

Plastic & Glass Packaging Recycling Business Targets 2016-2020 IA No: Lead department or agency: Defra Other departments or agencies: Scottish Government, Welsh Assembly Government, Dept of the Environment Northern Ireland, HM Treasury, BIS	Impact Assessment (IA)		
	Date: 01/11/2015		
	Stage: Consultation		
	Source of intervention: EU		
	Type of measure: Secondary legislation		
Contact for enquiries: Ian Atkinson			
Summary: Intervention and Options		RPC Opinion: Not Applicable	

Cost of Preferred (or more likely) Option				
Total Net Present Value	Business Net Present Value	Net cost to business per year (EANCB on 2014 prices)	In scope of One-In, Measure qualifies as Two-Out?	
n/a	n/a	n/a	No	NA

What is the problem under consideration? Why is government intervention necessary?

The management and disposal of packaging waste produces environmental externalities such as greenhouse gas emissions and disamenity impacts from landfill, the full social cost of which is not taken into account in production or consumption decisions. Without intervention, there would be overproduction of packaging and insufficient levels of recycling. The EU sets mandatory packaging recycling targets. The UK complies through statutory recycling business targets, achieved through a producer responsibility system. By making packaging handlers and producers pay some of the costs of recycling packaging, these costs are internalised, leading to reduced environmental impacts and a more efficient outcome.

What are the policy objectives and the intended effects?

The policy objectives are to make adjustments to the market-based system that the UK uses to meet the EU targets and internalise the costs of packaging for packaging producers. The intention is to reduce costs for packaging producers and social costs associated with the current targets.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

The full series of business target percentages for each option, each year is presented in a later table.

Option 0 – Do nothing – do not amend legislation, keep all targets already legislated in 2016/17, then let legislation expire in 2018 and have no business targets.

Option 1 – Do not amend plastic business targets then keep at 57% to 2020

Option 2 – Lower existing plastic business target to 48% in 2016 then increase by 1% each year to 2020 (to

Option 3 – Lower existing plastic business target to 49% in 2016 then increase by 2% each year to 2020

Option 4 - Do not amend glass business target then keep at 77% to 2020

Option 5 – Do not amend glass business target then increase from 2018 by 1% each year to 2020

Option 3 is the preferred option for plastic targets

Will the policy be reviewed? It will be reviewed. If applicable, set review date:

Does implementation go beyond minimum EU requirements?			Yes		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	Micro No	< 20 No	Small No	Medium Yes	Large Yes
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)			Traded: -1		Non-traded: Negligible

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible SELECT SIGNATORY: Date:

Summary: Analysis & Evidence

Policy Option 1

Description: Option 1 – Do not amend plastic targets then keep at 57% to 2020

FULL ECONOMIC ASSESSMENT

Price Base Year 2015	PV Base Year 2015	Time Period: 5 Years	Net Benefit (Present Value (PV)) (£m)		
			Low: -116	High: -22	Best Estimate: -80

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0	44	198
High	0	44	198
Best Estimate	0	44	198

Description and scale of key monetised costs by 'main affected groups'
Cost to society, including business, of collecting and sorting more recycling.

Other key non-monetised costs by 'main affected groups'
Cost to society of local environmental impact of sorting facilities.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	18	82
High	0	39	176
Best Estimate	0	26	118

Description and scale of key monetised benefits by 'main affected groups'
Benefit to society, including business, of receiving more material revenue.
Benefit to society, including business, of reducing residual collection and landfill.
Benefit to society of avoided greenhouse gas emissions from increased recycling.

Other key non-monetised benefits by 'main affected groups'
Benefit to society of reducing landfill environmental impact.

Key assumptions/sensitivities/risks Discount rate (%) **3.5%**

There is a need to have domestic targets in order to ensure the UK continues to meet the recovery and recycling targets from the EU Packaging Directive
Best estimates assume constant collection and sorting costs and material prices over the next 5 years. This analysis is sensitive to changes in collection and sorting costs, the notional baseline, the split between household and C&I collections, carbon prices and material prices.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OITO?	Measure qualifies as
Costs: 4.2	Benefits: 3.4	Net: -0.8	No	NA

Summary: Analysis & Evidence

Policy Option 2

Description: Option 2– Lower plastic target to 48% in 2016 then increase by 1% each year to 2020

FULL ECONOMIC ASSESSMENT

Price Base Year 2015	PV Base Year 2015	Time Period: 5 Years	Net Benefit (Present Value (PV)) (£m)		
			Low: -44	High: -5	Best Estimate: -31

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0	18	76
High	0	18	76
Best Estimate	0	18	76

Description and scale of key monetised costs by 'main affected groups'
Cost to society, including business, of collecting and sorting more recycling.

Other key non-monetised costs by 'main affected groups'
Cost to society of local environmental impact of sorting facilities.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	7	32
High	0	17	71
Best Estimate	0	11	45

Description and scale of key monetised benefits by 'main affected groups'
Benefit to society, including business, of receiving more material revenue.
Benefit to society, including business, of reducing residual collection and landfill.
Benefit to society of avoided greenhouse gas emissions from increased recycling.

Other key non-monetised benefits by 'main affected groups'
Benefit to society of reducing landfill environmental impact.

Key assumptions/sensitivities/risks Discount rate (%) **3.5%**

There is a need to have domestic targets in order to ensure the UK continues to meet the recovery and recycling targets from the EU Packaging Directive
Best estimates assume constant collection and sorting costs and material prices over the next 5 years. This analysis is sensitive to changes in collection and sorting costs, the notional baseline, the split between household and C&I collections, carbon prices and material prices.

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:			In scope of OITO?	Measure qualifies as
Costs: 1.6	Benefits: 1.3	Net: -0.3	No	NA

Summary: Analysis & Evidence

Policy Option 3

Description: Option 3 – Lower plastic target to 49% in 2016 then increase by 2% each year to 2020

FULL ECONOMIC ASSESSMENT

Price Base Year 2015	PV Base Year 2015	Time Period: 5 Years	Net Benefit (Present Value (PV)) (£m)		
			Low: -79	High: -12	Best Estimate: -55

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0	31	135
High	0	31	135
Best Estimate	0	31	135

Description and scale of key monetised costs by 'main affected groups'
Cost to society, including business, of collecting and sorting more recycling.

Other key non-monetised costs by 'main affected groups'
Cost to society of local environmental impact of sorting facilities.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	13	56
High	0	28	123
Best Estimate	0	18	81

Description and scale of key monetised benefits by 'main affected groups'
Benefit to society, including business, of receiving more material revenue.
Benefit to society, including business, of reducing residual collection and landfill.
Benefit to society of avoided greenhouse gas emissions from increased recycling.

Other key non-monetised benefits by 'main affected groups'
Benefit to society of reducing landfill environmental impact.

Key assumptions/sensitivities/risks Discount rate (%) **3.5%**

There is a need to have domestic targets in order to ensure the UK continues to meet the recovery and recycling targets from the EU Packaging Directive
Best estimates assume constant collection and sorting costs and material prices over the next 5 years. This analysis is sensitive to changes in collection and sorting costs, the notional baseline, the split between household and C&I collections, carbon prices and material prices.

BUSINESS ASSESSMENT (Option 3)

Direct impact on business (Equivalent Annual) £m:			In scope of OITO?	Measure qualifies as
Costs: 2.9	Benefits: 2.3	Net: -0.6	No	NA

Summary: Analysis & Evidence

Policy Option 4

Description: Option 4 - Do not amend glass target then keep at 77% to 2020

FULL ECONOMIC ASSESSMENT

Price Base Year 2015	PV Base Year 2015	Time Period: 5 Years	Net Benefit (Present Value (PV)) (£m)		
			Low: -17	High: 10	Best Estimate: -15

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0	14	62
High	0	14	62
Best Estimate	0	14	62

Description and scale of key monetised costs by 'main affected groups'
Cost to society, including business, of collecting and sorting more recycling.

Other key non-monetised costs by 'main affected groups'
Cost to society of local environmental impact of sorting facilities.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	10	46
High	0	16	73
Best Estimate	0	10	47

Description and scale of key monetised benefits by 'main affected groups'
Benefit to society, including business, of receiving more material revenue.
Benefit to society, including business, of reducing residual collection and landfill.
Benefit to society of avoided greenhouse gas emissions from increased recycling.

Other key non-monetised benefits by 'main affected groups'
Benefit to society of reducing landfill environmental impact.

Key assumptions/sensitivities/risks Discount rate (%) **3.5%**

There is a need to have domestic targets in order to ensure the UK continues to meet the recovery and recycling targets from the EU Packaging Directive
Best estimates assume constant collection and sorting costs and material prices over the next 5 years. This analysis is sensitive to changes in collection and sorting costs, the notional baseline, the split between household and C&I collections, carbon prices and material prices.

BUSINESS ASSESSMENT (Option 4)

Direct impact on business (Equivalent Annual) £m:			In scope of OITO?	Measure qualifies as
Costs: 3.4	Benefits: 3.4	Net: -0.1	No	NA

Summary: Analysis & Evidence

Policy Option 5

Description: Option 5 – Do not amend glass target then increase by 1% to 2020

FULL ECONOMIC ASSESSMENT

Price Base Year 2015	PV Base Year 2015	Time Period: 5 Years	Net Benefit (Present Value (PV)) (£m)		
			Low: -19	High: 12	Best Estimate: -18

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0	16	72
High	0	16	72
Best Estimate	0	16	72

Description and scale of key monetised costs by 'main affected groups'
Cost to society, including business, of collecting and sorting more recycling.

Other key non-monetised costs by 'main affected groups'
Cost to society of local environmental impact of sorting facilities.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	12	53
High	0	19	84
Best Estimate	0	12	54

Description and scale of key monetised benefits by 'main affected groups'
Benefit to society, including business, of receiving more material revenue.
Benefit to society, including business, of reducing residual collection and landfill.
Benefit to society of avoided greenhouse gas emissions from increased recycling.

Other key non-monetised benefits by 'main affected groups'
Benefit to society of reducing landfill environmental impact.

Key assumptions/sensitivities/risks Discount rate (%) **3.5%**

There is a need to have domestic targets in order to ensure the UK continues to meet the recovery and recycling targets from the EU Packaging Directive
Best estimates assume constant collection and sorting costs and material prices over the next 5 years. This analysis is sensitive to changes in collection and sorting costs, the notional baseline, the split between household and C&I collections, carbon prices and material prices.

BUSINESS ASSESSMENT (Option 5)

Direct impact on business (Equivalent Annual) £m:			In scope of OITO?	Measure qualifies as
Costs: 3.9	Benefits: 3.9	Net: -0.1	No	NA

Executive Summary

Summary tables

The Government is considering 5 options for the plastic and glass business targets from 2016-2020. The business target percentages for the different options, over the next 5 years, are presented in the table below:

Table: business target percentages for different options

	2016	2017	2018	2019	2020
Option 0 - plastic baseline: unchanged then no targets	52%	57%			
Option 1 – Do not amend plastic business targets then keep at 57% to 2020	52%	57%	57%	57%	57%
Option 2 – Lower plastic target to 48% in 2016 then increase by 1% each year to 2020	48%	49%	50%	51%	52%
Option 3 – Lower plastic target to 49% in 2016 then increase by 2% each year to 2020	49%	51%	53%	55%	57%
Option 0 - glass baseline: unchanged then no targets	77%	77%			
Option 4 – Do not amend glass business target then keep at 77% to 2020	77%	77%	77%	77%	77%
Option 5 – Do not amend glass business target then increase by 1% to 2020	77%	77%	78%	79%	80%

These new targets are expected to deliver the following recycling rates (%):

	2018	2019	2020
Option 1	48	48	48
Option 2	42	43	44
Option 3	44	46	48
Option 4	66	66	66
Option 5	67	68	69

The results, for each option in terms of estimated net benefit to society and annual net cost to business, are presented in the table below.

Table: results for each option

	Net present value best estimate £ million	Annual net cost to business £ million
Option 0 - Do not amend legislation for 2016/17 then let it expire in 2018	0	0.0
Option 1 – Do not amend plastic business targets then keep at 57% to 2020	-80	0.7
Option 2 – Lower plastic target to 48% in 2016 then increase by 1% each year to 2020	-31	0.3
Option 3 – Lower plastic target to 49% in 2016 then increase by 2% each year to 2020	-55	0.5
Option 4 – Do not amend glass business target then keep at 77% to 2020	-15	0.2
Option 5 – Do not amend glass business target then increase by 1% to 2020	-18	0.2

All the options are estimated to have a negative net present value, i.e. cost, to society and a net cost to business.

Scotland and Wales have ambitious targets for recycling of household waste and to ensure these are met cost-effectively it is important for packaging recycling to have commensurately ambitious targets. In particular, having high packaging recycling targets will help to lower the unit costs of recycling infrastructure that these nations require to deliver 70% household recycling by 2020

Option 3 is the Government's preferred option for plastic targets. There is no preferred option for glass targets.

Introduction

The management and production of waste incurs environmental externalities such as greenhouse gas emissions. The full social costs and benefits are not taken into account in production or disposal decisions, resulting in the over production of waste and sub optimal decisions on waste management options. A waste management system that internalises the environmental impacts in pricing of treatment options should result in a more efficient level of waste and allocation to different treatment options.

In the absence of intervention, decisions about the design and production of packaging would likely be made without taking into account the costs of dealing with the discarded packaging at the point of consumption. This would lead to the over-production of packaging as the suppliers of packaging do not face the full costs of dealing with packaging waste. Further, there are environmental benefits of moving packaging waste up the waste hierarchy at end of life that are not reflected in waste management costs and result in a sub-optimal mix of waste management. The waste hierarchy ranks different waste management options broadly according to their environmental impact. For example, shifting waste from landfill to recycling results in environmental benefits from avoided use of virgin materials and associated greenhouse gas impacts. Shifting waste further up the hierarchy to reuse would provide even greater environmental benefits from, for example, reduced reprocessing impacts.

The UK has a statutory producer responsibility scheme for packaging recycling, which implements the EU Packaging Directive. This scheme internalises some of the externalities of dealing with packaging at the end of its life. This reduces the amount of packaging waste going to landfill and reduces the associated environmental impacts. It does so by setting minimum recycling and recovery targets on UK businesses in the packaging supply chain.

In order to comply with the Packaging Regulations, obligated packaging producers must demonstrate a minimum level of recovery and recycling been undertaken on their behalf by obtaining Packaging Waste Recovery Notes (PRNs). PRNs are issued by exporters or recyclers when a tonne of relevant packaging material has been recovered or is exported for reprocessing. This demand for PRNs from obligated producers creates a market for PRNs that can be issued by accredited domestic reprocessors and exporters. The price for PRNs, although volatile, should reflect the marginal cost of meeting the obligation. Specifically, for each PRN it should reflect the additional cost of diverting material from landfill to recycling that is not covered by existing economic drivers. In this way obligated packaging producers and collectors internalise some of the cost of dealing with packaging at the end of its life. A very low PRN level would indicate that little additional incentive is required to deliver the level of recycling set by business targets.

The UK business targets are set to ensure the UK meets the EU Directive recovery and recycling targets, taking into into account the de minimis producers who are not obligated, which are 22.5 for plastic and 60% for glass. Historically, the tonnage of packaging produced or handled by businesses that are out of scope due to de minimis has been relatively steady as a proportion of the total amount of packaging.

This IA reviews the packaging recycling targets with a view to changing the targets for obligated producers. There are different options:

For plastic -

- Option 1 – Do not amend plastics targets for 2016 and 2017 then keep target at 57% to 2020 (this would deliver a 48% recycling rate by 2017 and maintain the same level though to 2020)
- Option 2 – Amend existing plastic target to 48% for 2016 then increase by 1% each year to 2020 (this would deliver a 44% recycling rate by 2020)
- Option 3 – Amend existing plastic target to 49% in 2016 then increase by 2% each year to 2020 (this would deliver a 48% recycling rate by 2020).

For glass -

- Option 4 - Do not amend glass targets for 2016 and 2017 then keep target at 77% to 2020 (this would continue to maintain a 66% recycling rate from 2017 to 2020).
- Option 5 – Do not amend glass targets for 2016 and 2017 then increase by 1% each year to 2020 (this would deliver a 68% recycling rate by 2020).

These options are based on ensuring we achieve a minimum level of recovery and recycling in order to continue to meet the EU Packaging Directive minimum targets.

It is possible to choose and combine two options, i.e. one for plastic and one for glass, e.g. options 1 and 4 or options 2 and 5. After the consultation, in the final impact assessment we also plan to calculate the overall costs and benefits of any combined package.

The main intention of the proposals is to reduce the possible cost to business by lowering the targets, based on the new data available whilst still ensuring that the UK continues to achieve the minimum recycling requirements from the EU Packaging Directive in a cost effective manner in 2016-17 and beyond.

Scotland and Wales have ambitious targets for recycling of household waste and to ensure these are met cost-effectively it is important for packaging recycling to have commensurately ambitious targets. In particular, having high packaging recycling targets will help to lower the unit costs of recycling infrastructure that these nations require to deliver 70% household recycling by 2020

Option 3 is the Government's preferred option for plastic targets as it maintains a high degree of environmental ambition, whilst reducing compliance costs for business compared to the baseline and other options . There is no preferred option for glass targets

Background – the Packaging Directive and producer responsibility in the UK

The environmental externalities associated with packaging waste are greenhouse gas emissions from sending packaging to landfill, disamenity impacts from littering and impacts on land use from landfill sites. Not all environmental externalities are internalised in decision-making by households and businesses. Intervention is required by government to reduce the environmental impact of packaging waste.

The EC Directive on Packaging and Packaging Waste (94/62/EC, as amended by Directive 2004/12/EC, and hereafter referred to as 'the Packaging Directive') aims to harmonise the management of packaging waste by reducing the impact of packaging and packaging waste on the environment and by avoiding obstacles to trade and distortion and restriction of competition within the Community.

The Packaging Directive sets a minimum overall recovery target of 60% (of which a minimum of 55% must be recycling), as well as material-specific recycling targets. These targets are to be met by Member States by December 2008. After then, Member States must continue to meet these minimum targets, but have the freedom to set higher national targets.

It is implemented in the UK by (i) the Packaging (Essential Requirements) Regulations 2003 (as amended); and (ii) the **Producer Responsibility Obligations (Packaging Waste) Regulations 2007** (as amended). This IA assesses options relating to amendment of the packaging recycling targets contained in the latter set of Regulations, which are hereafter referred to as 'the Packaging Regulations'.

Using a producer responsibility system to internalise some of the costs of dealing with packaging provides incentives for packaging producers to reduce the environmental impacts of waste and ensure a proportion is recycled. Packaging producers have to pay towards the cost of recycling and are therefore incentivised to reduce the total amount of packaging resulting in a reduction in the environmental impacts of packaging at the end of its life. If set at the efficient level, the recycling target has the potential to reduce the environmental impact of packaging waste through reduced impacts of virgin material extraction and associated environmental impacts.

In the UK, a "packaging producer" includes any business involved in the packaging supply chain, i.e. one that manufactures raw materials for packaging, converts raw materials into packaging, uses packaging to wrap goods, or sells or imports packaged products. The 'responsibility' for the packaging is split between these actors in the supply chain.

Under the Packaging Regulations, to show they have discharged this legal obligation, businesses must obtain evidence in the form of Packaging Waste Recovery Notes (PRNs) or Packaging Waste Export Recovery Notes (PERNs). These evidence notes are issued by accredited packaging waste reprocessors and exporters, respectively, and are acquired by packaging producers. An accredited reprocessor/exporter can issue PRNs/PERNs to the amount of packaging waste reprocessed (e.g. 100 tonnes of packaging steel waste reprocessed allows the reprocessor to 'sell' 100 PRNs in steel).

The evidence notes have two functions. Firstly, they are a 'counting tool' for the amount of recovery/recycling undertaken on the behalf of producers. Secondly, they are a way to channel producer funding to recycling/recovery operations since business pay for these PRNs / PERNs. This internalises the cost of recovery and recycling to the packaging producers.

The Packaging Regulations include a de minimis threshold, exempting businesses which have a turnover below £2m and who handle under 50 tonnes of packaging a year; they are 'not obligated'. However the packaging that is handled by those exempt businesses still counts when calculating the UK's recycling performance. This is because the Packaging Directive targets are set as a percentage of the total packaging waste arising in each Member State. Business targets are therefore set for obligated businesses that are higher than the actual EU minimum target in order to take this exempt packaging into account. The actual amount of exempt packaging changes from year to year. Business targets are therefore set at a level to take into account these fluctuations.

Businesses obligated under the Regulations have a choice as to how they comply. They can undertake the recycling/recovery themselves in order to obtain the required PRNs; they can contract directly with reprocessors/exporters and acquire evidence of compliance in the form of PRNs and PERNs (known as individual registration) or they can pay to join one of several registered compliance schemes, who takes on the regulatory reporting and contractual duties,

with greater market clout than individual producers. The majority of packaging producers have chosen to join a compliance scheme.

The price of PRNs and PERNs varies depending on availability. The Regulations do not mandate the use to which the proceeds from the sale of PRNs/PERNs to producers can be put, though accredited reprocessor and exporters are required to report on the use of these funds as they are intended to finance improvements in the collection and reprocessing infrastructure across the UK.

Rationale for intervention and policy objectives

The main intention of the proposals is to reduce the possible cost to business by lowering the targets, based on the new data available whilst still ensuring that the UK continues to achieve the minimum recycling requirements from the EU Packaging Directive in a cost effective manner in 2016-17 and beyond.

The management and disposal of waste results in environmental impacts such as greenhouse gas emissions and disamenity impacts. The full social cost of producing and dealing with waste is not taken into account in decisions by households and businesses. This results in the over-production of waste and sub-optimal allocation of waste treatment. Intervention by government can help reduce the amount of packaging waste to a more efficient level and shift the allocation of treatment to a more efficient level. Without government intervention, waste treatment options with better environmental performance may be penalised relative to treatments with poorer performance due to higher costs.

Packaging waste constitutes about 10% of the commercial and industrial (C&I) waste stream and about 20% of the household waste stream in the UK. Packaging provides benefits such as the protection of goods in transit and it helps ensure that products are undamaged. The benefits of packaging should be considered against the extra cost of producing and dealing with that packaging at the end of its life.

Recovery and recycling targets are set at a level to increase the amount of packaging that is recovered and recycled from a sub-optimally low level. There are environmental benefits from a shift from landfill to recycling and recovery. The shift will reduce the adverse environmental impacts of: climate change, primarily through the release of methane gas from biodegradable material; possible damage to soil and water quality through leaching from landfill sites; disamenities such as noise and odour. It would be more efficient to reduce the amount of packaging waste that is sent to landfill, compared to a world with no recycling.

Recycling packaging results in reductions in emissions of greenhouse gases because less energy is used to produce recycled raw materials than in the production of virgin raw materials. It also avoids the extraction of raw materials, which can have a negative impact on the environment and biodiversity. Increased recovery and recycling of packaging waste could have amenity benefits by contributing to a decrease in packaging litter.

Externalities and reaching an efficient level of recycling

All environmental costs and benefits of waste disposal decisions are not reflected in the relative costs of each disposal option. The policy objective is to move towards a more efficient level of recycling.

In the absence of intervention in recycling, there are monetary incentives to move waste away from landfill, due to pre-existing regulation (the Landfill Tax). However, there are no incentives which reflect the *additional* benefits of recycling compared to other non-landfill options. Under landfill tax, all materials are equally incentivised away from landfill, despite the benefits of

different waste types moving up the waste hierarchy¹ to recycling being very different. Both these points mean that, in the absence of Government intervention in recycling, levels of recycling are likely not to reach the efficient level for each material.

In this instance, the NPV of each proposed option is negative, implying that the efficient level of intervention has been overshoot (i.e. the benefit of the marginal tonne of additional recycling is lower than its marginal cost, despite the savings in GHG emissions).

Achieving targets set by EU packaging legislation

The second policy objective is to ensure that the minimum packaging recycling and recovery targets included in the Packaging Directive continue to be met.

In the absence of intervention, the market prices for recyclates do not ensure UK recycling levels meet EU packaging targets. The costs of collecting and reprocessing a material may be greater than the value which can be earned from selling the material, resulting in no incentives to recycle. To ensure the EU packaging targets are met, Government intervention is required.

Background

The business targets for 2013-17 were consulted on in 2011 and final targets announced at Budget in March 2012², glass targets were revised in 2014³. The targets were set using the best available evidence at the time and this simpler impact assessment (IA) uses the same core methodology and most of the same assumptions, particularly cost assumptions, from the previous IAs. Material revenue price assumptions have been updated.

In 2014 we commissioned a report to review the industry-provided underlying data used to calculate the targets for plastic packaging waste recycling. “PlasticFlow” was published in December 2014⁴. PlasticFlow went back to first principles and produced a new estimate of plastic packaging waste arisings based on a thorough analysis of the market. The report suggested the estimates for the plastic waste arising were historically too high. This means we could reduce the business target on industry whilst continuing to deliver similar levels of recycling, thereby reducing the costs of compliance for business. The Department accepted the PlasticFlow figure as the most robust data available and consulted from March to May 2015 on the implications of the data as part of our consultation on possible changes to the Packaging and Batteries Regulations.

¹ <https://www.gov.uk/government/publications/guidance-on-applying-the-waste-hierarchy>

² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/82441/packaging-ia.pdf

³ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/294272/packaging-targets-ia.pdf

⁴ <http://www.wrap.org.uk/content/plastic-packaging-market-study-plastic-flow-2014-0>

Analysis of options

The Government is considering 5 options for the plastic and glass business targets from 2016-2020. The business target percentages for the different options, over the next 5 years, are presented in the table below:

Table: business target percentages for different options

	2016	2017	2018	2019	2020
Option 0 - plastic baseline: unchanged then no targets	52%	57%			
Option 1 – Do not amend plastic business targets then keep at 57% to 2020	52%	57%	57%	57%	57%
Option 2 – Lower plastic target to 48% in 2016 then increase by 1% each year to 2020	48%	49%	50%	51%	52%
Option 3 – Lower plastic target to 49% in 2016 then increase by 2% each year to 2020	49%	51%	53%	55%	57%
Option 0 - glass baseline: unchanged then no targets	77%	77%			
Option 4 – Do not amend glass business target then keep at 77% to 2020	77%	77%	77%	77%	77%
Option 5 – Do not amend glass business target then increase by 1% to 2020	77%	77%	78%	79%	80%

Option 0: Baseline: Do nothing. Do not amend targets, let them expire: have no targets

This option is the baseline for the period 2016-20 in the absence of any changes to policy. Other options are measured relative to this option. It is a 'notional' baseline as the UK is required to meet EU targets and therefore will need legislated targets. A notional baseline is described in more detail in the 2012 IA⁵. This Impact Assessment was used to help set the existing packaging recovery and recycling targets, by analysing the market and using industry estimates and forecasts to model different scenarios.

For glass we estimate there would be an 11% drop in recycling at a UK level, translating to a reduction of 13% at an obligated business level, with no regulatory targets; the 11% assumption is in the mid-range of the assumptions from 2012.

For plastic, targets have increased more rapidly since 2012, therefore we assume the notional baseline now would be different from that assumed in the 2012 IA.

We estimate from 2018, only PET and HDPE bottles and C&I film would be recycled if there were no targets:

Table: Plastic baseline tonnage

Category of plastic	Recycled tonnes
Consumer recycled bottles	465 000
Non-consumer (C&I) recycled bottles	29 000
Non-consumer (C&I) recycled film	273 000
Total plastic baseline	767 000

Source: The Plastic Packaging Market Study (Plastic Flow) 2014, page 31.

⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/82441/packaging-ia.pdf page 13

Placed on market assumptions

Two of the key assumptions include (i) how much material in total is placed on the market and (ii) how much of that is by obligated firms. We use the Plastic Packaging Market Study (Plastic Flow) 2014 & Glassflow for (i) and the Environment Agency National Packaging Waste Database for the latter (ii); these sets of assumptions are in the table below:

Table: Placed on market assumptions

		2016	2017	2018	2019	2020
Plastic	Placed on market	2,260,000	2,260,000	2,260,000	2,260,000	2,260,000
Plastic	Placed on market by obligated firms (non-allocation method)	1,893,159	1,893,159	1,893,159	1,893,159	1,893,159
Plastic	Allocation method	6,253	6,253	6,253	6,253	6,253
Glass	Placed on market	2,399,235	2,399,235	2,399,235	2,399,235	2,399,235
Glass	Placed on market by obligated firms (non-allocation method)	2,040,653	2,040,653	2,040,653	2,040,653	2,040,653
Glass	Allocation method	4,139	4,139	4,139	4,139	4,139

Sources:

Plastic Packaging Market Study (Plastic Flow) 2014. p2:

http://www.wrap.org.uk/sites/files/wrap/Plastic_Packaging_Market_Study_2014_0.pdf.

Glassflow: <http://www.wrap.org.uk/sites/files/wrap/GlassFlow%20Final%20Report.pdf>

Tonnage from obligated firms and allocation method comes from NPWD data for 2015.

Costs and benefits of recycling

Costs and benefits are calculated for each additional tonne of recycling⁶ and it is assumed the material is diverted from landfill.

The following 3 steps are the core method of this impact assessment:

Step 1: The required recycling tonnes for each material are calculated, compared to the baseline, depending on the targets and projected placed on market tonnages

Step 2: Costs per tonne are calculated: i) recycling collection and sorting costs

Step 3: Benefits per tonne are calculated: i) material revenue

ii) carbon saving

iii) residual collection and landfill saving

As more material is collected and sorted after a certain point, the cost of collecting and sorting starts to rise.

Costs and benefits are per tonne.

Net benefit to society is calculated as:

Additional tonnes x benefits of material (material prices, carbon saving, residual collection saving)

– additional tonnes x costs of material (additional recycling collection and sorting costs)

⁶ As per Porter ("The Economics of Waste", 2002)

Exceptions to the methodology:

Landfill tax

Whilst landfill tax has a large behavioural effect on tonnages recycled, tax is a transfer under Government methodology so is not included as a cost or benefit in this IA.

Non-monetised impacts

There are a number of additional impacts which are currently difficult to monetise, with most likely to increase the benefits associated with higher recycling targets (thus suggesting that the NPV calculation for each option represents a lower bound). These are described below:

- The reduction in waste going to landfill reduces the disamenity impact of landfill sites. However the alternative treatment, recycling, also incurs local environmental impacts. In the absence of accurate information on those impacts, the local disamenity impacts are not monetised. It is assumed the local environmental impact of both landfill and recycling sorting facilities is likely to be negative.
- Higher statutory targets may stimulate investment in infrastructure (for sorting and collecting as well as reprocessing), which may reduce the marginal costs of collecting, sorting, and reprocessing waste. This is likely to be an impact realised over a longer time-scale, and the precise monetary benefit associated with it is currently unclear.
- Whilst the savings in ‘embedded’ GHG emissions from recycling (i.e. emissions that would have been created in firms’ production processes in the absence of recycled materials) are monetised and included in the methodology, the impact of the loss of scarce ‘virgin’ resources for future generations that would be the result of lower recycling targets, while likely negative, may not be fully reflected in the current value of those materials, due to uncertainty over the valuation of resources to future generations.
- The effects of ‘softer’ benefits from higher recycling targets, such as shifts in public attitudes towards recycling and the environment (which are likely to reduce waste collection costs over a longer-time scale) are currently subject to too much uncertainty to be monetised.

Step 1: Differences in amount of recycling needed, compared to the baseline

We calculate the different levels of recycling required for each option by multiplying the proposed targets, under each option, by the tonnage placed on the market by obligated firms. These different levels are then compared to the baseline:

Table: Plastic recycling needed (tonnes)

	2016	2017	2018	2019	2020
Plastic - Baseline required recycling (tonnes)	990,696	1,085,354	767,000	767,000	767,000
Option 1 required recycling	990,696	1,085,354	1,085,354	1,085,354	1,085,354
Option 2 required recycling	914,969	933,901	952,833	971,764	990,696
Option 3 required recycling	933,901	971,764	1,009,627	1,047,491	1,085,354
Option 1 recycling change from baseline	0	0	318,354	318,354	318,354
Option 2 recycling change from baseline	-75,726	-151,453	185,833	204,764	223,696
Option 3 recycling change from baseline	-56,795	-113,590	242,627	280,491	318,354

Important note: In 2016/17, options 2 and 3 reduce the existing plastic targets. This would reduce the recycling required i.e. recycling collection and sorting costs would fall for these years (a negative cost is a benefit) but material revenue, carbon and landfill savings also fall (a negative benefit is a cost). This difference between 2016/17 and 2018-2020, flows through the rest of this impact assessment, in terms of negative costs and negative benefits.

The 2016 and 2017 targets have been set to ensure that the UK, as a whole, continues to meet the minimum requirements as required in the EU Packaging Directive: 22.5% recycling rate for plastic and 60% for glass. New targets are required beyond 2017 to ensure that the UK continues to meet these levels.

Table: Glass recycling needed (tonnes)

	2016	2017	2018	2019	2020
Glass - Baseline required recycling	1,571,303	1,571,303	1,346,831	1,346,831	1,346,831
Option 4 required recycling	1,571,303	1,571,303	1,571,303	1,571,303	1,571,303
Option 5 required recycling	1,571,303	1,571,303	1,591,709	1,612,116	1,632,522
Option 4 recycling change from baseline	-	-	224,472	224,472	224,472
Option 5 recycling change from baseline	-	-	244,878	265,285	285,691
Option 4 aggregate glass change from baseline	-	-	80,810	80,810	80,810
Option 4 remelt glass change from baseline	-	-	143,662	143,662	143,662
Option 5 aggregate glass change from baseline	-	-	88,156	95,503	102,849
Option 5 remelt glass change from baseline	-	-	156,722	169,782	182,842

Tonnage calculations assume glass split of 36% aggregate and 64% remelt.

We then take these tonnage differences compared to the baseline, for each option, and multiply them by several costs and benefits described in the sections below.

These new targets are expected to deliver the following recycling rates (%):

	2018	2019	2020
Option 1	48	48	48
Option 2	42	43	44
Option 3	44	46	48
Option 4	66	66	66
Option 5	67	68	69

Step 2: Cost per tonne of recycling collection and sorting costs

Cost: recycling collection and sorting cost

To estimate the average recycling collection and sorting costs per tonne above the baseline, we use the assumptions used in previous IAs and then update them to take account of producer price inflation. The most appropriate price index available appears to be for the waste collection sector, as unfortunately the ONS does not publish a price index for the recycling sector.

Table: Updating recycling costs in line with producer prices (2015 price base).

	From previous IAs		Uprated:
	2011 Q4	2014 Q1	2015 Q2
Plastic recycling collection and sorting cost	224		229
Remelt recycling collection and sorting cost		100	97
Aggregate glass recycling collection and sorting cost		72	69
Producer price index - Sector 38.11 - Waste disposal	102	108	104.6

Source: Recycling and collection costs updated using an ONS producer price index for the waste disposal sector.

Step 3: Benefit per tonne of recycling compared to the baseline

NB: In 2016/17 these benefits are negative (i.e. a cost) as explained in the note above.

Benefit: material revenue

To estimate the worth of a marginal tonne, above the baseline, of plastic, over the next 5 years, we use the Plastic Packaging Market Study (Plastic Flow) 2014 forecast tonnage composition for 2017 and then multiply it by current market prices from Letsrecycle.com: this £71 for plastic. It is -£9 for glass aggregate (currently a negative price in the market), £12 for glass remelt. See annex for calculations.

Benefit: carbon saving

To estimate the carbon benefit of recycling, we take the carbon saved per tonne of material recycled and multiply it by carbon prices published by DECC.

Table: carbon factors (traded)

Per tonne	Glass Mixed	Glass Separated	Plastic
Tons of carbon saved per tonne of material recycled	0.19	0.38	1.12

Source: These carbon factors are from the Packaging IA 2012 and were not updated in the Glass IA 2014. Non-traded carbon impacts are assumed to be negligible.

Table: carbon prices

	2016	2017	2018	2019	2020
CO2 traded price – best	£4.7	£4.8	£5.0	£5.2	£5.4
- low	£0	£0	£0	£0	£0
- high	£20	£21	£27	£34	£40

Source: DECC

Benefit: residual collection and landfill cost saving

We use the residual collection cost and landfill fee assumptions in the 2014 glass impact assessment, they both total to £61.20, and then convert to 2015 prices using the ONS producer price index above.

Discounting

After calculating the costs and benefits for each option we then discount them into today's prices using the standard 3.5% Treasury discount rate.

Plastic options calculations - best estimates – all in £ millions

The tables below show the best estimate for the costs and benefits of each option for the plastic target.

Table: Option 1 – Do not amend plastic business targets then keep at 57% to 2020 (2015 price base).

£ m		2016	2017	2018	2019	2020	Nominal total	Present value total
Costs	Recycling collection and sorting costs change	0	0	73	73	73	219	198
Benefits	Residual collection and landfill savings	0	0	19	19	19	57	51
	Material revenues change	0	0	23	23	23	68	62
	Traded carbon savings change	0	0	2	2	2	6	5
Net benefit		0	0	-30	-29	-29	-88	-80

Table: Option 2 – Lower existing plastic business target to 48% in 2016 then increase by 1% each year to 2020

£ m		2016	2017	2018	2019	2020	Nominal total	Present value total
Costs	Recycling collection and sorting costs change	-17	-35	43	47	51	89	76
Benefits	Residual collection and landfill savings	-4	-9	11	12	13	23	20
	Material revenues change	-5	-11	13	15	16	28	24
	Traded carbon savings change	0	-1	1	1	1	2	2
Net benefit		7	14	-17	-19	-21	-36	<u>-31</u>

Table: Option 3 – Lower existing plastic business target to 49% in 2016 then increase by 2% each year to 2020

£ m		2016	2017	2018	2019	2020	Nominal total	Present value total
Costs	Recycling collection and sorting costs change	-13	-26	56	64	73	154	135
Benefits	Residual collection and landfill savings	-3	-7	14	17	19	40	35
	Material revenues change	-4	-8	17	20	23	48	42
	Traded carbon savings change	0	-1	1	2	2	4	4
Net benefit		5	11	-23	-26	-29	-62	<u>-55</u>

Glass options calculations - best estimates – all in £ millions

The tables below show the best estimates for the costs and benefits of each glass option.

Option 4 - Do not amend glass business target then keep at 77% to 2020

£ m		2016	2017	2018	2019	2020	Nominal total	Present value total
Costs	Aggregate recycling collection and sorting costs change	0	0	7	7	7	20	18
	Remelt recycling collection and sorting costs change	0	0	16	16	16	49	44
Benefits	Residual collection and landfill savings	0	0	16	16	16	47	42
	Aggregate material revenues change	0	0	-1	-1	-1	-3	-2
	Remelt material revenues change	0	0	2	2	2	6	6
	Aggregate carbon savings change	0	0	0	0	0	0	0
	Remelt carbon savings change	0	0	0	0	0	1	1
Net benefit		0	0	-6	-6	-6	-17	-15

Option 5 – Do not amend glass business target then increase from 2018 by 1% each year to 2020

£ m		2016	2017	2018	2019	2020	Nominal total	Present value total
Costs	Aggregate recycling collection and sorting costs change	0	0	7	8	8	23	21
	Remelt recycling collection and sorting costs change	0	0	7	8	8	57	51
Benefits	Residual collection and landfill savings	0	0	17	18	19	54	49
	Aggregate material revenues change	0	0	-1	-1	-1	-3	-3
	Remelt material revenues change	0	0	2	2	3	7	6
	Aggregate carbon savings change	0	0	0	0	0	0	0
	Remelt carbon savings change	0	0	0	0	0	1	1
Net benefit		0	0	-6	-7	-7	-20	-18

Summary of costs and benefits per tonne for plastic and glass

Implications for cost per tonne of material from best assumptions

Per tonne	Glass Aggregate	Glass Remelt	Plastic
Recycling collection and sorting costs	£69	£97	£229
Carbon benefit	£1	£2	£5
Material revenue benefit	-£9	£12	£71
Residual collection and landfill fee saving benefit	£59	£59	£59
Net cost per marginal tonne above baseline	£18	£24	£93

Calculating the percentage impact on business

This Impact Assessment uses the same methodology as the 2012 Impact Assessment. For calculating the impact on business, we have assumed the relevant tonnes of recycling is the commercial and industrial (C&I) collection stream. The C&I stream is dealt with by businesses at all points in the chain, which suggests the overall net benefit or cost for this stream must all fall on business. Household recycling is dealt with by local authorities – collection authorities and disposal authorities. A proportion of net benefits from local authority waste will also accrue to business, where waste is taken to materials recycling facilities. However, it is difficult to estimate the proportion of net benefit which would accrue to business, therefore this analysis assumes only C&I waste. This means the estimate of benefits to business of material revenue may be an underestimate.

The *Plastic Packaging Market Study (Plastic Flow) 2014* forecast composition for 2017 (p31) suggests 14% of the marginal recycling collected above the baseline will be C&I:

Category of plastic above the baseline	Tonnes
C&I pots tubs and trays (PTTs)	42 000
non-C&I PTTs	218 000
non-C&I film	37 000
Total	297 000

The only C&I plastic **above the baseline** (a baseline which includes all bottles and C&I film) is **C&I PTTs** which is 14% of the tonnes above the baseline, from the table above.

For glass, the 2014 IA assumed 35% of tonnage above the baseline is C&I and we use that assumption.

For recycling collection and sorting costs per tonne, in the previous impact assessments, C&I costs were lower than the average costs per tonne for both household and C&I:

	C&I (adjusted for inflation)	Average of household and C&I (adjusted for inflation)
Plastic	£162	£229
Remelt glass	£78	£97
Aggregate glass	£43	£69

Therefore for the recycling collection and sorting costs the percentage impact on business is calculated as the C&I share of the marginal tonnage times the C&I recycling and collections costs as a ratio of average costs:

$14\% \times £162/£229 = 10\%$ for plastic

$35\% \times £78/£97 = 28\%$ for remelt glass

$35\% \times £43/£69 = 22\%$ for aggregate glass

By implication, the remainder percentage that is **not** impacting on business, is the impact on local authorities i.e. a large share of any recycling collection and sorting cost increases, compared to the baseline, would be spread across local authorities.

Sensitivity

The results are sensitive to several assumptions, particularly material price assumptions.

Glass prices are currently the lowest they have been since 2008. Therefore we use current glass prices for the lowest NPV scenario, as well as the best estimate scenario. We use the highest prices seen since 2008 for the high scenario.

For plastic we assume material prices could be 50% higher or lower than current prices for the high, low and best estimates respectively. This is consistent with the kind of volatility we have seen in recent years. There could be low material plastic prices at the negative extreme or at the positive extreme the material price for PTTs (which will be an increasing proportion of the recycling required if targets increase) may increase if better end markets develop.

The table below summarises the effect on the NPV of each option using the low and high material price assumptions:

Variable	Best Estimate	Low Estimate	High Estimate	NPV change (relative to best estimate)
				Low: option 1; option 2; option 3; option 4; option 5 High: option 1; option 2; option 3; option 4; option 5
Plastic material prices	£71	£36	£107	-£30m; -£11m; -£21m; no change; no change +£31m; +£12m; +£22m; no change; no change
Glass remelt prices	£12	£12	£30	No change No change; no change; no change; +£8m; +£10m
Glass aggregate prices	-£9	-£9	£35	No change No change; no change; no change; +£11m; +£14m
Composition of additional plastic recycling above the baseline	Majority of additional recycling in consumer PTTs. Results in estimated plastic price: £71	No low estimate	Majority of additional recycling in consumer and non-consumer bottles and non-consumer film. Results in estimated plastic price: £120	No change +£42m; +£17m; +£29m; no change; no change

We use DECC low and high carbon prices previously stated for the low and high NPV scenarios.

Both these material and carbon price ranges can also act as proxies for other sensitivities such as collection cost and notional baseline uncertainty, within certain boundaries. Real world outcomes may be outside the NPV low-high ranges we have calculated if: carbon and material variables move significantly in the same direction (high or low), and other variables such as costs also move in the same direction. All variables moving in the same direction is unlikely.

Conclusion

The chain of activity in recycling is complex and the impact of these proposals has distributional impacts. For obligated businesses, this will change their costs of complying with the obligations. Reprocessors and exporters will see a corresponding change in their revenues.

Option 3 is the Government's preferred option for plastic targets. There is no preferred option for glass targets. We welcome views from respondents on which option is most desirable and the reasons why. We would also welcome any further evidence on the analysis provided especially regarding the data which underpins the targets and impacts on the costs/benefits.

The UK Government's overarching aim is to have appropriate targets which ensure that the UK complies with the EU Packaging Directive targets whilst maximising the benefits for consumers, businesses and the environment.

PRN revenue is classified as a tax and spend measure, rather than a regulatory cost, so this impact assessment is outside the scope of the Regulatory Policy Committee.

Estimating material prices – the benefit value of a recycled tonne of plastic or glass above the baseline

To estimate the future composition of recycling, we use tonnages (in the thousands) from the Plastic Packaging Market Study page 31, e.g. an 88% share is assumed to come from PTTs. For glass we use Glassflow page 28. The prices we use are the mid-point on Letsrecycle.com for August 2015, except for PTTs where the mixed rigids price from WRAP material prices report is used.

We then multiply shares by price e.g. 88% x £50 for PTTs + 12% x £223 for household film = £71 for a tonne of plastic.

Plastic	Non-bottle rigid			Total Plastic
	i.e. PTTs	Film	Bottles	
Consumer tonnage (000s)	218	37	465	720
Non-consumer tonnage (000s)	42	273	29	344
Weighting	88%	12%	0%	100%
Price	£50	£223	£241	£71

A similar procedure is used to estimate the average price of recycled remelt glass.

Remelt Glass	Brown	Green	Clear	Total Remelt Glass
Tonnage (000s)	14	56	48	118
Weighting	12%	47%	41%	100%
Price	£14	£5	£21	£12

PRN impacts

PRN costs fall on obligated producers, while PRNs benefit reprocessors and exporters. PRNs are a transfer so result in no net impact on business.

The impact on PRNs of each option is estimated by using the formula:

$$\text{PRN price per tonne} \times \text{required recycling tonnage increase} \\ = \text{PRN impact increase}$$

Table: PRN price

	PRN prices, average from September 2014 to August 2015
Plastic	£32
Aggregate	£13
Remelt	£13

Source: Letsrecycle.com – August 2015

We have not forecasted PRN prices. They are uncertain, particularly as the targets are both decreasing in options 2 and 3, in 2016/17, then increasing in options 2, 3 and 5 from 2018-2020. Proposed target changes are less steep than recent changes, particularly in plastic, so we might expect PRN prices to change less rapidly.

PRN impact estimates

	2016	2017	2018	2019	2020	Total
£ m						
PRN costs change - plastic option 1	£ -	£ -	£ 24	£ 24	£ 24	£ 72
PRN costs change - plastic option 2	-£ 2	-£ 3	£ 21	£ 22	£ 22	£ 60
PRN costs change - plastic option 3	-£ 1	-£ 3	£ 22	£ 23	£ 24	£ 66
PRN costs change - glass option 4	£ -	£ -	£ 4	£ 4	£ 4	£ 12
PRN costs change - glass option 5	£ -	£ -	£ 4	£ 5	£ 5	£ 14

The PRN cost increases from 2018 compared to a baseline where there is no PRN system. PRN costs fall in 2016/17 if plastic targets are amended down.

EU recovery rates under different targets

	2016	2017	2018	2019	2020	Current EU recovery target
EU recovery rate section						
Option 0 - baseline: unchanged then no business targets	52%	57%	41%	41%	41%	
Plastic recovery rate - baseline	44%	48%	34%	34%	34%	23%
Option 1 – Do not amend plastic business targets then keep at 57% to 2020	52%	57%	57%	57%	57%	
Plastic recovery rate - option 1	44%	48%	48%	48%	48%	23%
Option 2 – Lower plastic target to 48% in 2016 then increase by 1% each year to 2020	48%	49%	50%	51%	52%	
Plastic recovery rate - option 2	40%	41%	42%	43%	44%	23%
Option 3 – Lower plastic target to 49% in 2016 then increase by 2% each year to 2020	49%	51%	53%	55%	57%	
Plastic recovery rate - option 3	41%	43%	45%	46%	48%	23%
Option 0 - baseline: unchanged then no business targets	77%	77%	64%	64%	64%	
Glass recovery rate - baseline	65%	65%	54%	54%	54%	60%
Option 4 – Do not amend glass business target then keep at 77% to 2020	77%	77%	77%	77%	77%	
Glass recovery rate - option 4	65%	65%	65%	65%	65%	60%
Option 5 – Do not amend glass business target then increase by 1% to 2020	77%	77%	78%	79%	80%	
Glass recovery rate - option 5	65%	65%	66%	67%	68%	60%

SPECIFIC IMPACT TESTS

Equity and Fairness

The proposed changes have no undue effect on rural areas, racial groups, income groups, gender groups, age groups, people with disabilities, or people with particular religious views.

Small firms impact test

Businesses that do not simultaneously satisfy the two threshold tests in the Regulations (i.e. an annual turnover in excess of £2m and handle more than 50t of packaging) are excluded from the producer responsibility obligations in the Regulations. The proposed changes do not directly affect small businesses below these thresholds, though they may incur indirect costs through changes to costs in the supply chain.

Competition

The proposed target scenarios will affect the recovery and recycling obligations of businesses in the UK (glass producers and reprocessors, exporters). The costs incurred under any new targets (in the same way as for existing targets) will vary between businesses, since the costs are related to the amount and type of packaging the business handles.

The Government does not expect the proposals to affect the current market structure or change the number or size of firms. New businesses will not face higher charges than existing companies and the proposals should not restrict businesses choice of products. The Government is not aware of the industry being characterised by technological change that would radically alter the state of the market.

The Government have examined competition in the recycling market, material specific market (e.g. glass and plastic) and the end user market (e.g. the market for bottles). In general, the Government has been unable to identify markets where there are serious competition concerns. Competition in the recycling market is unlikely to be adversely affected as a result of adopting any of the proposed options and related targets.