



# Waste Markets Study - Executive Summary



**AGRICULTURE, ENVIRONMENT AND MARINE**

# Executive Summary

## Introduction

The Waste (Scotland) Regulations 2012 ban biodegradable municipal waste (BMW) from landfill in Scotland from the 1st of January 2021.<sup>1</sup> In preparation for the regulations coming into force, Eunomia Research & Consulting was commissioned by the Scottish Government to report on the current and future markets for the disposal and recovery of BMW. The aims of this work were:

- to consider the availability and costs of disposing of Scottish biodegradable municipal waste in other UK landfills or recovering energy in Energy from Waste (EfW) plants.
- to consider the opportunities and costs of recovering of Scottish biodegradable municipal waste by exporting the material as refuse derived fuel (RDF) to continental or Irish EfW facilities.

## Overview of Waste Markets

### Market Readiness

Despite the significant notice that has been provided of the ban, the alternative waste management options that will be needed may not be available at sufficient scale or at an affordable price at the point when the ban commences. Based on 2017 figures, fourteen local authorities, accounting for 55.5% of residual household waste (744k tonnes), have already made the financial investment to ensure solutions are in place before the ban. However, three authorities (7.6% of household waste – 99k tonnes) have long term solutions in place post 2021 but no firm interim solution and six authorities (13.3% of household waste – 177k tonnes) have an interim but no long-term solution secured. Nine authorities (23.6% of household waste – 315k tonnes) have no alternative arrangements in place.

Commercial waste operators do not appear yet to have made adequate preparations for the ban. Where strategies are in development, they are primarily focussed on transporting waste, either to landfill or treatment infrastructure in Northern England or into thermal treatment capacity abroad.

### Capacity Modelling

Eunomia's national level capacity modelling found that there will be insufficient residual waste treatment capacity in Scotland available to deal with waste

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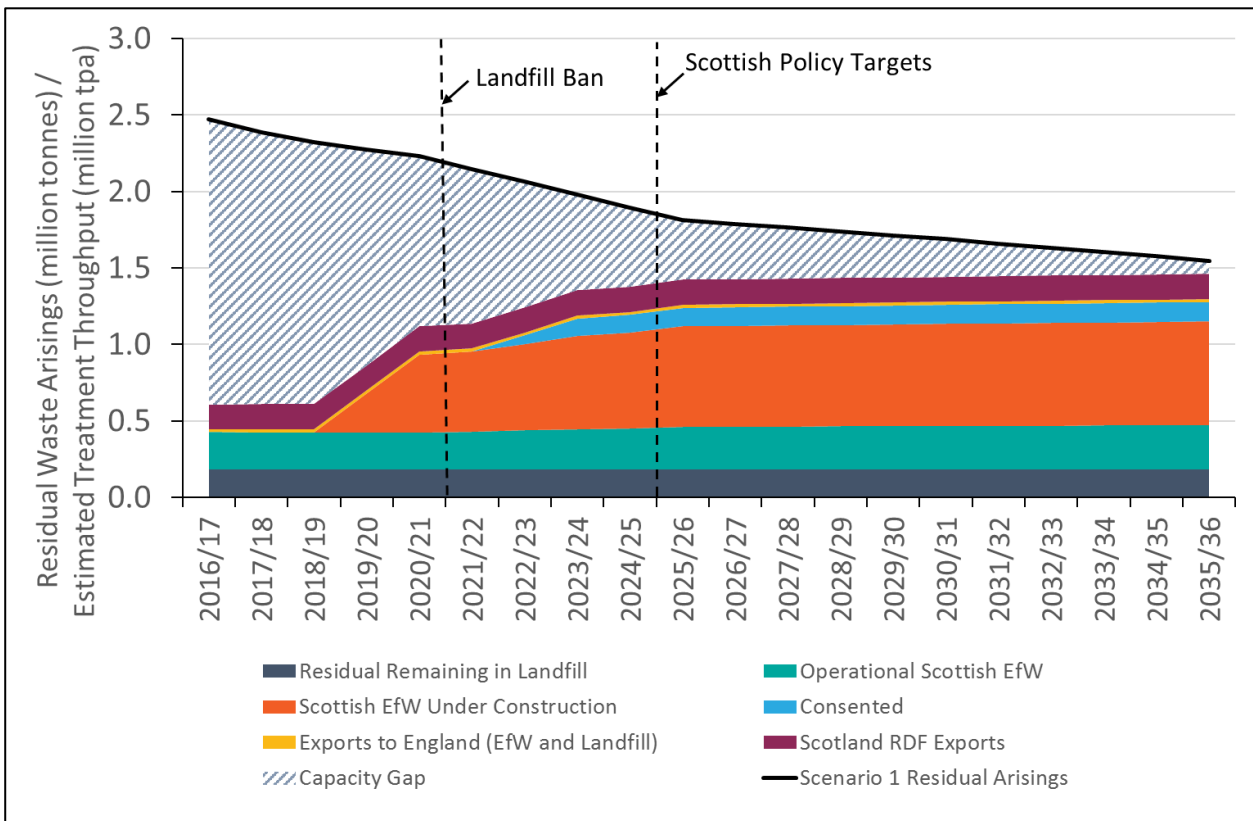
<sup>1</sup> Biodegradable waste is defined (in Regulation 2 (1) of the Regulations as “any waste capable of undergoing anaerobic or aerobic decomposition such as food, garden waste, paper and cardboard”.

Municipal waste is defined (in Regulation 2 (1) of the Regulations as “waste from households as well as other waste which, because of its nature or composition, is similar to waste from households”.

generated once the ban is put in place. The extent of this gap will depend on the level of recycling that is achieved.

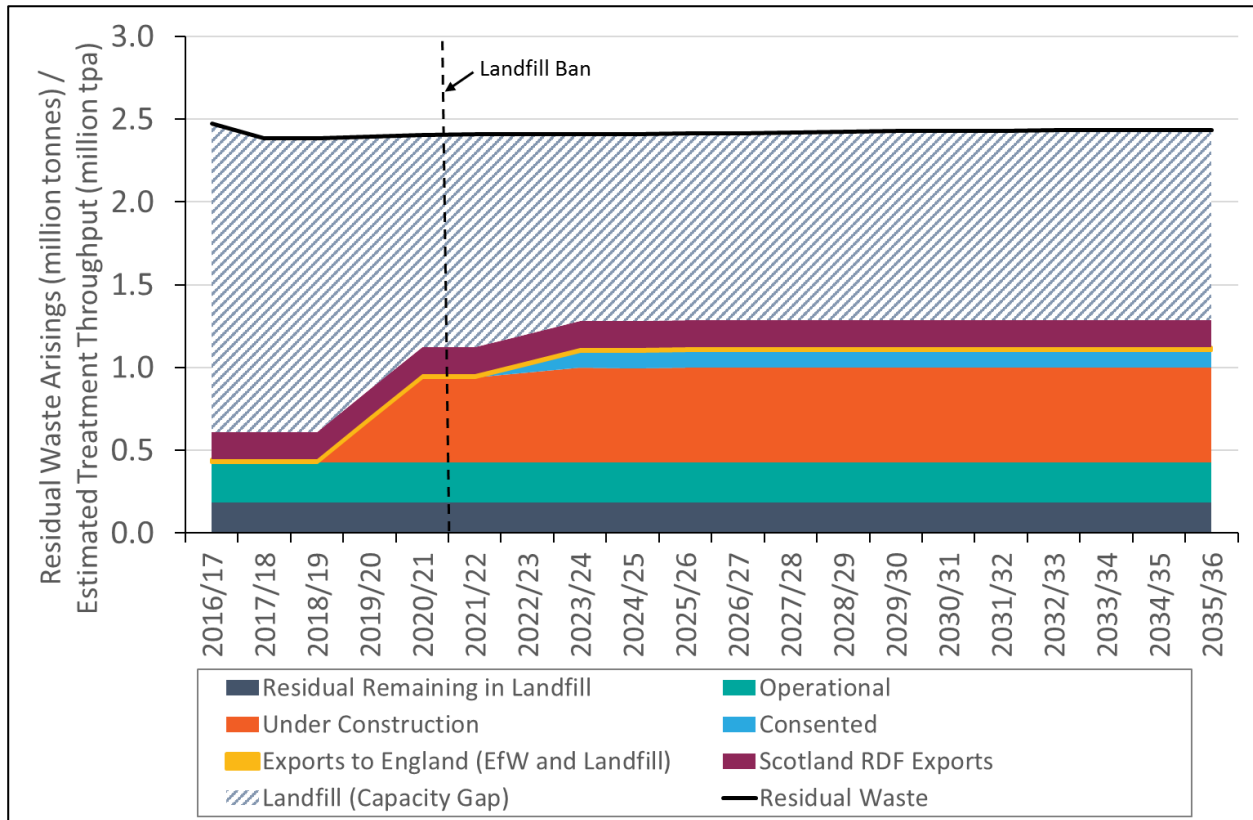
Two scenarios were modelled – Scenario 1, in which Scotland meets planned and likely recycling and waste prevention targets through to 2035; and Scenario 2, in which recycling remains at current levels and waste generation increases. In Scenario 1, at the point where the ban is introduced in 2021, Scotland has a shortfall of 1.01 million tonnes of treatment capacity compared with generation, falling to 0.09 million tonnes per annum by 2035.

**Figure 1: Scenario 1: Recycling Target - Capacity Modelling**



In scenario 2, residual waste generation increases marginally up to a total of 2.40 million tonnes at the time when the ban comes into effect and 2.43 million tonnes by 2035. This leaves a capacity gap of 1.28 million tonnes at 1 January 2021, which decreases slightly as new facilities come on stream through to 2023/24 before growth in waste arisings increases it to 1.15 million tonnes by 2035.

**Figure 2: Scenario 2: Business as Usual - Capacity Modelling**



The modelling examines two options available to deal with any capacity gap that may occur:

- Option 1: Scotland could make use of spare capacity in residual waste treatment facilities in England or continental Europe, or landfills in Northern England. The treatment facilities have substantial capacity, but much of this is already in use, making it challenging for Scottish waste collectors to secure capacity without incurring significant additional costs, particularly in the short-term post 2021. Consented English landfill capacity is finite, and if such sites receive Scotland’s waste, the date when current landfill capacity in Northern England reaches capacity appears likely to move forward to as early as 2024 or 2025.
- Option 2: Scotland could construct its own additional treatment facilities, although it would not be feasible to bring on stream by 2021 sufficient capacity to bridge the capacity gap, meaning an interim solution would still be required.

## Cost Implications for Scotland

### Financial Costs

Scottish landfill disposal costs currently act as a cap on waste disposal costs in Scotland – alternative options must be able to compete with landfill on price. The

ban will mean that English landfill costs (inclusive of haulage) will replace Scottish landfill as the market cap post-2021 at least as long as capacity remains available. This is likely to create something of a shock to the market. While local authorities that have already secured a solution (rank 1 authorities) will not be affected by the policy, those with no solution in place (rank 4 authorities) – interim or otherwise – are likely to experience significant marginal costs in cash terms. The highest costs in the short term are likely to fall on a small number of authorities that have a long-term solution in place that comes in post-2021 but due to their location will have little option but to rely on the export market for a short interim period starting immediately after the ban (rank 2 authorities). Those with short term solutions in place that are yet to develop long term plans (rank 3 authorities) may be less affected as the market may well stabilise by the time they need to procure new solutions.

If Scotland builds additional thermal treatment capacity, this will result in a somewhat smaller increase in marginal cost per tonne than export options in the medium-term. However, as the market stabilises, the option to export may become more favourable.

Commercial waste collectors will also experience additional costs and disruption. Some operators may not be sufficiently financially robust to compete in the changed market, which may create costs and opportunities for local authorities as collectors of commercial waste.

## **Economic Costs**

Table 1 presents the economic modelling results for the 2021-2030 period. Negative figures indicate a cost to Scotland, while positive figures represent an economic benefit to Scotland. Excluding consideration of waste minimisation and recycling, the ban will result in significant economic costs to Scotland due to the need to export an increased amount of residual waste – whether as an interim solution until new thermal treatment capacity comes online, or as a long-term solution. This has the effect of exporting revenue to English or continental landfill or treatment providers. The transition from landfill to alternative treatment will also result in a reduction in revenue to the Scottish Government as landfill tax receipts reduce. Uptake of alternative treatment solutions to comply with the ban will result in increased haulage distances, which contribute to the increase in costs and also give rise to additional emissions. This is offset by the emissions avoided through a reduction in waste sent to landfill, with environmental performance improving as 2030 approaches, resulting in an overall environmental benefit to Scotland.

The scale of these economic costs and impacts will depend on the extent to which waste minimisation and recycling targets can be met. The greater the recycling rate that can be achieved, the smaller the amount of residual waste that will need to be managed, lessening the economic impact upon Scotland.

In Option 2, the economic costs of the policy are mitigated by building additional new incinerator capacity in Scotland, which in later years reduces the amount of

waste (and therefore revenue) that is exported. It also helps to limit haulage distances.

Analysis of the allocation of economic impacts shows that waste collectors – both local authorities and private collection contractors – will incur the greatest costs. Hauliers and exporters will see an economic benefit.

Under both scenarios, Option 1 sees economic costs being incurred throughout the time period evaluated, as waste continues to leave Scotland in significant quantities throughout. Under Option 2, once the new treatment facilities come onstream in 2025, there is no longer an annual economic cost to Scotland each year, but the economic benefits achieved are not sufficient to outweigh the costs incurred between 2021 and 2024.

The environmental modelling takes account of treatment emissions that occur within Scotland; thus, options in which material is exported for treatment may look environmentally favourable.

**Table 1: Economic Modelling Results**

Industry		NPV (£m)			
		Scenario 1: Option 1	Scenario 1: Option 2	Scenario 2: Option 1	Scenario 2: Option 2
Public Authorities		-853	-842	-1,132	-1,114
Waste Collectors		-770	-713	-953	-879
Haulage	Household	54	44	70	52
	C&I	34	21	41	24
Exporters	Household	46	43	58	51
	C&I	102	55	126	63
Scottish Treatment/Landfill Providers	Household	464	649	648	897
	C&I	-61	312	-71	420
<b>Total Economic</b>		<b>-984</b>	<b>-430</b>	<b>-1,213</b>	<b>-486</b>
<b>Total Environmental</b>		<b>40</b>	<b>16</b>	<b>57</b>	<b>37</b>
<b>COMBINED TOTAL</b>		<b>-943</b>	<b>-414</b>	<b>-1,156</b>	<b>-449</b>

*Note: figures may not sum to the totals due to rounding.*

## Conclusions

Despite the lead-time since the ban was announced in 2012, insufficient residual waste treatment capacity has been brought through into development to meet the expected level of need in Scotland. The availability of capacity in the UK and European export markets to take Scotland's waste is likely to be limited in the short term as demand for waste treatment in these markets currently outstrips supply. More capacity may become available in the longer term as increases in recycling may result in supply outstripping demand.

In the short term, the ban is likely to lead to a significant rise in residual waste treatment costs for organisations that have not already secured a long-term contract, as the price of local landfill will no longer restrict gate fees and there will be greater reliance on exports, whose price will be likely to be set by reference to the next cheapest option – typically, landfill in England.

Over time, the market is likely to stabilise at a price a little above the current level. Prices will be lower in the medium term if additional incineration capacity is built in Scotland, though in the longer term export may be more favourable. Costs will be lower if high levels of recycling are achieved.

It should be noted that this study focuses on the impact of the ban on the cost and benefits of the disposal of residual waste. The impact upon waste reduction, reuse and recycling is not considered. The likely substantial economic and environmental benefit that might be expected from the increase in reuse and recycling is therefore not reflected in these results.



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