management methods: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 70% by 2025

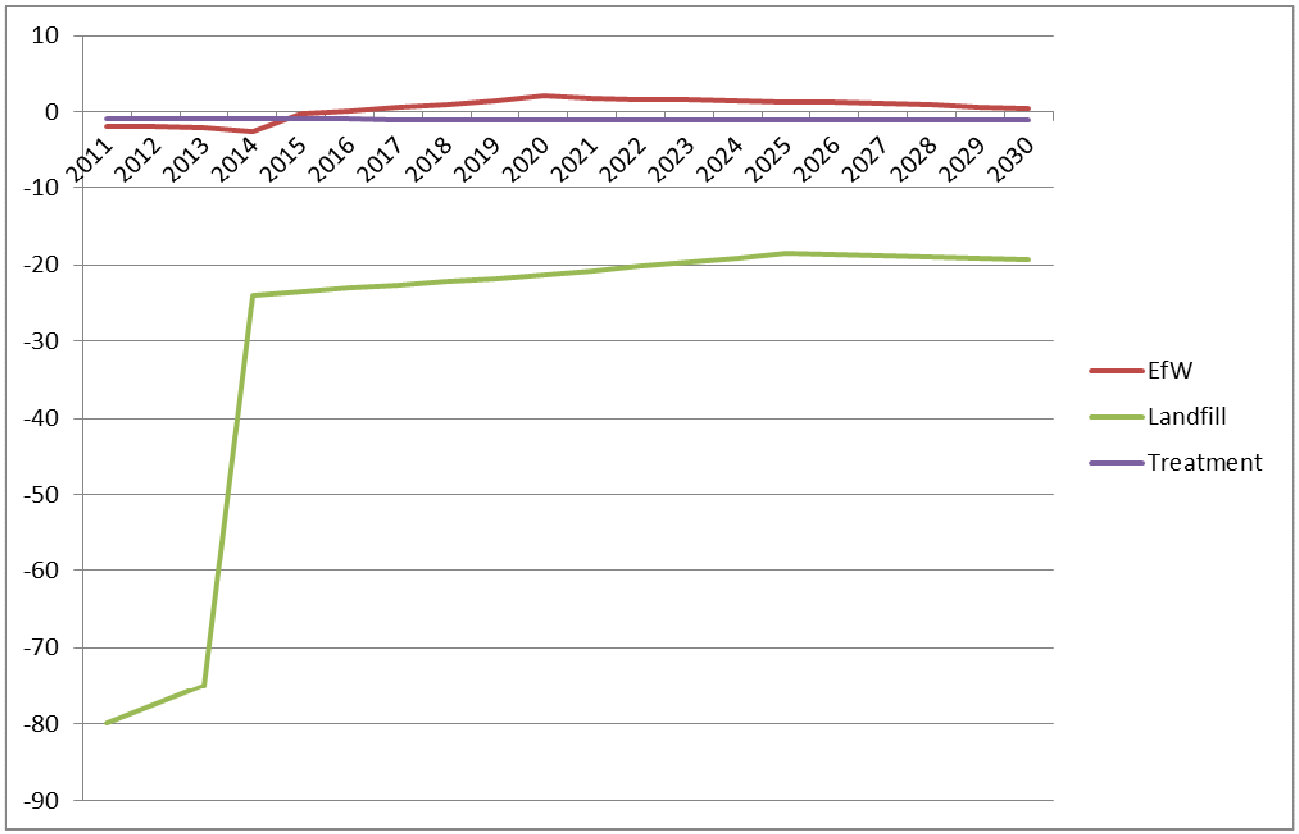


Figure 142: South Tyneside Residual Waste Capacity - arisings: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 70% by 2025

Summary

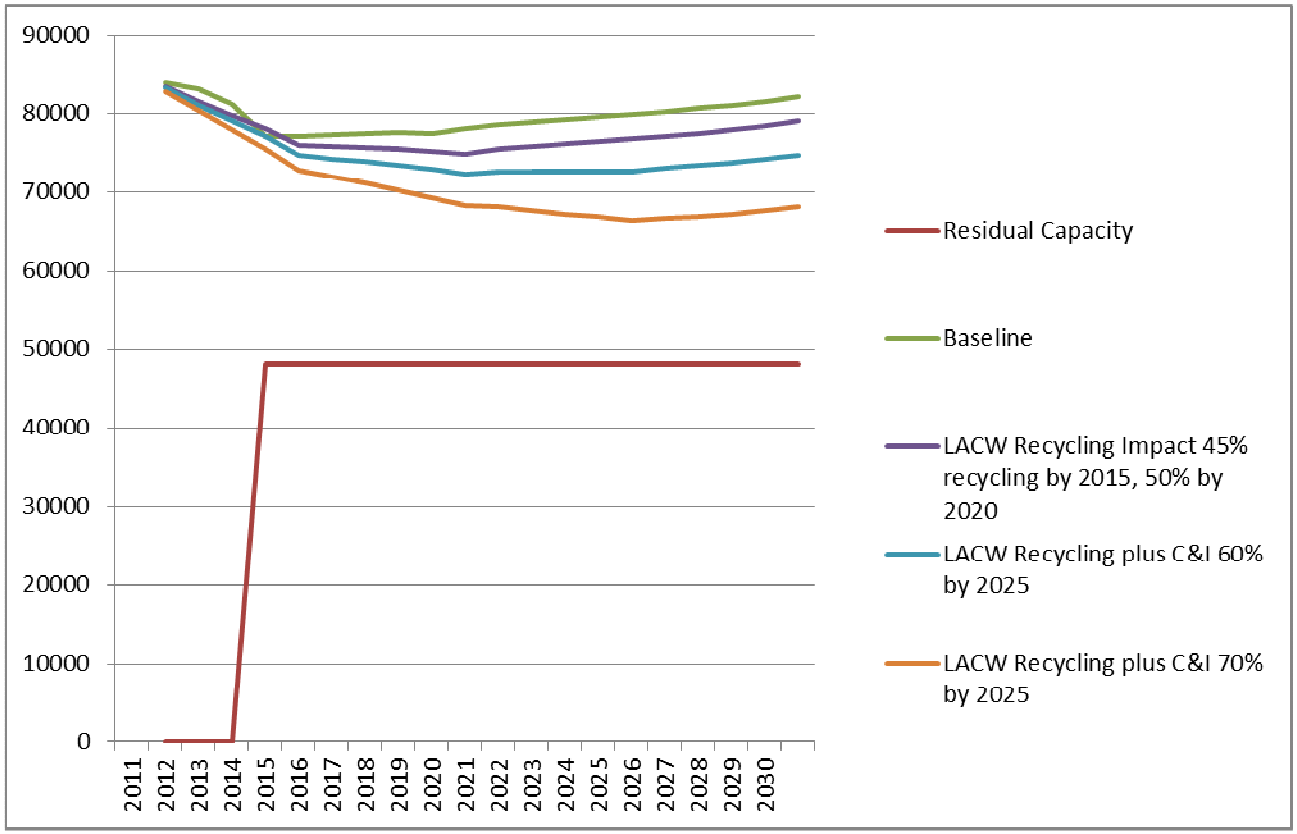


Figure 143: South Tyneside Residual Waste Capacity against arisings forecasts, recycling scenarios 1-3

8.3.3. Changes from baseline – increased C&I Landfill Diversion

Scenario 4: LACW as Scenario 1 plus C&I baseline with 75% diversion from landfill by 2020

LACW Arisings as Scenario 1
C&I Arisings baseline plus 75% landfill diversion by 2020 (tonnes x 1,000)

C&I	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	29	29	30	30	30	31	31	31	31	32	32	32	32	33	33	33	33	34	34	34
Composting	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Energy Recovery	2	3	4	5	6	7	9	10	11	12	12	12	12	13	13	13	13	13	13	13
Landfill	24	23	22	21	20	19	18	17	16	15	16	16	16	16	16	16	16	16	17	17
Treatment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	57	57	58	59	59	60	60	61	61	62	62	63	63	64	64	65	65	66	66	67
% Recycling	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**	**53.6%**
% Diversion	**58.7%**	**60.5%**	**62.3%**	**64.1%**	**65.9%**	**67.8%**	**69.6%**	**71.4%**	**73.2%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	49	51	53	55	57	57	58	59	60	61	61	62	62	62	62	63	63	64	64	64
Composting	10	10	12	14	15	16	16	17	18	19	19	19	19	19	19	19	19	19	19	19
Energy Recovery	2	3	4	54	53	53	54	55	55	56	56	57	57	57	57	57	58	58	58	59
Landfill	81	78	75	23	22	22	21	20	19	18	18	18	18	18	19	19	19	19	19	19
Treatment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	**142**	**143**	**145**	**146**	**148**	**149**	**150**	**152**	**153**	**154**	**155**	**156**	**157**	**157**	**158**	**159**	**160**	**160**	**162**	**163**
% Recycling	**41.3%**	**43.1%**	**44.9%**	**46.7%**	**48.5%**	**49.0%**	**49.6%**	**50.2%**	**50.8%**	**51.4%**	**51.4%**	**51.4%**	**51.4%**	**51.5%**	**51.5%**	**51.5%**	**51.5%**	**51.5%**	**51.5%**	**51.5%**
% Diversion	**43.3%**	**45.8%**	**48.4%**	**84.1%**	**84.8%**	**85.5%**	**86.3%**	**87.0%**	**87.7%**	**88.4%**	**88.4%**	**88.4%**	**88.3%**	**88.3%**	**88.3%**	**88.2%**	**88.2%**	**88.2%**	**88.1%**	**88.1%**

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-2	-3	-4	-6	-5	-5	-6	-7	-7	-8	-8	-9	-9	-9	-9	-9	-10	-10	-10	-11
Landfill	-81	-78	-75	-23	-22	-22	-21	-20	-19	-18	-18	-18	-18	-18	-19	-19	-19	-19	-19	-19
Treatment	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Total	-83	-82	-80	-30	-28	-28	-28	-27	-27	-27	-27	-28	-28	-28	-29	-29	-30	-30	-30	-31

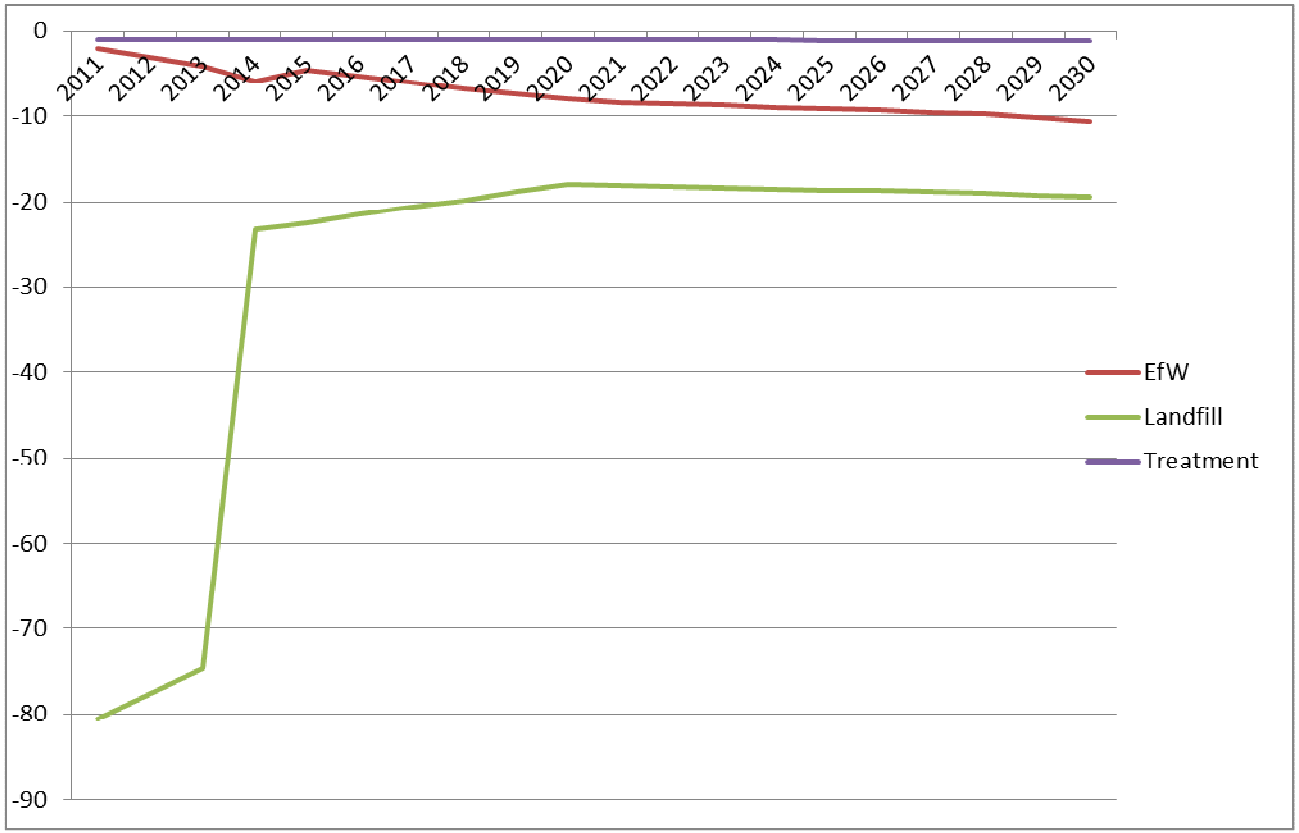


Figure 144: South Tyneside Residual Waste Capacity - arisings: Scenario 4: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Landfill Diversion 75% by 2020

8.4. Organic Waste Recycling Arisings and Capacities

Baseline Organic Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	8	9	10	13	13	14	14	15	16	16	16	16	16	16	16	16	16	16	17	17
From C&I	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Total	9	10	12	14	15	15	16	16	17	17	18	18	18	18	18	18	18	18	18	18

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	8	9	11	12	14	14	15	16	17	17	17	17	17	17	17	17	18	18	18	18
From C&I	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Total	10	10	12	14	15	16	16	17	18	19	19	19	19	19	19	19	19	19	19	19

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	8	9	11	12	14	14	15	16	17	17	17	17	17	17	17	17	18	18	18	18
From C&I	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
Total	10	10	12	14	15	16	16	17	18	19	19	19	19	19	19	19	19	19	19	20

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	8	9	11	12	14	14	15	16	17	17	17	17	17	17	17	17	18	18	18	18
From C&I	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total	10	11	12	14	15	16	17	17	18	19	19	19	19	19	19	19	19	20	20	20

Processing Capacity

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Composting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

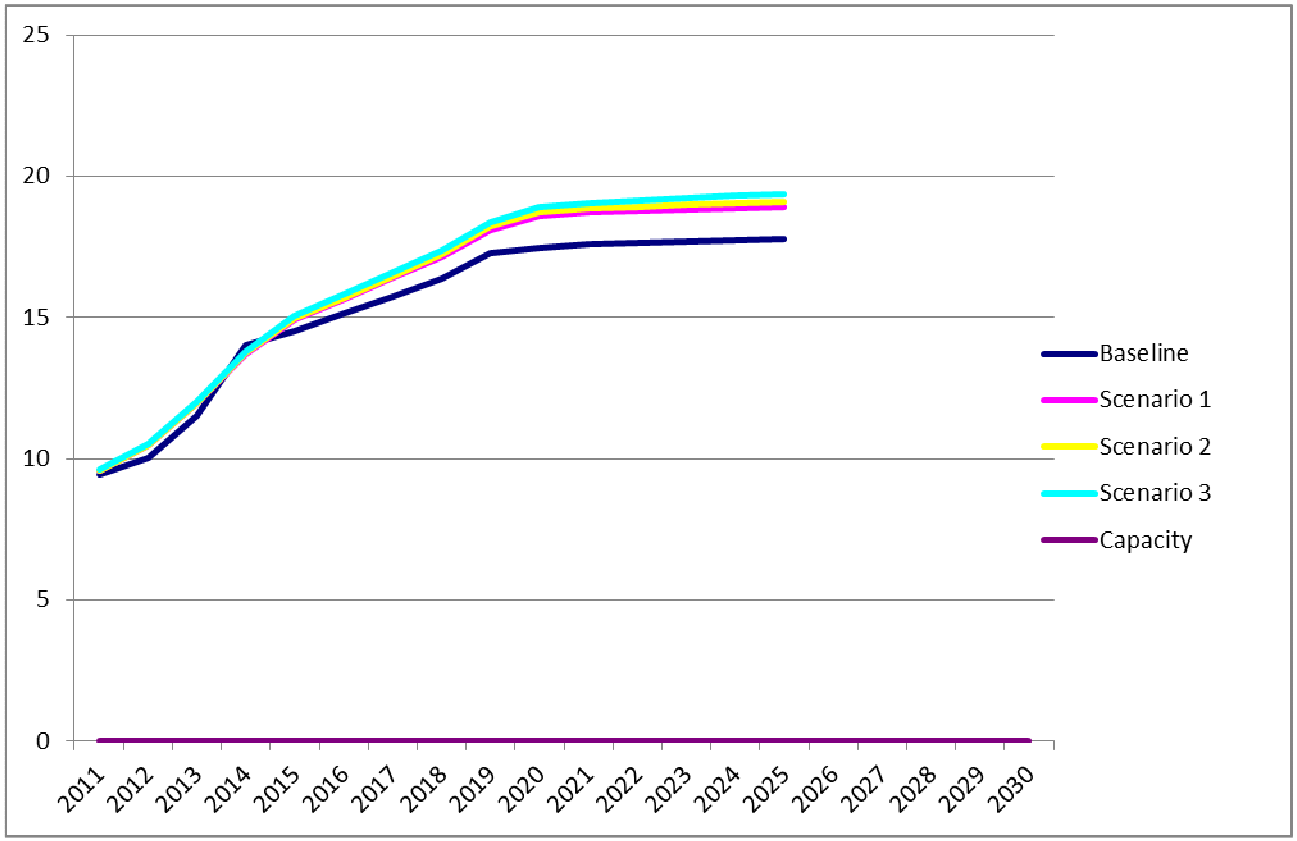


Figure 145: South Tyneside - organic recycling forecast arisings v processing capacity (tonnes x 1,000)

8.5. Hazardous Waste Arisings and Capacities

Waste Fate	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Incineration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Landfill	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Recovery	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Treatment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Grand Total	**4**	**4**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**

Figure 146: South Tyneside Forecast Hazardous Waste Arisings (tonnes x 1,000)

Facility	Non Operational	Operational	Grand Total
Haz Incinerator		100	100
Hazardous Landfill		5	5
Treatment		22,000	22,000
Grand Total		22,105	22,105

Figure 147: South Tyneside Hazardous Waste Processing Capacity (tonnes)

9. Sunderland WPA

9.1. Waste Arisings Forecasts

Regional Municipal Waste (LACW) Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	34	36	38	43	45	46	47	48	49	50	51	51	51	52	52	52	53	53	54	54
Composting	15	17	21	27	29	30	31	33	35	35	36	36	37	37	37	37	38	38	38	39
Landfill	0	0	0	81	80	80	79	79	77	78	79	80	80	80	81	81	82	82	83	84
Energy Recovery	100	97	93	4	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Arisings	149	150	152	156	158	160	162	165	167	169	171	172	174	175	176	177	178	179	181	183
% Recycling	**33.2%**	**35.3%**	**38.8%**	**45.4%**	**46.3%**	**47.2%**	**48.1%**	**49.1%**	**50.5%**	**50.6%**	**50.6%**	**50.7%**	**50.7%**	**50.7%**	**50.7%**	**50.8%**	**50.8%**	**50.8%**	**50.9%**	**50.9%**

Regional Commercial & Industrial Wastes (C&I) Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	86	86	85	86	86	85	85	85	84	84	83	83	83	82	82	82	81	81	81	81
Composting	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Energy Recovery	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8
Landfill	69	69	68	69	69	68	68	68	68	67	67	66	66	66	66	65	65	65	65	65
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total	178	178	176	178	178	178	177	177	176	174	173	172	172	171	170	170	169	169	168	168
Recycling & Reuse	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**

Total Regional Arisings (LACW + C&I) (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	120	122	123	129	130	131	132	133	134	133	134	134	134	134	134	134	134	134	135	135
Composting	26	28	32	39	40	41	42	44	46	46	47	47	47	48	48	48	48	48	49	49
Energy Recovery	9	9	9	89	89	88	88	87	86	87	87	88	88	89	89	90	90	90	91	92
Landfill	168	166	161	73	73	73	73	73	73	72	72	72	72	71	71	71	71	71	71	71
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total	327	328	328	334	336	338	339	342	342	343	344	345	345	346	346	347	347	348	349	351
Recycling rate	**44.7%**	**45.6%**	**47.2%**	**50.2%**	**50.6%**	**51.0%**	**51.4%**	**51.8%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.6%**

9.2. Waste facilities within the WPA Area

Local waste facility data was supplied by the WPA along with permitted capacities. The available capacities from the 56 sites identified within the WPA area can be summarised as:

Facility	Non-operational	Operational	Grand Total
Co-Disposal Landfill		500,000	500,000
Haz Transfer Station		1,186,541	1,186,541
HWRC		61,499	61,499
Inert Landfill		150,000	150,000
Inert transfer station		999,999	999,999
Metal Recycling and ELV	7,498	174,003	181,501
MRF	6,900	629,998	636,898
Non-Haz Landfill	450,000	695,170	1,145,170
Non-Haz Transfer Station		1,982,452	1,982,452
Treatment		74,999	74,999
Grand Total	464,398	6,454,661	6,919,059

Capacity is EA licensed capacity
Source: Environment Agency

9.3. Non-Hazardous Residual Waste Arisings and Capacities

9.3.1. Baseline

From these baseline forecasts, Regional Residual Waste Baseline Forecasts are (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Energy Recovery	9	9	9	89	89	88	88	87	86	87	87	88	88	89	89	90	90	90	91	92
Landfill	168	166	161	73	73	73	73	73	73	72	72	72	72	71	71	71	71	71	71	71
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total Residual	**181**	**178**	**173**	**166**	**166**	**166**	**165**	**165**	**163**	**163**	**163**	**164**	**164**	**164**	**164**	**165**	**165**	**165**	**166**	**166**

Regional Residual Waste Capacity Forecasts (from key residual waste facilities) (tonnes x 1,000) – includes 80,000tpa of Haverton Hill Third Line EfW capacity

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	0	0	0	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
Landfill	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	0	0
Treatment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Residual	250	250	250	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	80	80

Difference Regional Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-9	-9	-9	-9	-9	-8	-8	-7	-6	-7	-7	-8	-8	-9	-9	-10	-10	-10	-11	-12
Landfill	82	84	89	177	177	177	177	177	177	178	178	178	178	179	179	179	179	179	-71	-71
Treatment	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
Total	69	72	77	164	164	164	165	165	167	167	167	166	166	166	166	165	165	165	-86	-86

Negative figures indicate a capacity shortfall

From these baseline forecasts:

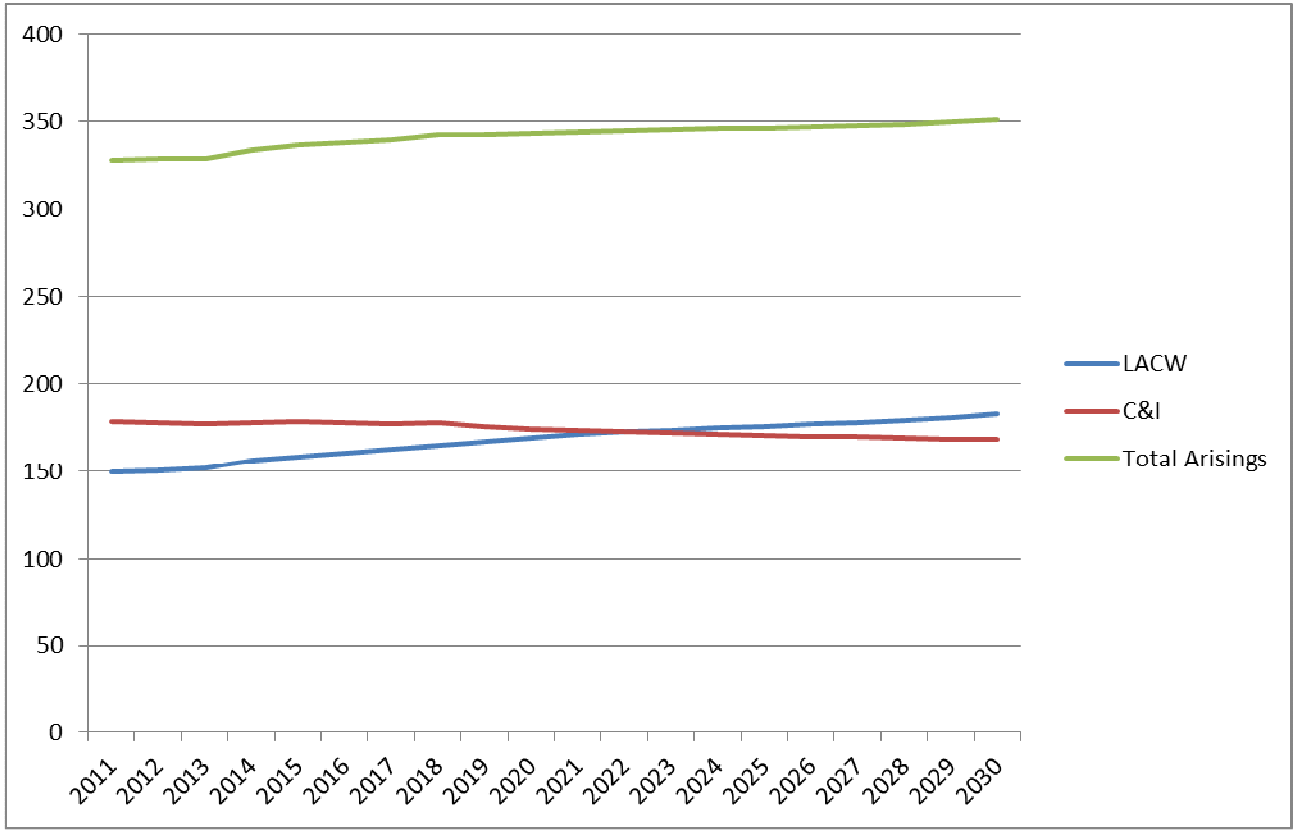


Figure 148: Sunderland Baseline Arisings Forecasts (tonnes x 1,000)

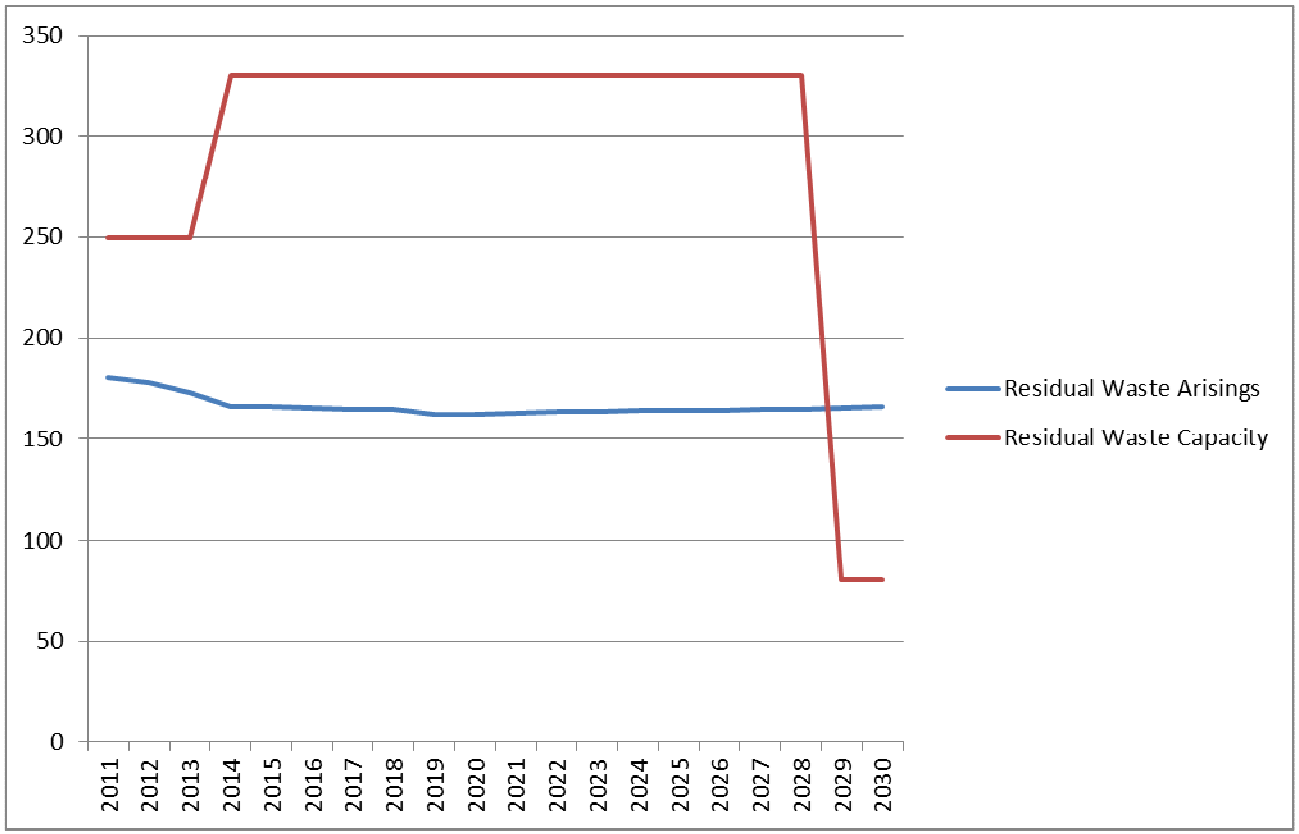


Figure 149: Sunderland Residual Waste Capacity v Arisings, all waste management methods (tonnes)

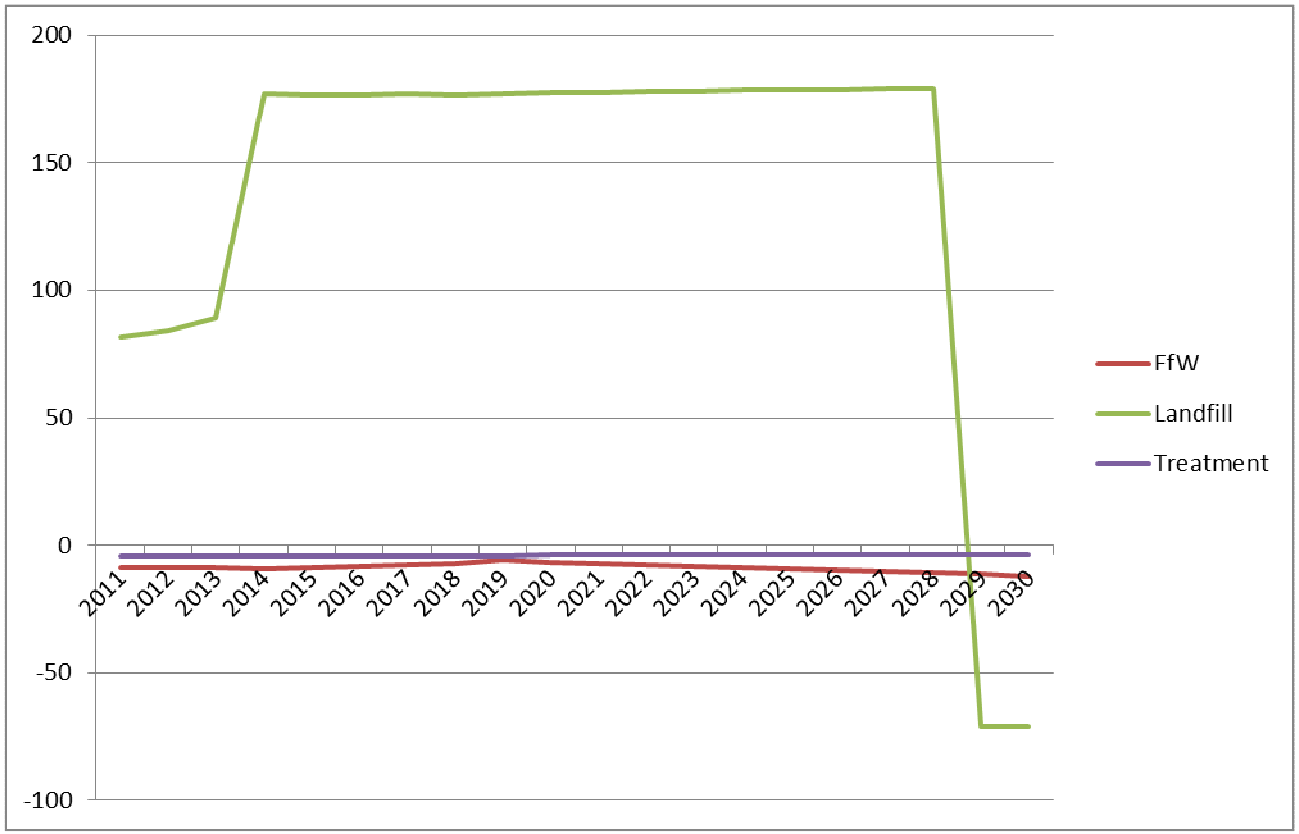


Figure 150: Sunderland Residual Waste Capacity - Arisings, per waste management method (tonnes x 1,000) – negative figures indicate a shortfall

9.3.2. Changes from Baseline: Increased Recycling

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

LACW: (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	34	37	38	43	45	46	47	48	49	50	51	51	51	52	52	52	53	53	54	54
Composting	15	17	21	27	29	30	31	33	35	35	36	36	37	37	37	37	38	38	38	39
Landfill	100	96	93	4	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6
Energy Recovery	0	0	0	81	80	80	79	79	77	78	79	80	80	80	81	81	82	82	83	84
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Arisings	**149**	**150**	**152**	**156**	**158**	**160**	**162**	**165**	**167**	**169**	**171**	**172**	**174**	**175**	**176**	**177**	**178**	**179**	**181**	**183**
% Recycling	**33.2%**	**36.0%**	**39.0%**	**45.4%**	**46.3%**	**47.2%**	**48.1%**	**49.1%**	**50.5%**	**50.6%**	**50.6%**	**50.7%**	**50.7%**	**50.7%**	**50.7%**	**50.8%**	**50.8%**	**50.8%**	**50.9%**	**50.9%**

Commercial and Industrial waste – as baseline

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	120	123	123	129	130	131	132	133	134	133	134	134	134	134	134	134	134	134	135	135
Composting	26	28	32	39	40	41	42	44	46	46	47	47	47	48	48	48	48	48	49	49
Energy Recovery	9	9	9	89	89	88	88	87	86	87	87	88	88	89	89	90	90	90	91	92
Landfill	168	165	161	73	73	73	73	73	73	72	72	72	72	71	71	71	71	71	71	71
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total	**327**	**328**	**328**	**334**	**336**	**338**	**339**	**342**	**342**	**343**	**344**	**345**	**345**	**346**	**346**	**347**	**347**	**348**	**349**	**351**
Recycling rate	44.7%	46.0%	47.3%	50.2%	50.6%	51.0%	51.4%	51.8%	52.5%	52.5%	52.5%	52.5%	52.5%	52.5%	52.5%	52.5%	52.5%	52.5%	52.5%	52.6%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-9	-9	-9	-9	-9	-8	-8	-7	-6	-7	-7	-8	-8	-9	-9	-10	-10	-10	-11	-12
Landfill	82	84	89	177	177	177	177	177	177	178	178	178	178	179	179	179	179	179	179	-71
Treatment	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
Total	69	72	77	164	164	164	165	165	167	167	167	166	166	166	166	165	165	165	164	-86

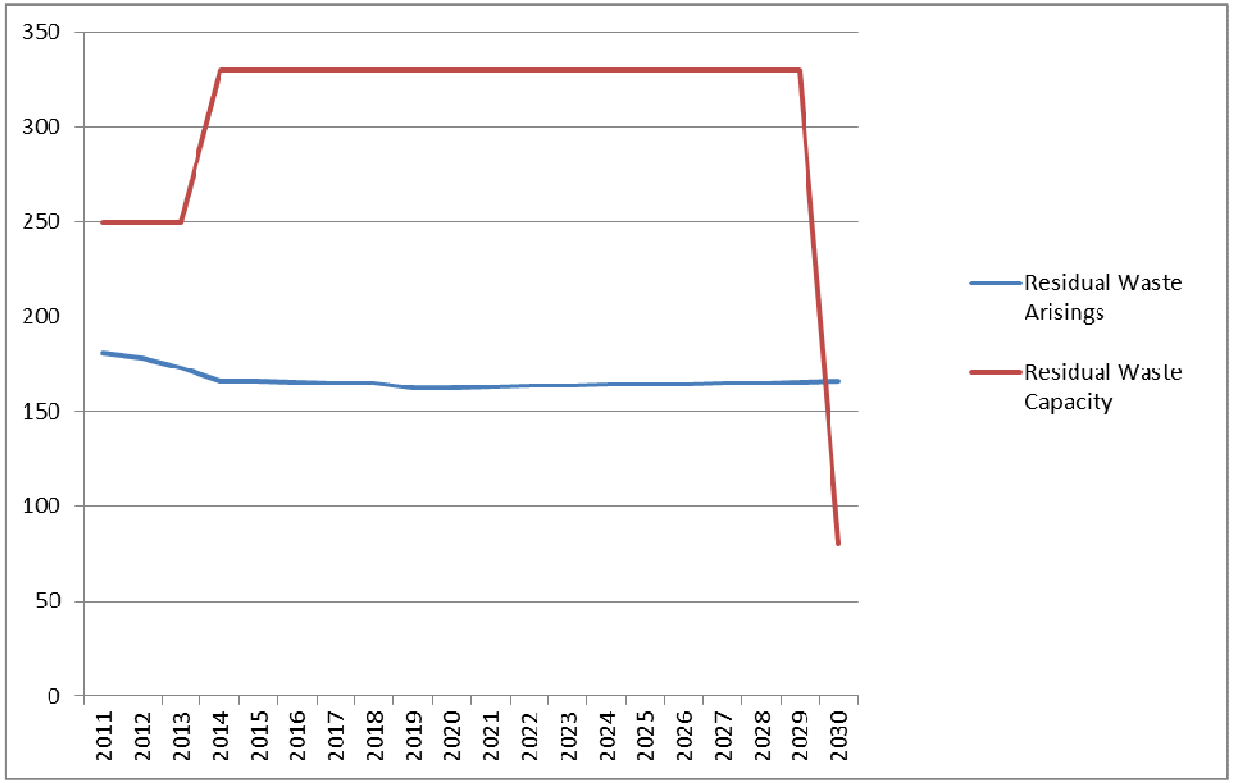


Figure 151: Sunderland Residual waste capacity v arisings all waste management methods: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

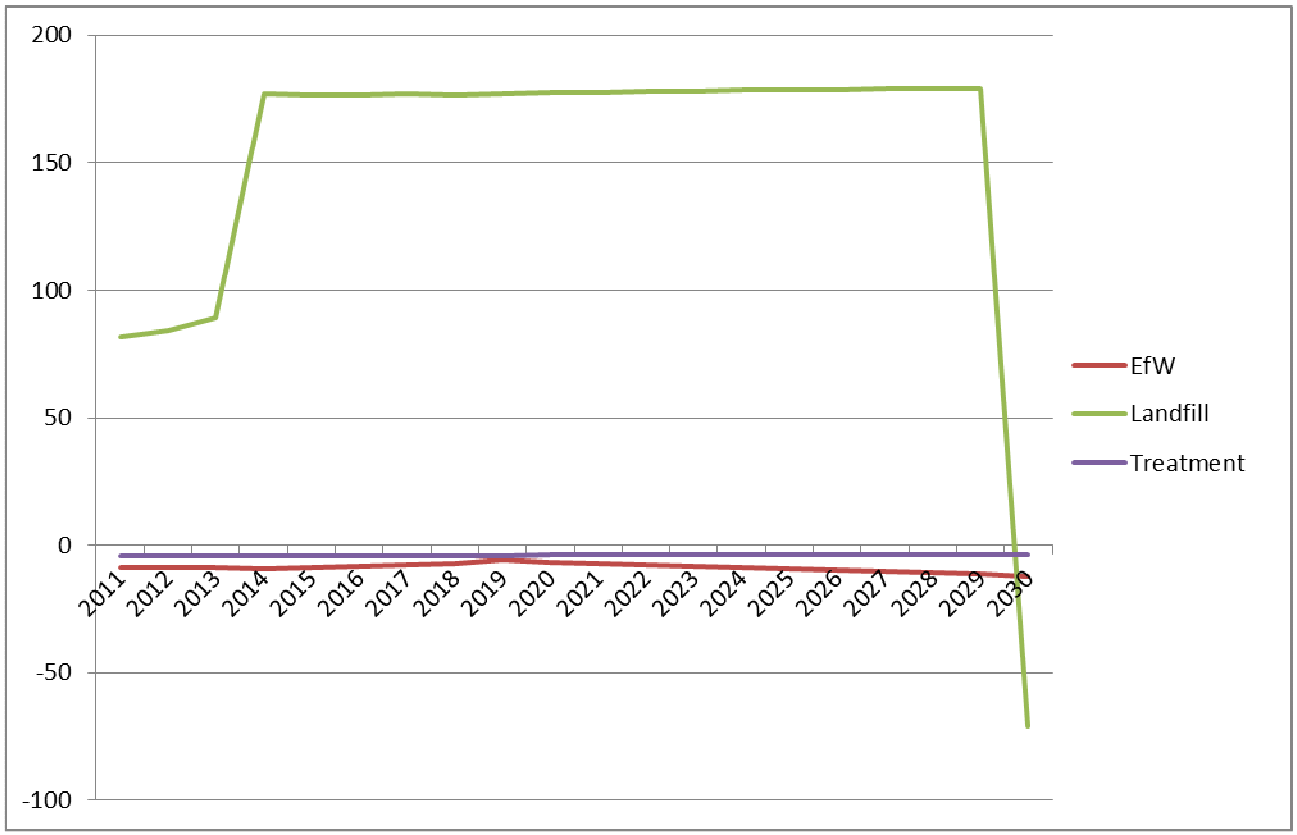


Figure 152: Sunderland Residual Waste Capacity - arisings: Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

LACW – as Scenario 1

C&I Arisings, 60% recycling by 2025 (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	86	87	87	88	89	89	89	90	90	89	90	90	90	90	90	90	90	90	89	89
Composting,	11	11	11	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Energy Recovery	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8
Landfill	68	67	66	66	65	64	63	63	62	60	59	59	58	57	56	56	56	56	55	55
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total	178	178	176	178	178	178	177	177	176	174	173	172	172	171	170	170	169	169	168	168
Recycling & Reuse	**54.7%**	**55.1%**	**55.5%**	**55.9%**	**56.3%**	**56.6%**	**57.0%**	**57.4%**	**57.8%**	**58.2%**	**58.5%**	**58.9%**	**59.3%**	**59.7%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**

Total Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	121	123	125	131	133	135	136	138	139	139	140	141	141	142	143	143	143	143	143	143
Composting	26	28	32	39	40	42	43	44	47	47	48	48	48	49	49	49	49	49	50	50
Energy Recovery	9	9	9	89	89	88	88	87	86	87	87	88	88	89	89	90	90	90	91	92
Landfill	168	165	159	70	70	69	68	68	67	66	65	64	63	62	62	62	61	61	61	61
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total	**327**	**328**	**328**	**334**	**336**	**338**	**339**	**342**	**342**	**343**	**344**	**345**	**345**	**346**	**346**	**347**	**347**	**348**	**349**	**351**
Recycling rate	45.0%	46.0%	47.8%	51.0%	51.6%	52.2%	52.8%	53.4%	54.2%	54.4%	54.6%	54.8%	55.0%	55.2%	55.3%	55.3%	55.3%	55.3%	55.3%	55.3%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-9	-9	-9	-9	-9	-8	-8	-7	-6	-7	-7	-8	-8	-9	-9	-10	-10	-10	-11	-12
Landfill	82	85	91	180	180	181	182	182	183	184	185	186	187	188	188	188	189	189	189	-61
Treatment	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
Total	70	73	79	167	167	168	170	171	173	174	174	174	175	175	175	175	175	175	174	-77

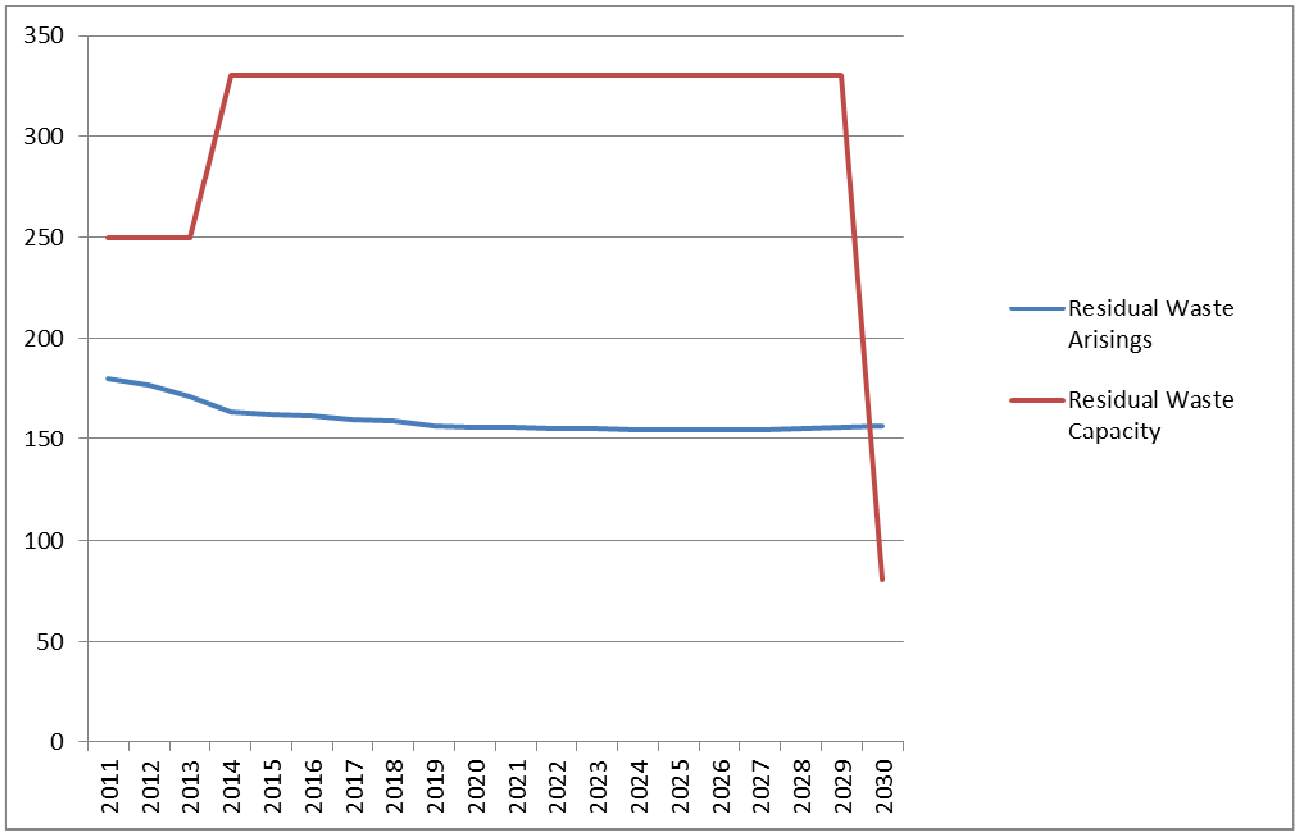


Figure 153: Sunderland Residual waste capacity v arisings all waste management methods: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 60% by 2025

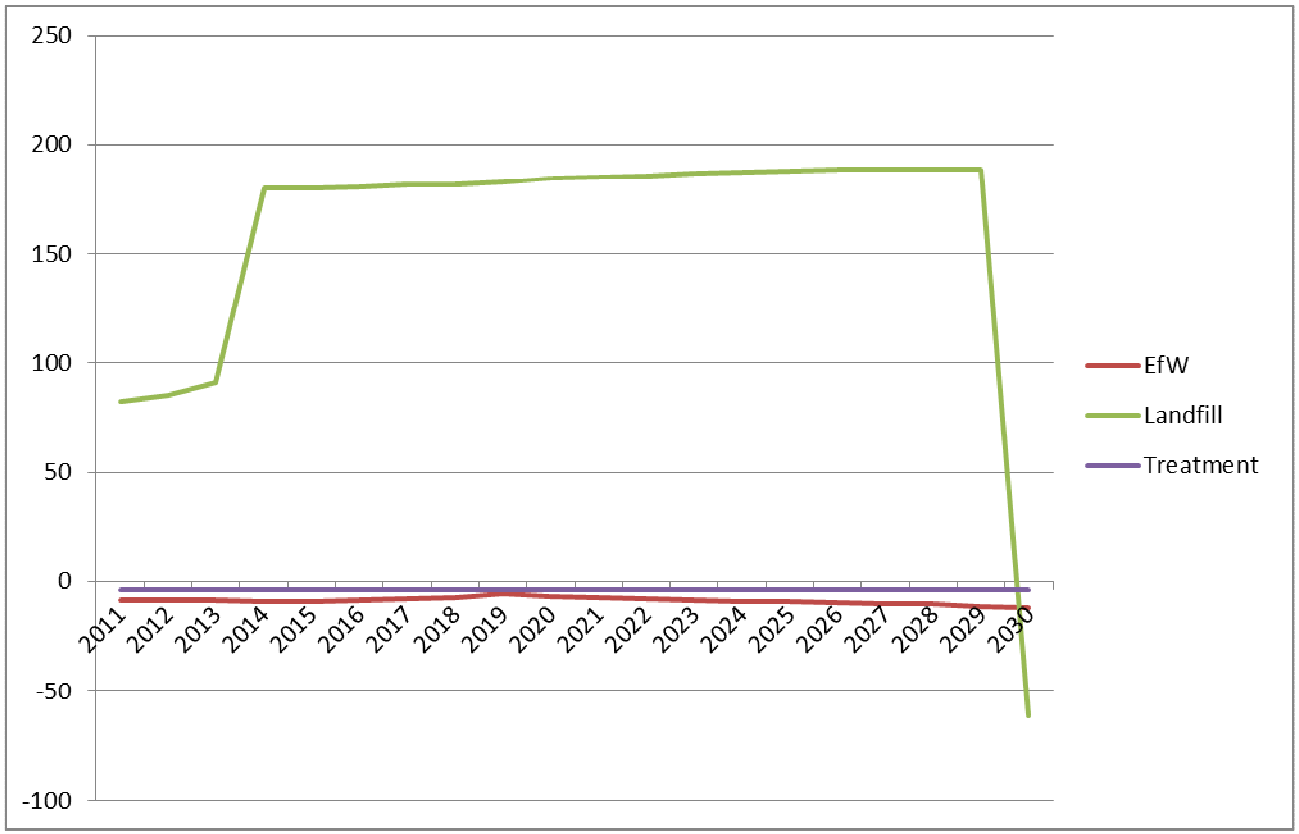


Figure 154: Sunderland Residual Waste Capacity - arisings: Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 60% by 2025

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

LACW – as Scenario 1

C&I Arisings 70% recycling by 2025 (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	87	89	90	92	94	95	96	98	99	99	101	102	103	104	105	105	105	105	104	104
Composting,	11	12	12	12	12	12	13	13	13	13	13	13	13	14	14	14	14	14	14	14
Energy Recovery	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8
Landfill	67	65	63	61	59	57	55	54	51	49	47	45	43	41	39	39	39	39	39	38
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total	178	178	176	178	178	178	177	177	176	174	173	172	172	171	170	170	169	169	168	168
Recycling & Reuse	**55.4%**	**56.4%**	**57.5%**	**58.5%**	**59.6%**	**60.6%**	**61.6%**	**62.7%**	**63.7%**	**64.8%**	**65.8%**	**66.8%**	**67.9%**	**68.9%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**	**70.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	122	125	128	135	138	141	143	146	148	149	151	153	155	156	158	158	158	158	158	158
Composting	27	28	32	39	41	42	44	46	48	48	49	50	50	50	51	51	51	51	52	52
Energy Recovery	9	9	9	89	89	88	88	87	86	87	87	88	88	89	89	90	90	90	91	92
Landfill	166	162	155	66	64	62	60	59	57	54	52	50	48	47	45	45	44	44	44	44
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total	**327**	**328**	**328**	**334**	**336**	**338**	**339**	**342**	**342**	**343**	**344**	**345**	**345**	**346**	**346**	**347**	**347**	**348**	**349**	**351**
Recycling rate	45.3%	46.7%	48.9%	52.4%	53.3%	54.3%	55.2%	56.1%	57.3%	57.8%	58.3%	58.7%	59.2%	59.7%	60.2%	60.2%	60.2%	60.1%	60.1%	60.1%

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-9	-9	-9	-9	-9	-8	-8	-7	-6	-7	-7	-8	-8	-9	-9	-10	-10	-10	-11	-12
Landfill	84	88	95	184	186	188	190	191	193	196	198	200	202	203	205	205	206	206	206	-44
Treatment	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
Total	71	75	82	171	173	175	178	180	184	185	186	188	189	191	192	192	192	191	191	-60

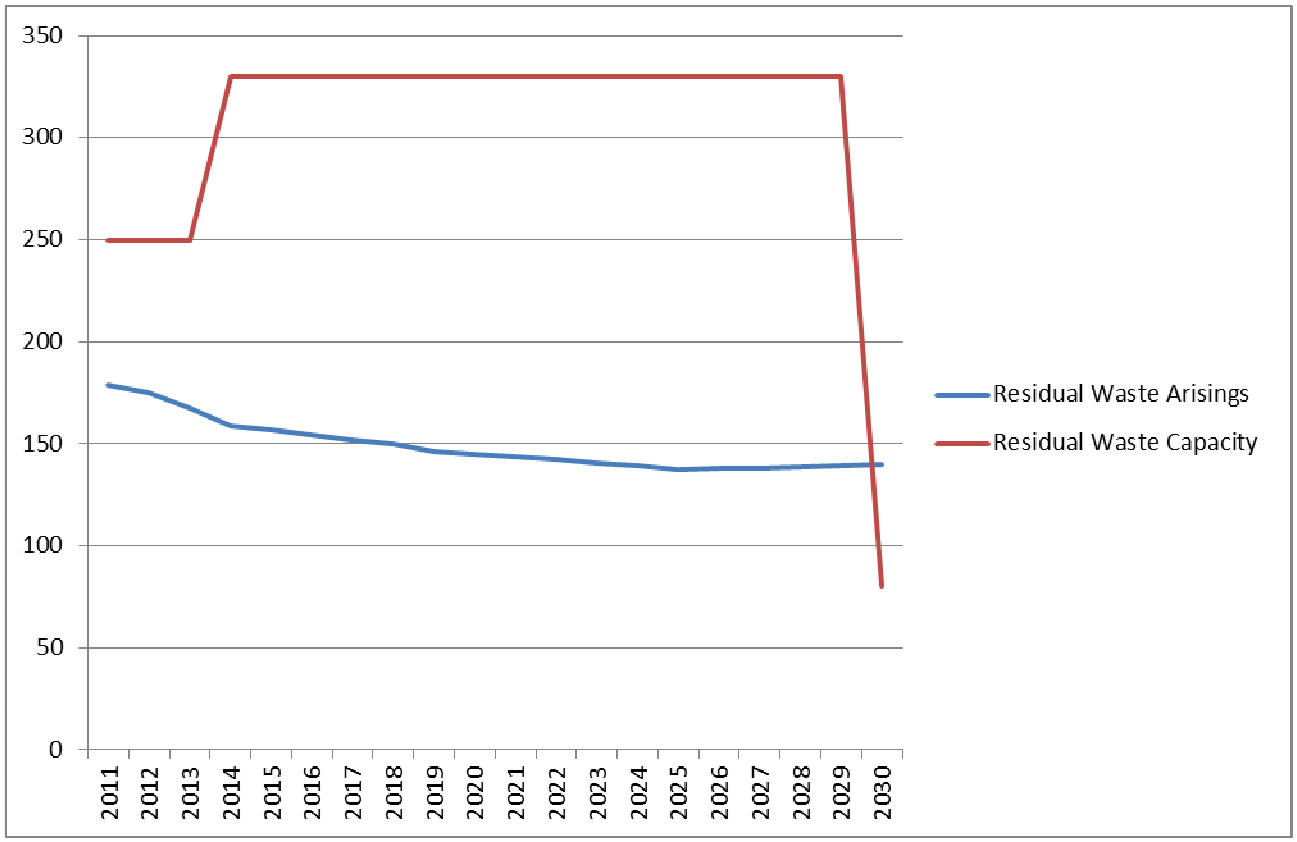


Figure 155: Sunderland Residual waste capacity v arisings all waste management methods: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I recycling 70% by 2025

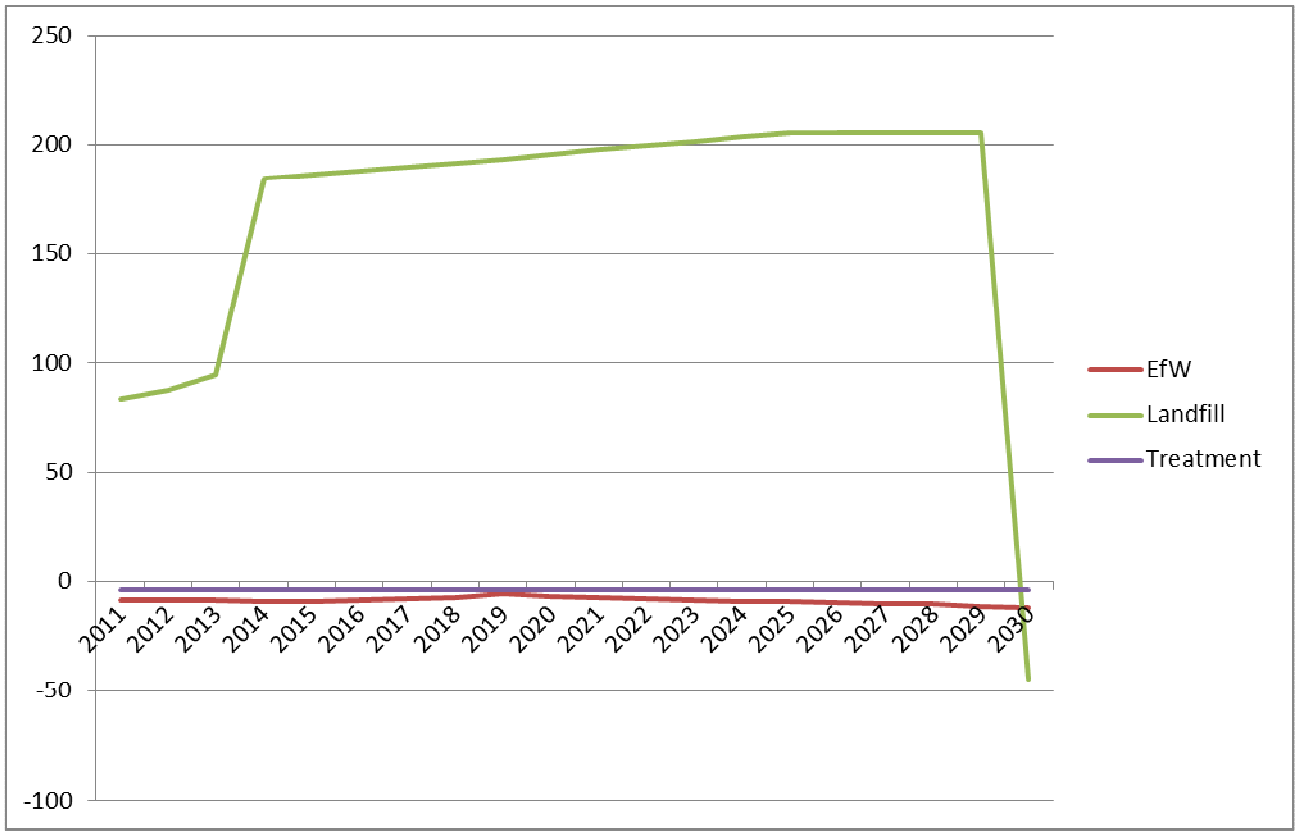


Figure 156: Sunderland Residual Waste Capacity - arisings: Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Recycling 70% by 2025

Scenario Summary

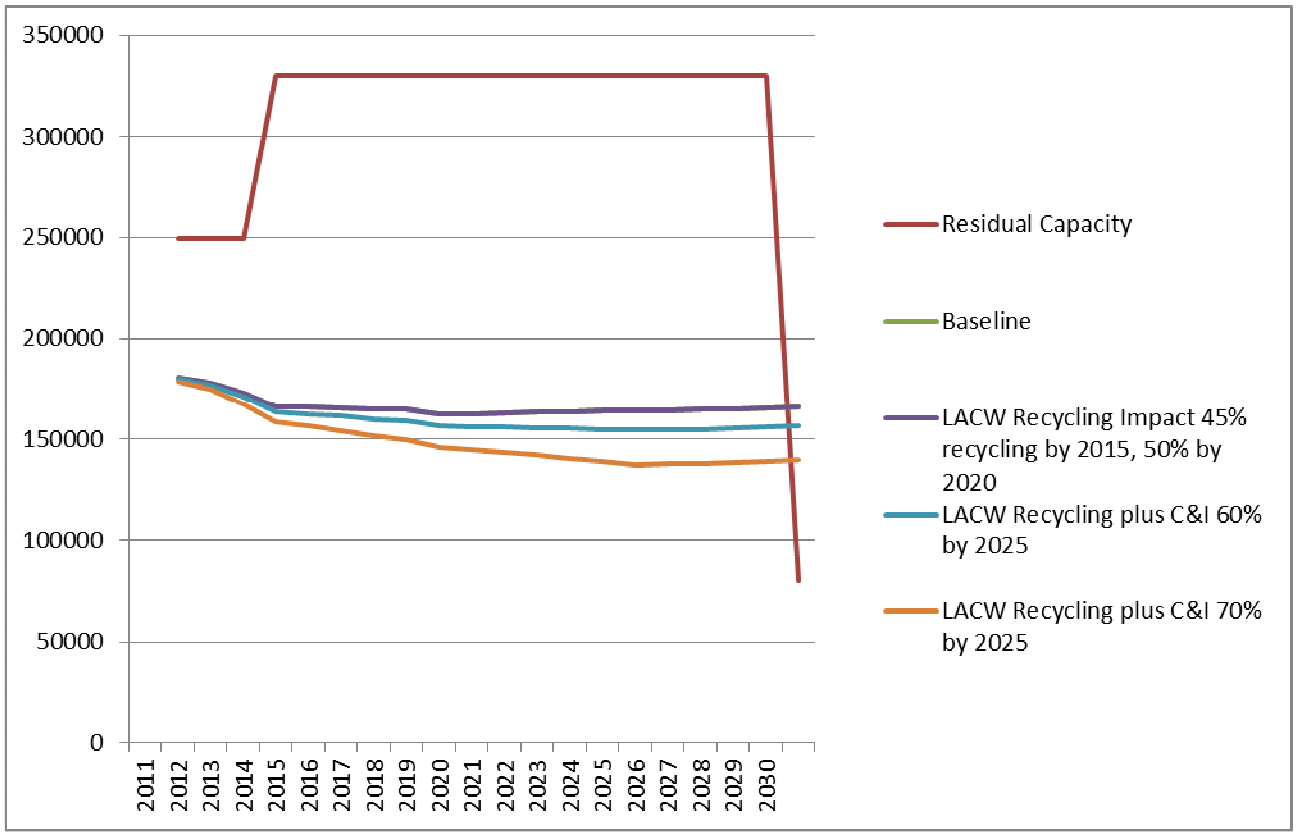


Figure 157: Sunderland Residual Waste Capacity against arisings forecasts, recycling scenarios 1-3

9.3.3. Changes from baseline – increased C&I Landfill Diversion

Scenario 4: LACW as Scenario 1 plus C&I baseline with 75% diversion from landfill by 2020

LACW Arisings as Scenario 1
C&I Arisings baseline plus 75% landfill diversion by 2020 (tonnes x 1,000)

C&I	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycled	86	86	85	86	86	85	85	85	84	84	83	83	83	82	82	82	81	81	81	81
Composting	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Energy Recovery	9	11	14	17	19	22	25	27	30	32	32	32	32	31	31	31	31	31	31	31
Landfill	69	66	63	60	58	55	52	50	47	43	43	43	43	43	43	42	42	42	42	42
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total	178	178	176	178	178	178	177	177	176	174	173	172	172	171	170	170	169	169	168	168
% Recycling	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**	**54.4%**
% Diversion	**61.5%**	**63.0%**	**64.5%**	**66.0%**	**67.5%**	**69.0%**	**70.5%**	**72.0%**	**73.5%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**

Total Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	120	122	123	129	130	131	132	133	134	133	134	134	134	134	134	134	134	134	135	135
Composting	26	28	32	39	40	41	42	44	46	46	47	47	47	48	48	48	48	48	49	49
Energy Recovery	9	11	14	97	100	102	104	106	107	110	111	111	112	112	112	113	113	113	114	115
Landfill	168	163	155	65	62	60	57	55	52	49	49	49	48	48	48	48	48	48	48	48
Treatment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total	**327**	**328**	**328**	**334**	**336**	**338**	**339**	**342**	**342**	**343**	**344**	**345**	**345**	**346**	**346**	**347**	**347**	**348**	**349**	**351**
% Recycling	**44.7%**	**45.6%**	**47.2%**	**50.2%**	**50.6%**	**51.0%**	**51.4%**	**51.8%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.6%**
% Diversion	**48.6%**	**50.3%**	**52.6%**	**80.5%**	**81.4%**	**82.3%**	**83.2%**	**84.0%**	**84.9%**	**85.7%**	**85.8%**	**85.9%**	**86.0%**	**86.0%**	**86.1%**	**86.1%**	**86.2%**	**86.2%**	**86.3%**	**86.3%**

Residual Waste Capacity Differences (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-9	-11	-14	-17	-20	-22	-24	-26	-27	-30	-31	-31	-32	-32	-32	-33	-33	-33	-34	-35
Landfill	82	87	95	185	188	190	193	195	198	201	201	201	202	202	202	202	202	202	202	-48
Treatment	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
Total	69	72	77	164	164	164	165	165	167	167	167	166	166	166	166	165	165	165	164	-86

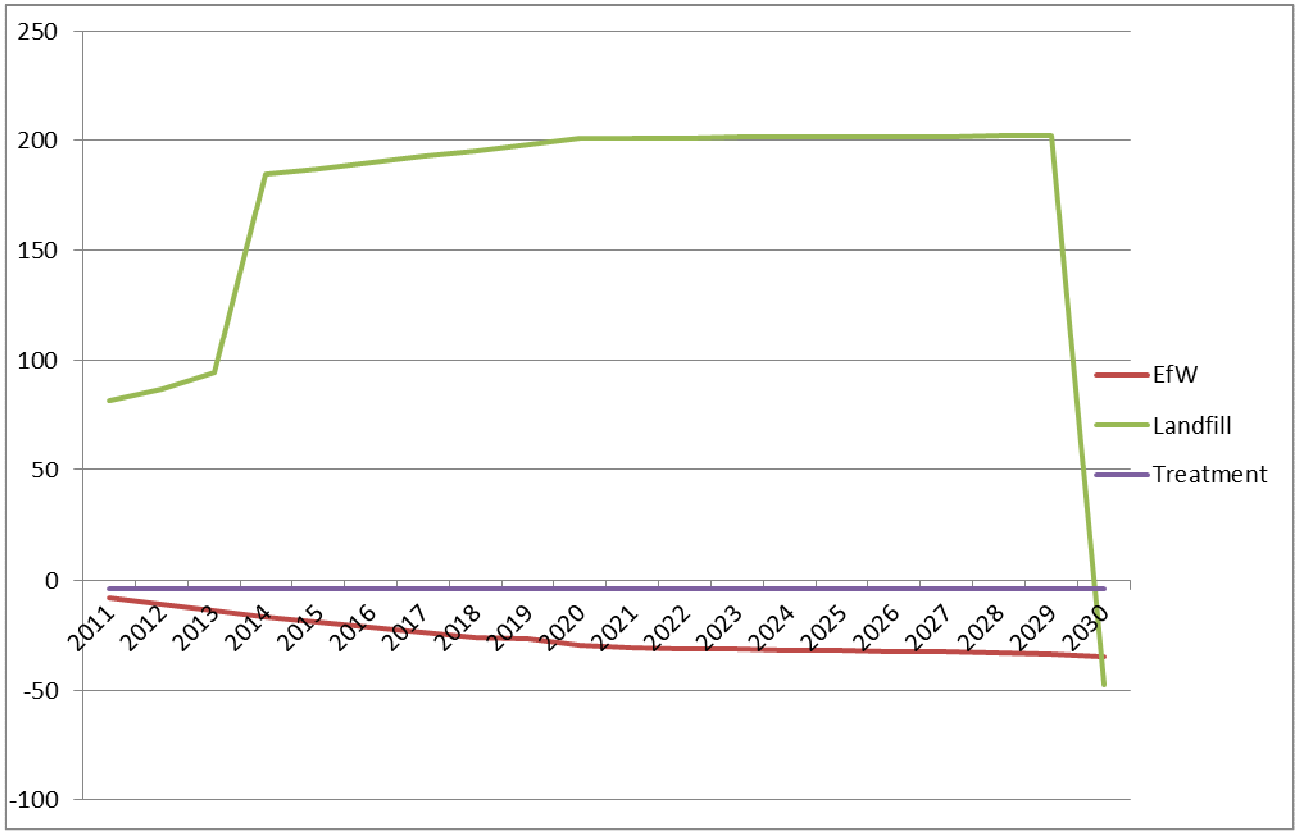


Figure 158: Sunderland Residual Waste Capacity - arisings: Scenario 4: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 and C&I Landfill Diversion 75% by 2020

9.3.4. Modelled Capacity Gaps without Houghton Landfill Extension

Baseline Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-9	-9	-9	-9	-9	-8	-8	-7	-6	-7	-7	-8	-8	-9	-9	-10	-10	-10	-11	-12
Landfill	82	-166	-161	-73	-73	-73	-73	-73	-73	-72	-72	-72	-72	-71	-71	-71	-71	-71	-71	-71
Treatment	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
Total	69	-178	-173	-86	-86	-86	-85	-85	-83	-83	-83	-84	-84	-84	-84	-85	-85	-85	-86	-86

Scenario 1: Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-9	-9	-9	-9	-9	-8	-8	-7	-6	-7	-7	-8	-8	-9	-9	-10	-10	-10	-11	-12
Landfill	82	84	-161	-73	-73	-73	-73	-73	-73	-72	-72	-72	-72	-71	-71	-71	-71	-71	-71	-71
Treatment	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
Total	69	72	-173	-86	-86	-86	-85	-85	-83	-83	-83	-84	-84	-84	-84	-85	-85	-85	-86	-86

Scenario 2 Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-9	-9	-9	-9	-9	-8	-8	-7	-6	-7	-7	-8	-8	-9	-9	-10	-10	-10	-11	-12
Landfill	82	85	-159	-70	-70	-69	-68	-68	-67	-66	-65	-64	-63	-62	-62	-62	-61	-61	-61	-61
Treatment	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
Total	70	73	-171	-83	-83	-82	-80	-79	-77	-76	-76	-76	-75	-75	-75	-75	-75	-75	-76	-77

Scenario 3 Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-9	-9	-9	-9	-9	-8	-8	-7	-6	-7	-7	-8	-8	-9	-9	-10	-10	-10	-11	-12
Landfill	84	88	-155	-66	-64	-62	-60	-59	-57	-54	-52	-50	-48	-47	-45	-45	-44	-44	-44	-44
Treatment	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
Total	71	75	-168	-79	-77	-75	-72	-70	-66	-65	-64	-62	-61	-59	-58	-58	-58	-59	-59	-60

Scenario 4: Capacity – Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EfW	-9	-11	-14	-17	-20	-22	-24	-26	-27	-30	-31	-31	-32	-32	-32	-33	-33	-33	-34	-35
Landfill	82	87	-155	-65	-62	-60	-57	-55	-52	-49	-49	-49	-48	-48	-48	-48	-48	-48	-48	-48
Treatment	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
Total	69	72	-173	-86	-86	-86	-85	-85	-83	-83	-83	-84	-84	-84	-84	-85	-85	-85	-86	-86

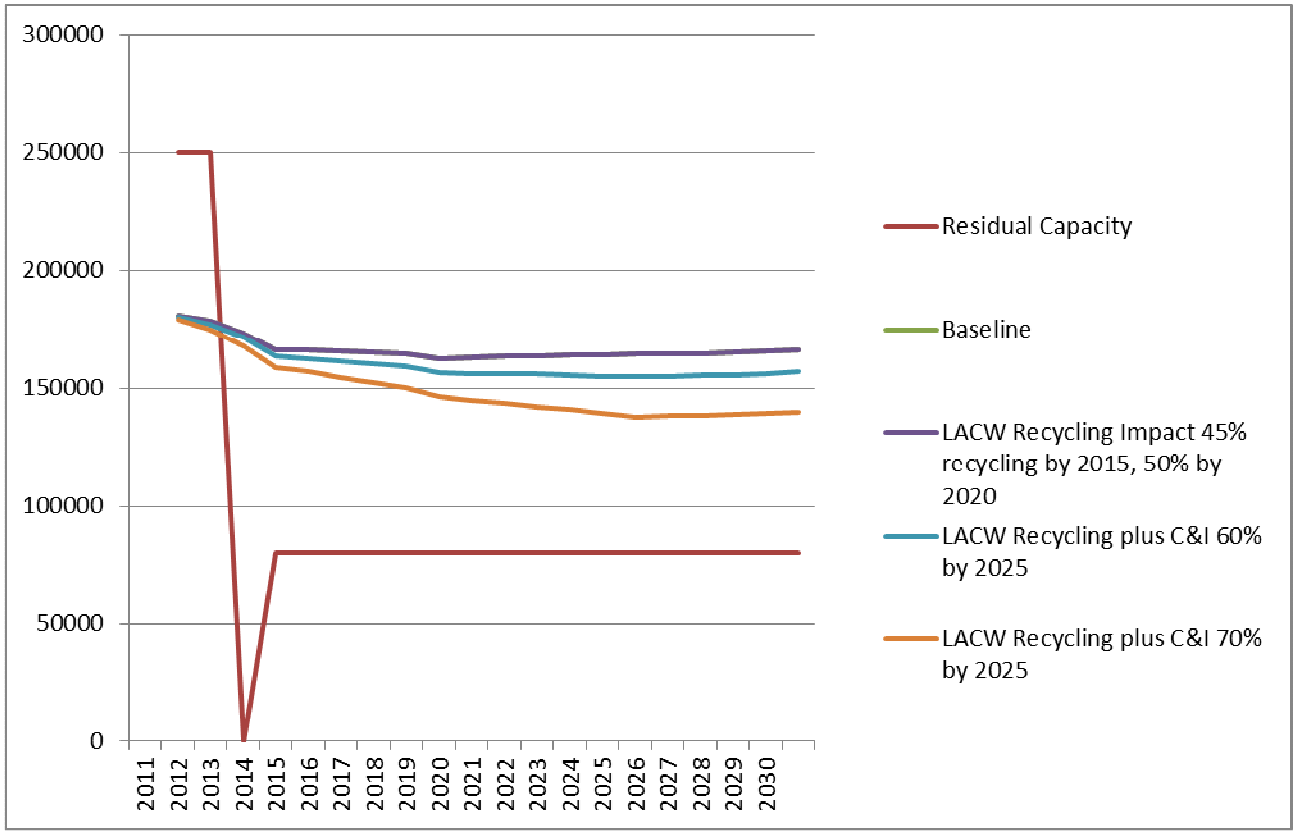


Figure 159: Sunderland Residual Waste Capacity against arisings forecasts, recycling scenarios 1-3 (without Houghton landfill extension post 2012)

9.4. Organic Waste Recycling Arisings and Capacities

Baseline Organic Arisings

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	15	17	21	27	29	30	31	33	35	35	36	36	37	37	37	37	38	38	38	39
From C&I	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Total	26	28	32	39	40	41	42	44	46	46	47	47	47	48	48	48	48	48	49	49

Scenario 1: LACW Recycling Impact 45% recycling by 2015, 50% by 2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	15	17	21	27	29	30	31	33	35	35	36	36	37	37	37	37	38	38	38	39
From C&I	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Total	26	28	32	39	40	41	42	44	46	46	47	47	47	48	48	48	48	48	49	49

Scenario 2: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 60% by 2025

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	15	17	21	27	29	30	31	33	35	35	36	36	37	37	37	37	38	38	38	39
From C&I	11	11	11	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Total	26	28	32	39	40	42	43	44	47	47	48	48	48	49	49	49	49	49	50	50

Scenario 3: LACW Recycling Impact 45% recycling by 2015, 50% by 2020 Plus C&I 70% by 2025

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
From LACW	15	17	21	27	29	30	31	33	35	35	36	36	37	37	37	37	38	38	38	39
From C&I	11	12	12	12	12	12	13	13	13	13	13	13	13	14	14	14	14	14	14	14
Total	27	28	32	39	41	42	44	46	48	48	49	50	50	50	51	51	51	51	52	52

Processing Capacity

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Composting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

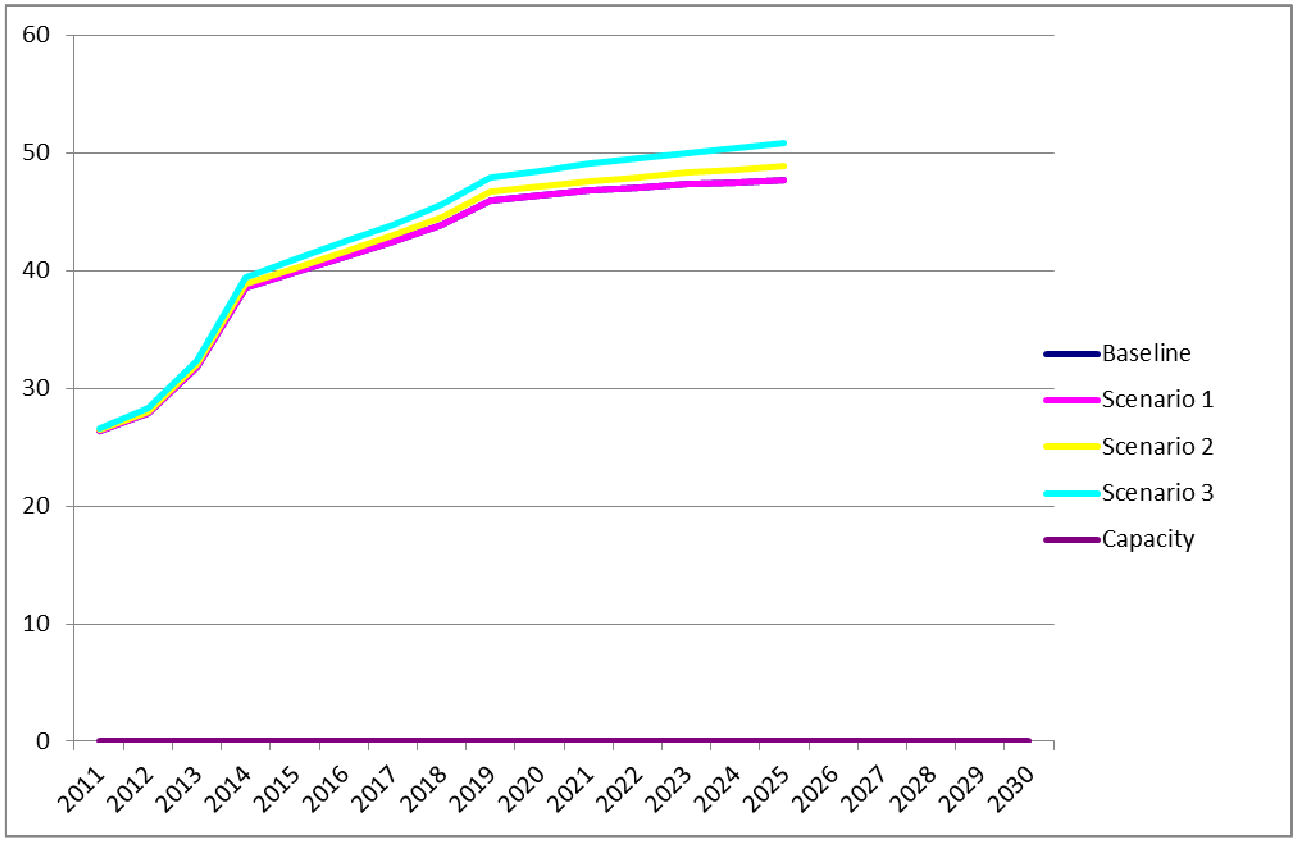


Figure 160: Sunderland - organic recycling forecast arisings v processing capacity (tonnes x 1,000)

9.5. Hazardous Waste Arisings and Capacities

Waste Fate	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Incineration	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Landfill	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Recovery	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Treatment	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Grand Total	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**

Figure 161: Sunderland Forecast Hazardous Waste Arisings (tonnes x 1,000)

Facility	Non Operational	Operational	Grand Total
Haz Transfer Station		1,186,541	1,186,541
Grand Total		1,186,541	1,186,541

Figure 162: Sunderland Hazardous Waste Processing Capacity (tonnes)

10. Key Facilities Capacities

10.1. Organic Recycling

	Site Name	Facility Type	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
County Durham	Conservation Centre, Deepdale	Composting	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
County Durham	Aycliffe Quarry	Anaerobic Digestion	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112
County Durham	Bunker Hill Farm, Leadgate	Open windrow	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
County Durham	EVK Contractors	Open windrow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
County Durham	Emerald Biogas	Anaerobic Digestion	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
County Durham	Joint Stocks Coxhoe	Open windrow	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175
County Durham	Junction House Farm	Open windrow	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
County Durham	Murton Hall Farm, Trimdon	Open windrow	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
County Durham	Todhills Farm , Newfield	Open windrow	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
County Durham	Scoby Scaur	Open windrow	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Gateshead	Greentech Recycling	Windrow Composting	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
Newcastle	Sandhills	Windrow Composting	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Northumberland	Anick Grange	Windrow Composting	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Northumberland	Codlaw Dene	Windrow Composting	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

	Site Name	Facility Type	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Northumberland	Bedlington Lane Farm	Windrow Composting	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Northumberland	SENREC Composting Facility	Windrow Composting	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Northumberland	Ellington Road IVC Facility	Windrow Composting	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Northumberland	Ellington Green Waste Composting Facility	Windrow Composting	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Totals			599	599	599	599	424	424	424	424	424	424	424	424	424	424	424	424	424	424	424	424

10.2. Residual Waste

WPA	Site Name	Type	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
County Durham	Aycliffe East	MBT	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127
County Durham	Aggregated figures	Landfill	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	98	98
Gateshead	Blaydon Quarry Landfill Site	Landfill	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	0	0	0	0
Gateshead	Path Head Landfill Site	Landfill	310	310	310	310	310	310	310	0	0	0	0	0	0	0	0	0	0	0	0	0
Gateshead	Derwenthaugh Ind Est Treated Biomass Composting Facility	Autoclave	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160
Newcastle	Byker Reclamation	MBT/MRF	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Northumberland	Ellington Road Landfill Site	Landfill	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45

WPA	Site Name	Type	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Northumberland	Seghill Landfill Site	Landfill	200	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunderland	Houghton Quarry Landfill Site	Landfill	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	0
Sunderland	Springwell Quarry	Landfill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tees Valley	Teesport - No 2	Landfill	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	0	0	0	0	0
Tees Valley	Cowpen Bewley Landfill Site	Landfill	300	300	300	300	300	300	300	300	300	300	0	0	0	0	0	0	0	0	0	0
Tees Valley	Port Clarence Landfill	Landfill	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tees Valley	Haverton Hill 1	EfW	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390
Tees Valley	Haverton Hill 2	EfW	0	0	0	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256
Tees Valley	Seaton Meadows Landfill	landfill	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Totals		EfW	390	390	390	646	646	646	646	646	646	646	646	646	646	646	646	646	646	646	646	646
		Landfill	1,804	1,804	1,604	1,604	1,604	1,604	1,454	1,144	1,144	1,144	844	844	844	844	844	774	594	594	494	244
		MBT/Autoclave /other	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437
		Total	2,631	2,631	2,431	2,687	2,687	2,687	2,537	2,227	2,227	2,227	1,927	1,927	1,927	1,927	1,927	1,857	1,677	1,677	1,577	1,327

Capacities in tonnes x 1,000 per annum

11. Tees Valley Waste Arisings & Capacities (for regional assessment)

Baseline Municipal Waste Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling	89	92	95	98	101	104	107	110	113	116	119	122	125	128	131	134	137	140	143	146
Composting	46	47	49	50	52	54	55	57	58	60	61	63	64	66	68	69	71	72	74	75
Recovery	281	280	279	277	276	275	273	271	269	267	265	263	261	259	257	255	253	251	249	248
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Arisings	416	419	422	426	429	432	435	437	440	443	445	448	451	453	456	459	461	464	466	469
% Recycling	**32.4%**	**33.3%**	**34.1%**	**34.9%**	**35.6%**	**36.5%**	**37.3%**	**38.1%**	**38.9%**	**39.7%**	**40.5%**	**41.3%**	**42.1%**	**42.8%**	**43.6%**	**44.3%**	**45.1%**	**45.8%**	**46.5%**	**47.2%**

Baseline Commercial & Industrial Waste Arisings (tonnes x 1,000)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Recycling & Reuse	269	269	262	264	262	260	258	259	255	250	247	245	243	241	239	238	236	234	232	231
Composting, AD and landspread	78	78	76	76	76	75	75	75	74	72	71	71	70	70	69	69	68	68	67	67
Energy Recovery	74	74	73	73	72	72	71	72	70	69	68	68	67	67	66	66	65	65	64	64
Landfill	231	231	225	226	225	223	222	222	218	214	212	210	209	207	205	204	202	201	199	198
Treatment	18	18	18	18	18	18	18	18	17	17	17	17	17	16	16	16	16	16	16	16
Total	671	670	654	657	652	648	643	645	634	622	616	611	606	601	596	592	587	583	579	575

Hazardous Waste Arisings (tonnes x 1,000)

Waste Fate	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Incineration	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4
Landfill	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6
Recovery	37	37	36	36	36	36	36	36	35	34	34	34	34	33	33	33	33	32	32	32
Treatment	22	22	22	22	21	21	21	21	21	20	20	20	20	20	20	19	19	19	19	19
Grand Total	**71**	**71**	**69**	**70**	**69**	**69**	**68**	**68**	**67**	**66**	**65**	**65**	**64**	**64**	**63**	**63**	**62**	**62**	**61**	**61**

Key Waste Facilities and Capacities (tonnes)

Facility	Non-operational	Operational	Grand Total
Autoclave	300,000		300,000
Energy from Waste		200,000	200,000
Haz Landfill	4,999	742,894	747,893
Non-Haz Landfill		850,400	850,400
Treatment		25,000	25,000
Grand Total	304,999	1,818,294	2,123,293

Capacity is EA licensed capacity
Source: Environment Agency

Hazardous Waste Capacities (tonnes)

Facility	Non-operational	Operational	Grand Total
Haz Landfill	4,999	742,894	747,893
Grand Total	4,999	742,894	747,893

12. SIC codes and industrial sectors

Sector	Type	SICRange	SectorName
Food, drink and tobacco	Industrial	150-160	Manufacture of food products, beverages and tobacco products
Textiles/wood/paper/publishir	Industrial	170-193	Manufacture of textiles, wearing apparel, leather, luggage, handbags and footwear
	Industrial	200-205	Wood and wood products
	Industrial	210-212	Manufacture of pulp, paper and paper products
	Industrial	220-223	Publishing, printing and recording
Power and utilities	Industrial	230-233, 400-410	Manufacture of coke and refined petroleum products Production of oil, gas, electricity, steam Water collection, treatment and supply water
Chemicals/non-metallic minerals manufacturing	Industrial	240-252	Manufacture of chemicals and chemical products; basic pharmaceutical products and pharmaceutical preparations, rubber and plastic products
	Industrial	260-268	Other non-metallic mineral products
Metal manufacturing	Industrial	270-275	Manufacture of basic metals
	Industrial	280-287	Manufacture of fabricated metal products
Machinery and equipment |other manufacturing)	Industrial	290-297	Manufacture of machinery and equipment
	Industrial	300-335	Manufacture of office machinery, computers, electrical, radio, television and communication equipment; medical and optical instruments and clocks
	Industrial	340-355	Manufacture of motor vehicles and other transport equipment
	Industrial	360-366	Furniture and other manufacturing
	Industrial	370-372	RECYCLING (excluded from waste production estimates to avoid double counting)
Retail and wholesale	Commercial	500-527	Retail - motor vehicles, parts and fuel; wholesale; other retail
Hotels and catering	Commercial	550-555	Hotels, catering
Public administration and social work	Commercial	750-753, 853	Social work and public administration
Education	Commercial	800-804	Education
Transport and storage	Commercial	600-632, 640-642	Transport, storage, communications
Other services	Commercial	633-634, 650-726, 740-748, 910-930	Travel agents, other business, finance, real estate and computer related activities
	Commercial	730-732, 850-852	Miscellaneous