

Report



# ECONOMIC ASSESSMENT OF THE ZERO WASTE PLAN FOR SCOTLAND

**Note on key findings**

July 2011

Zero Waste Scotland works with businesses,  
individuals, communities and local authorities to  
help them reduce waste, recycle more and use  
resources sustainably.

Find out more at [www.zerowastescotland.org.uk](http://www.zerowastescotland.org.uk)

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## Context

Waste can no longer be viewed as something to discard- it has real world value that can be harnessed to deliver environmental improvements, sustainable economic growth and green energy. This vision is embodied in the Scottish Government's Zero Waste Plan, which includes a target of recycling 70% of Scotland waste by 2025. The proposed zero waste regulations, which were consulted in early 2011, support Scotland's aspirations for a zero waste society by establishing a framework for separate collection of recyclable materials, and a ban on recyclable and biodegradable materials going to landfill.

To inform the development of these regulations, Zero Waste Scotland commissioned Eunomia Research & Consulting Ltd to carry out an analysis of the financial and environmental implications of the proposed regulations as a route to delivering the recycling targets set out in the Zero Waste Plan. This note summarises the key findings from this analysis. More detail can be found in the full technical report.

## Approach

Two scenarios were developed, a 'business as usual' scenario and a 'Zero Waste Plan' scenario. For each scenario, detailed modelling was undertaken, taking into consideration the costs involved in collecting the waste materials, the existing and planned capacity of waste treatment facilities, the costs and revenues associated with each waste treatment option, the responsiveness of waste producers and waste handlers to costs incurred, the level and composition of waste in future, and the specific characteristics and dynamics of the various waste streams (household, commercial, industrial, construction and demolition). Costs under the ZWP scenario were compared with the costs under the BAU scenario to understand the overall financial impact of the regulatory measures to 2025. The environmental implications were considered separately.

## Scenarios

Scotland's statutory framework for waste management includes EU Directives on recycling and landfill diversion<sup>1</sup> as well as some UK-wide measures, most notably landfill tax.<sup>2</sup> These have been taken into account in developing a scenario for managing waste over the period to 2025, where the landfill tax acts as a driver to shift waste out of landfill and into other waste treatment options, such that the relevant EU targets are met. Under this scenario, defined in the project as a 'business as usual' scenario (BAU), the ZWP targets are not met. The estimated costs associated with this scenario provide a basis for comparison with the second scenario, where, this time, it is assumed that the relevant regulatory measures are introduced, and the ZWP targets are met.

In this second scenario, the regulatory measures introduced include mandatory source segregation and separation of key recyclable materials, a restriction on inputs to energy from waste facilities and a ban on landfilling separately collected recyclables and biodegradable waste. These measures are assumed to lead to the more ambitious ZWP targets being met: a 70% recycling rate for all waste arising in Scotland by 2025<sup>3</sup>, with no more than 5% of all waste sent to landfill. For household waste, carbon based targets for recycling / preparation for re-use targets of 50% by 2013 and 60% by 2020 are also met, as envisaged under the ZWP.

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<sup>1</sup> For Scotland, these imply a cap on tonnages of biodegradable municipal waste (BMW) to be sent to landfill: by 2013, no more than 1.8 million tonnes may be landfilled, and by 2020, no more than 1.26 million tonnes may be landfilled. By 2020, Scotland must also achieve the following: the preparation for re-use or recycling of 50% by weight of waste materials such as paper, metal, plastic and glass from household waste and similar and 70% recycling and preparation for re-use of construction and demolition waste.

<sup>2</sup> The landfill tax currently stands at £56 per tonne. In the 2010 Budget, the Chancellor announced that the standard rate of landfill tax would continue to increase by £8 per tonne each year until April 2014, not falling below £80 per tonne in future.

<sup>3</sup> In what is a world-first, Scotland is to measure recycling performance using a new carbon metric. Traditionally recycling performance has been measured in terms of the weight of material recycled. Under the new system, a 'carbon factor' will be applied to the weight of materials collected, thereby reflecting the environmental benefits of recycling those materials.

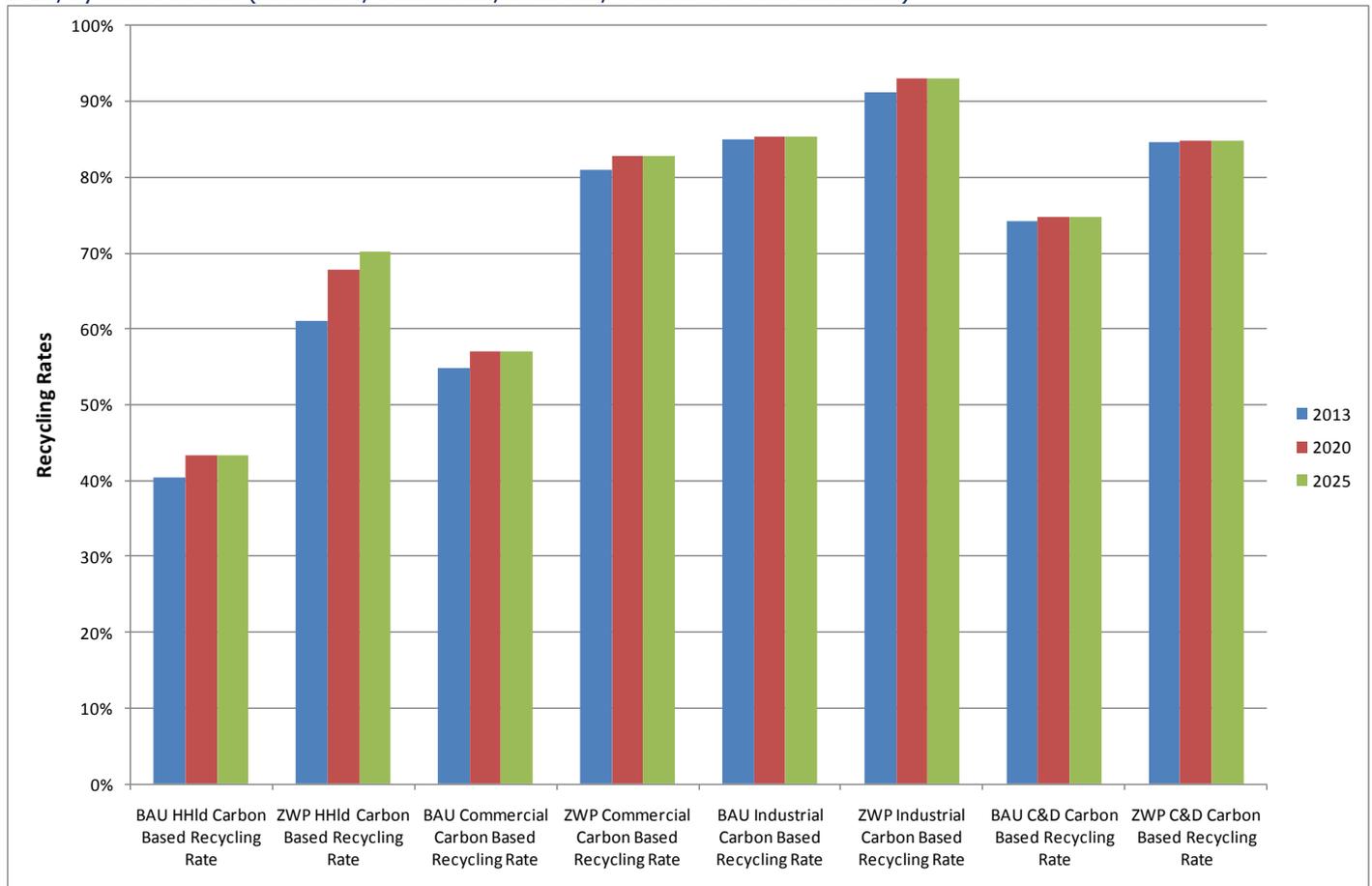
## Key Findings

The key findings are outlined in the following sections. It should be noted that a number of assumptions underpin this work, and where there were gaps in the availability of high quality data, for instance commercial and industrial waste composition data, expert knowledge and experience has been applied.

### Recycling Rates

As illustrated in Figure 1, recycling rates are generally higher under the ZWP scenario, although the extent of the 'gap' between the recycling rates from the BAU and those in the ZWP scenario is higher for some waste streams than others. Typically, the higher the current recycling rates, the smaller the gap since there is less scope for further improvement in recycling rates.

Figure 1: Recycling Rates (measured using the carbon metric) Under Business as Usual and the Zero Waste Plan, 2013, 2020 and 2025, by waste stream (household, commercial, industrial, construction and demolition)

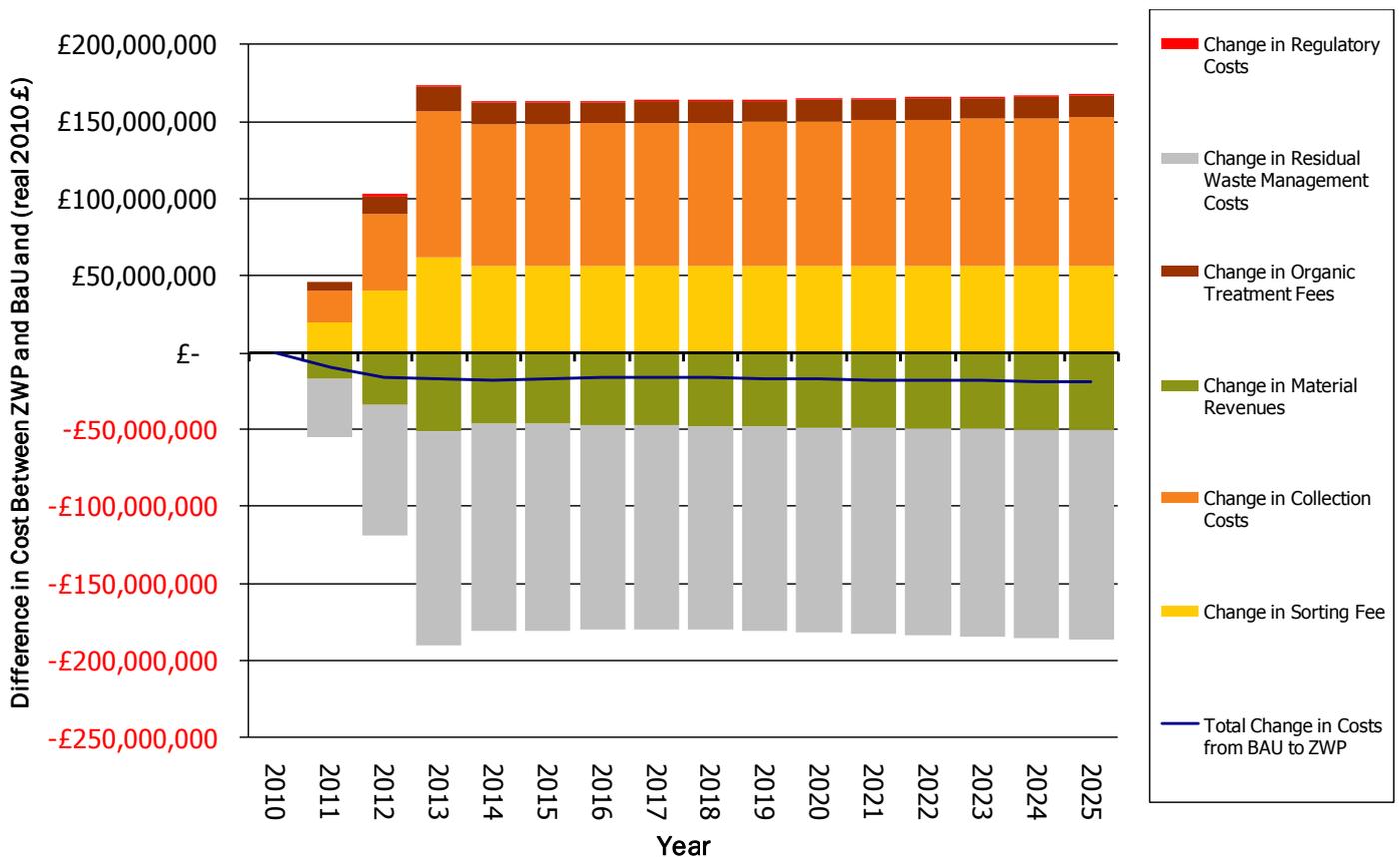


## Financial Benefits

As shown in Figure 2, compared with the BAU scenario, financial savings are made under the ZWP scenario, amounting to £178 million in net present value terms over the period 2011-2025<sup>4</sup>.

Under the assumptions made, the modelling results highlight, in particular, the extent to which higher rates of recycling create opportunities to make savings by reducing the need for costly landfill/residual waste management.

Figure 2: Costs of ZWP relative to BAU (real 2010 £)



It is worth noting that the cost savings of the ZWP scenario are savings relative to the BAU situation. Both ZWP and BAU imply additional costs over and above the current (2010/11) level, but the ZWP scenario implies smaller increases. The ZWP requires additional capital investment relative to BAU (of the order £350 million). The technical report explores the impacts for each waste stream separately (household, commercial and industrial, construction and demolition).

## Environmental Benefits

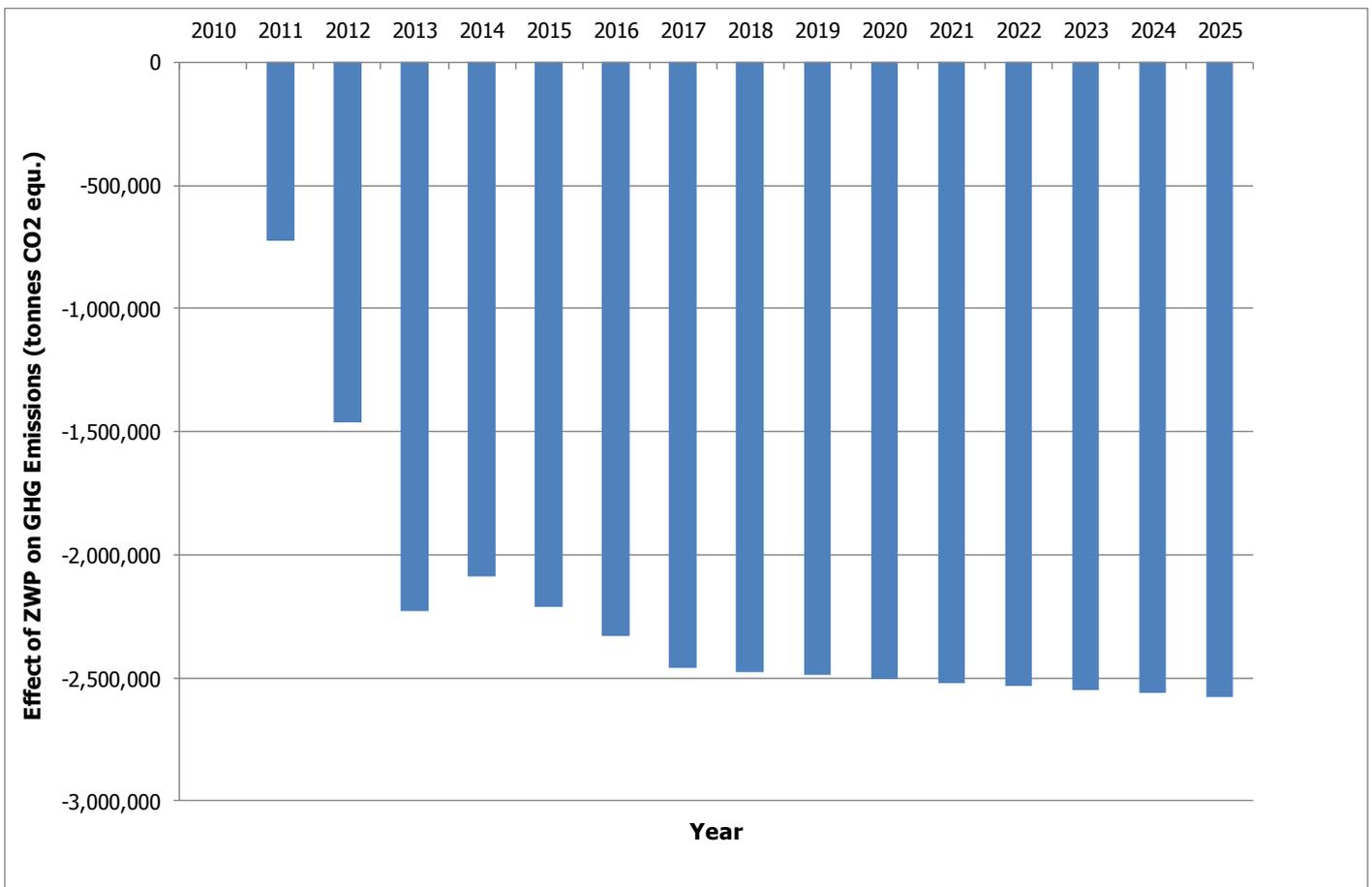
The results of the study also indicate that substantial environmental benefits would also be derived from implementing the regulations and delivering the ZWP. In particular, higher levels of recycling and the associated lower levels of landfilling have the effect of reducing emissions of greenhouse gases (GHGs) by providing opportunities to substitute primary materials with recyclables.

<sup>4</sup> It should be noted that this takes into account the administrative costs of implementing the ZWP Regulations.

In the later years, as illustrated in Figure 3, the GHG savings from the ZWP scenario compared to the BAU scenario exceed 2.5 million tonnes per annum, which is equivalent to taking 791,139 cars off the road.

It is worth noting that these benefits can be translated into financial values, or 'monetised'. This has been undertaken in the full technical report.

Figure 3: Effects on Greenhouse Gas Emissions of Switching from 'Business as Usual' to Zero Waste Plan (negative numbers denote reduced emissions)



## Sensitivity of the Results

A sensitivity analysis on key variables and an analysis of the impacts of varying the timing of key regulatory provisions are incorporated in the study. In particular, the modelling suggests that delaying the implementation of the requirement to sort and separately collect food and key dry recyclables would reduce the size of the environmental benefits over the period. However, the modelling suggests there would be little impact from delaying the implementation of the landfill ban<sup>5</sup>, which would give industry more time to prepare for the effects of the ban.

<sup>5</sup> The ban on waste to landfill is assumed to be implemented through a requirement to pre-treat waste to ensure it loses the majority of its ability to generate methane.