Title:	Impact Assessment (IA)
Revised Government Buying Standards for Furniture **Lead department or agency:** Defra **Other departments or agencies:**	**Date:** November 2013 **Stage:** final approved **Source of intervention:** Domestic **Type of measure:** Other **Contact for enquiries:** **gbs@defra.gsi.gov.uk**

Summary: Intervention and Options

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

Furniture is purchased by Government (including central departments, local government and devolved administrations) in relatively large amounts for varying needs, ca £1.2bn per year (Sustainable Procurement National Action Plan, 2006). As an indication of breakdown, the NHS spends £55m and the MoD £21m on average per year. Central Government spends on average £45m per year. The manufacture of furniture potentially has significant environmental externalities, which represent a market failure. These negative externalities primarily occur in manufacture, and in disposal at end of life. Through the reuse or refurbishment of existing items of furniture, these negative environmental externalities can be reduced. Although there is growing awareness of environmental issues relating to furniture and its materials, normal market forces are not addressing these sufficiently or quickly enough. Government intervention is

What are the policy objectives and the intended effects?

The policy objective is to increase the proportion of reused and refurbished furniture in use by the Government. This Impact Assessment is for changes to the Government Buying Standard in 2013 to include following a procedure of seeking out reused furniture first, then considering refurbished furniture, then procuring from a core list of products before considering the need for any non-standard furniture. It builds on the previous revision of the GBS that encompassed criteria developed through the EU Green Public Procurement, requiring a small percentage of furniture to be reused as part of the procurement process. By specifying more stringent reused requirements overall spend can be reduced and additional environmental benefits achieved. The minimum standard within each GBS is mandatory for central Government, under the Greening Government Commitments,

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

Some existing negative environmental externalities are already addressed by government policies, e.g. putting a price on CO2 emissions through the EU Energy Trading Scheme. However, market failures and behavioural barriers can justify intervention where it is found to be cost-effective. GBS are well established and are one of the non-regulatory interventions to tackle this failure. It should be able to further develop a supply of sustainable products, and help foster higher UK standards. Additionally, by developing a model of best practice with regard to furniture procurement, industry may adopt these standards as part of its own sourcing standards.

Will the policy be reviewed? It will be reviewed. **If applicable, set review date: 2018** **What is the basis for this review?** Please select. **If applicable, set sunset clause date:** Month/Year	
Are there arrangements in place that will allow a systematic collection of monitoring information for future policy review?	Yes

SELECT SIGNATORY Sign-off For consultation stage Impact Assessments:

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 and Evidence

Policy Option 1

Description:

Price Base Year 2	PV Base Year 2	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: £30m	**High: £60.5m**	**Best Estimate: £45.2m**

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	-		Optional	**£1.9m**
High	-	-	Optional	**£7.5m**
Best Estimate	£0		£0.6m	**£4.7m**

Description and scale of key monetised costs by 'main affected groups'

Costs to government of administering this increase in reuse and refurbishment represent a significant amount (£4.7m). This is the only monetised cost.

Other key non-monetised costs by 'main affected groups'

If resources formerly tied up producing new furniture are used to produce other goods and services, there may be a knock-on increase in energy use and carbon emissions. This may partially offset the monetised reductions in energy use and carbon emissions. There will be some transition costs to businesses currently supplying furniture to Government. There may also be some loss of welfare to government from choosing reused or refurbished furniture over brand new furniture.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	-		Optional	**£31.9m**
High	-	-	Optional	**£67.9m**
Best Estimate	£0		£5.4m	**£49.9m**

Description and scale of key monetised benefits by 'main affected groups'

Monetised benefits include reduced carbon emissions (£1.5m) through increased reuse and refurbishment. This is due to the anticipated decrease in manufacture of new furniture. Savings are estimated from reduced Government spend on furniture items, calculated through the saving in spend (£53.7m) on new furniture less the increased spending on refurbishment (£5.3m).

Other key non-monetised benefits by 'main affected groups'

Legislative compliance and contribution to sustainable procurement targets. Reduction in GHG emissions (excluding carbon) and reduced waste as a result of lower production of new furniture. Reduced resource extraction from less demand for raw materials. Reallocation of resources formerly tied up producing furniture to producing other goods and services.

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

Assumptions have been made with regard to current Central Government procurement of furniture, cost and carbon savings of reuse and refurbishment of furniture. It is assumed that the following percentages of furniture have been purchased from outside the UK: desks 39%; chairs 49%; pedestals 47%; and shelving 21%. This IA has focused on these four furniture items. Assuming total annual Central Government spend of £45million on all furniture, these four items represent 62%, or £28million of this total spend. This IA will therefore provide an underestimate as it focuses only on these four significant items. The baseline has taken into account actual reuse rates which are currently estimated at 10% for reuse and 10% for refurbishment as a percentage of the total furniture acquired. The baseline is assumed to remain flat, at 10%.

Direct impact on business (Equivalent Annual) £m):			In scope of OIOO?	Measure qualifies as
Costs: £0.0m	**Benefits:** £0.0m	**Net: £0.0**m	Yes/No	IN/OUT

Evidence Base (for summary sheets) – Notes

Use this space to set out the relevant references, evidence, analysis and detailed narrative from which you have generated your policy options or proposal. Please fill in **References** section.

References

Include the links to relevant legislation and publications, such as public impact assessments of earlier stages (e.g. Consultation, Final, Enactment) and those of the matching IN or OUTs measures.

No.	Legislation or publication
1	Defra, *Government Buying Standards* http://sd.defra.gov.uk/advice/public/buying/
2	European Commission, *Furniture GPP Product Sheet*, 2008: http://ec.europa.eu/environment/gpp/pdf/toolkit/furniture_GPP_product_sheet.pdf
3	CRR, *Public Procurement of Remanufactured Products*, 2011
4	CRR, *Reuse of Office Furniture – Incorporation into the 'Quick Wins' criteria*, 2009
5	National Audit Office, *Addressing the environmental impacts of Government procurement*, 2009
6	WRAP *Alternative Business Models for the Furniture and Floor Covering Supply Industry,* 2012 (unpublished)
7	Entec, *Economic and Environmental Costs and Benefits and market Evaluation of European Union GPP Criteria for Furniture.* 2009

Evidence Base

Ensure that the information in this section provides clear evidence of the information provided in the summary pages of this form (recommended maximum of 30 pages). Complete the **Annual profile of monetised costs and benefits** (transition and recurring) below over the life of the preferred policy (use the spreadsheet attached if the period is longer than 10 years).

Annual profile of monetised costs and benefits* - (£000s) 2011 prices

	Y_0	Y_1	Y_2	Y_3	Y_4	Y_5	Y_6	Y_7	Y_8	Y_9	Y_{10}	Total
Annual recurring cost	£0	£543	£525	£507	£490	£474	£458	£442	£427	£413	£399	£4,678
Total annual costs	£0	£543	£525	£507	£490	£474	£458	£442	£427	£413	£399	£4,678
Annual recurring benefits	£0	£944	£1,982	£2,562	£3,101	£5,760	£6,310	£7,352	£7,325	£7,403	£7,157	£49,897
Total annual benefits	£0	£944	£1,982	£2,562	£3,101	£5,760	£6,310	£7,352	£7,325	£7,403	£7,157	£49,897

* For non-monetised benefits please see summary pages and main evidence base section

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EXECUTIVE SUMMARY

This Impact Assessment (IA) covers the environmental and financial costs and benefits from adopting a revised set of specifications for furniture products procured within Central Government departments and their executive agencies.

The costs and benefits covered in the IA are for a 10 year period and include:

Costs:

- Administrative burden – the additional costs to Government of managing the new system of acquiring furniture (£4.7m)
- Loss of furniture welfare from using secondhand furniture rather than new furniture (non-monetised)
- There will be some unquantified transition costs for the furniture industry.

Benefits:

- The net financial benefits to Government from procuring less new furniture (£48.4m). This is calculated based on a reduction in spend on new furniture (£53.7m) minus the increase in spend on furniture refurbishment (£5.3m).
- Environmental benefits of reduced material/energy use. This consists of the value of carbon emission savings (£1.5m) from lower levels of new furniture production.
- Other direct benefits not monetised in this cost benefit analysis include reduced greenhouse gas emissions (excluding carbon) and reduced waste as a result of lower production of new furniture.

We assume that on aggregate, the factors of production would be reallocated to alternative goods and services therefore we do not include the reduction in furniture industry revenue or profits as costs to the UK as a whole.

Overall, total monetised benefits equal £49.9 million (£48.4m net savings in procurement expenditure and the value of carbon emission savings (£1.5m). Total monetised costs equal the £4.7 million administrative cost to government, equating to a **net benefit of £45.2 million** for the UK.

To calculate these costs and benefits it has been assumed that increasing use of reused and refurbished furniture will be 'phased in' (i.e. that over time reused and refurbished furniture use will become more common).

1. INTRODUCTION

This IA focuses on office furniture and does not include other related items: in particular, wall and floor coverings such as carpets and curtains. This IA builds on the previous Government Buying Standards (GBS) update in 2010, focusing on the new requirements for reuse and refurbishment and a requirement for manufacturers to provide Central Government with CAD drawings of furniture purchased. The costs and benefits presented in this IA are additional to the existing GBS requirements for furniture procurement.

The assessment is focused around four 'core' office furniture items: chairs, desks, pedestals and shelving. These constitute the majority of Central Government office furniture procurement (62% of total annual spend), as office base activities represent the main focus of activity within Central Government. Throughout, evaluation is based around these 'core' items. With an assumed annual Central Government spend of £45m, this equates to an estimated £28m spent on these four 'core' furniture items.

In addition, there is a big opportunity for reuse and refurbishment within the UK office furniture market. Approximately 165,000 tonnes of office furniture are thrown away annually from British businesses (CRR, Public Procurement of Remanufactured Products, 2011). Some of this will be the result of wear and tear, but the majority is in perfect working order and its disposal is largely due to changes in fashion, variations in staff levels, or whole office moves. It has been estimated that over half of the office furniture sent to landfill each year is reusable. This figure could potentially increase with current spending cuts reducing the number of desks and offices required by both Central and Local Government (CRR, Public Procurement of Remanufactured Products, 2011).

In 2007-08, Central Government departments and their executive agencies spent £54.7 billion on purchasing a range of non-capital goods and services (National Audit Office, Addressing the environmental impacts of Government procurement, 2009). The environmental impacts of producing, using and disposing of these goods (i.e. across the product life cycle) are substantial; for example, in terms of energy use, natural resource extraction (i.e. timber) and the dispersal of pollutants to air and water.

Regulation and other market forces are not addressing these issues sufficiently or as quickly as may otherwise be possible. Nor are the financial incentives on procurers. Intervention through sustainable procurement criteria - including the greater implementation of reuse and refurbishment of furniture - will help to address these failures.

2. RATIONALE FOR INTERVENTION

Many of the negative externalities from producing and using goods and services (for example, sustainability impacts that are not compensated for in the purchase price) are already addressed by government policies. An example of this would be putting a price on carbon emissions through the EU Energy Trading Scheme, or regulating electrical waste through the WEEE Directive. These are as applicable to goods and services procured by government as they are to the rest of the UK.

At present, Central Government purchases the majority of furniture new, rather than considering reuse or refurbishment. This may be in part due to the time and trouble of finding appropriate used furniture or of refurbishing existing furniture. Government Buying Standards, which are already well-established, are one of the non-regulatory interventions to tackle this failure. Procurers currently follow specifications for furniture which help them to procure more cost effectively – the proposed options here would result in additional benefits through environmental and financial savings.

The Centre for Remanufacturing and Reuse (CRR)[1] has identified office furniture as having excellent potential for reuse, as it is often disposed of in an easily reused or 'refurbishable' state. Commercially and environmentally it makes sense to reuse this furniture in further lifecycles. It has been calculated that large savings in carbon emissions can result from the reuse of office furniture. Therefore, due to the quantity of furniture used, large savings in carbon emissions could result from increasing the quantity and expanding the number of office furniture products which are reused or refurbished. Carbon data throughout this assessment has been derived primarily from the 2010 CRR report, *Carbon Impact of Office Furniture Reuse*, and is supplemented with data from an unpublished WRAP study, *Alternative Business Models for the Furniture and Floor Covering Supply Industry.*

The office furniture industry in the UK is valued at approximately £680 million per year. Government procurement in 2009 was estimated to account for 9.6% of this market (£65 million) (CRR, *Reuse of Office Furniture – Incorporation into the 'Quick Wins' criteria*, 2009), and an estimated 7 % (£45 million) in 2011/12. Although there are some statistics in this area, the accuracy of the actual spend is in doubt. For the purposes of this assessment, Government spend is as assumed to be £45 million per year. This figure has been estimated in consultation with the Government Property Unit, and is based on previous Government Department spend surveys. This figure represents spend on *all* furniture and so assumptions have been made as to the proportion of this which relates to the four 'core' furniture items; chairs, desks, pedestals and shelving (see Table 2 for details of this assumption).

There may be positive externalities and spillovers from greater Government implementation of furniture reuse and refurbishment. For example, if the Government accounts for a large proportion of demand for a product or service, then it may be able to incentivise the market to improve in order for suppliers to capture this demand. Assuming the UK office furniture industry is valued at £680 million per year, Government spend of £45m accounts for an estimated 7% of the furniture market in 2011/12. This percentage share is significant but not dominant, perhaps somewhat limiting government influence. There is also, however, evidence to suggest that setting a 'good example' may encourage others (such as businesses and industry) to adopt stricter standards and practices when procuring or purchasing goods. In addition, government intervention is required to reduce externalities associated with furniture disposal by facilitating reuse and refurbishment of furniture.

Using previous industry estimates, total office furniture consumption in the UK is assumed to be between 165,000 and 200,000 tonnes per year. If the Government's share of tonnage is equivalent to its share of spend, then the UK Government procures between 11,500 and 14,000 tonnes of office furniture per year.

[1] The UK Centre for Remanufacturing and Reuse are an independent organisation specialising in advice and promotion on remanufacturing, reuse and reconditioning. The Centre is embedded within Oakdene Hollins Ltd.

Office furniture has a typical service life of 9 to 12 years, but is often replaced due to aesthetic and corporate reasons, not through loss of functionality. Hence most items are replaced on an entire-office basis, rather than individual pieces being replaced.

Furniture's environmental impact largely occurs during manufacture and disposal (in particular the production and treatment of raw materials used). Any extension to the product's life will reduce its overall impact. It is environmentally beneficial to encourage use of recycled content and recyclability of products. However, reuse and refurbishment are situated higher than recycling on the 'waste hierarchy' and typically offer greater environmental benefits due to the retention of the embodied energy within the product itself (CRR, *Reuse of Office Furniture – Incorporation into the 'Quick Wins' criteria*, 2009).

3. CURRENT SPECIFICATIONS

The GBS pre-2013 updates included a number of criteria including minimising the use of hazardous substances, in both production and end of life disposal; following government policy on the use of timber from sustainable forests and encouraging reuse and refurbishment. Where possible, good practice in furniture buying also looks to maximise the use of recycled and renewable materials.

For this IA, only the additional elements are considered, as outlined below. The GBS specification is mandatory for Central Government and associated organisations under the Greening Government Commitments. In addition, it is expected that the amount of furniture, either reused internally or bought as reused, increases. Similarly, the refurbishment of existing furniture is being increasingly adopted as good practice.

Current government procurement data shows that as of 2010/11 the amount of furniture reused equated to 10% of the total number of furniture items acquired (including those bought new and those reused). Similarly, the amount refurbished was also 10% of the total number of furniture items acquired. Note that these are estimates only.

4. PROPOSED SPECIFICATIONS FOR FURNITURE PROCUREMENT

Introduction:

This section sets out proposed changes to the current Government Buying Standards criteria. These take into account the changes that would be necessary to incorporate greater reuse and refurbishment into public sector furniture procurement specifications.

Proposed changes:

Three major changes to the GBS are:

1) A requirement to consider reuse and refurbishment prior to the procurement of new furniture.

2) A requirement for suppliers to provide CAD drawings for furniture items to facilitate refurbishment.

3) Procurement of furniture from a core list, where possible, to facilitate refurbishment.

The remaining specifications text will remain largely unchanged and follows the EU's Green Public Procurement specifications for furniture. The costs and benefits presented in this IA are additional to the existing GBS requirements (pre 2013) for furniture procurement.

5. CALCULATIONS AND ASSUMPTIONS

This impact assessment seeks to outline the costs and benefits of the above proposed changes, and monetise these where possible. Broadly speaking the following costs and benefits have been identified as relevant:

Costs:

- **Administrative burden** – the additional costs to Government of managing the new system of acquiring furniture (£4.7m) (see Table)
- Any loss of **welfare** from using second-hand furniture rather than new furniture. While there is no reason to believe that second-hand furniture should fulfil its function significantly less well, it is logical to presume that second-hand furniture may be inferior to new in terms of life span, comfort or appearance and therefore the total welfare gained over a product's life span is less than would be from new furniture. It would be very difficult to estimate the magnitude of such costs and therefore they have not been monetised.
- There will be some unquantified transition costs for the furniture industry of moving resources from production of new furniture to refurbishment and other industries.

Benefits:

- **The net financial benefits to Government from procuring less new furniture** (£48.4m). This is calculated based on a reduction in spend on new furniture (£53.7m) minus the increase in spend on furniture refurbishment (£5.3m)
- **Environmental benefits of emission savings** (£1.5m) from lower levels of new furniture production.
- **Other direct benefits not monetised in this cost benefit** analysis include reduced greenhouse gas emissions (excluding carbon) and reduced waste as a result of lower production of new furniture.

We assume that UK producers will reallocate resources which were formerly used to produce new furniture to providing other goods and services. This may partially offset the reduction in revenue for domestic businesses, but may result in an increase in energy costs and carbon emissions.

Given that the IA does not include waste disposal costs an additional calculation has been done to estimate the monetary costs of implementing these changes for a Department spending a notional £10 million per annum. Please see end of section 5 below.

Baseline data:

This IA focuses on office furniture; office chairs, desks, pedestals and shelving. These products have been identified as 'core' items and their potential for reuse and refurbishment is significant. Combined, these products account for an estimated 62% of total government office furniture spend, with the remainder being mainly filing cabinets and other office accessories.

Existing GBS standards (requiring sourcing where possible of furniture to minimise the use of hazardous substances, ensure the use of timber from sustainable forests and look to maximise the use of recycled and renewable materials) are assumed to be included in the baseline. This was previously outlined in section 3.

The proposed criteria to increase the reuse and refurbishment of office furniture products are assumed to be additional to the existing GBS baseline described above. This assessment has been designed to estimate the effects of reuse and refurbishment procurement policies over a period of ten years. This

scope has been chosen as it allows medium-term costs and savings to be more clearly presented and explained.

The baseline has taken into account actual reuse rates which are currently at 10% for reuse and 10% for refurbishment, as a percentage of the total furniture acquired (data from confidential Government Department Spend, 2010/11). It should be noted that although in practice this baseline is likely to rise over time, there is a lack of evidence to suggest what this increase will be. Therefore, for this IA, the baseline is assumed to be flat.

Savings through reuse and refurbishment:

Savings made as a result of reuse and remanufacturing policies are based on separate assumptions for each furniture type. Table 2 presents the estimated average unit price for furniture items purchased new, reused or refurbished. These figures have been derived from CRR estimates, based on discussion with furniture manufacturers in the UK.

Table 1: Estimated average unit prices for furniture items, as new, reused or refurbished

	Desks (£)	Chairs (£)	Shelving (£)	Pedestal (£)
Reused RRP Proxy	105	86	50	53
Refurbished RRP Proxy	84	49	40	43
New RRP	209	122	100	107

Government procurement:

Total annual spend on the procurement of office furniture by Central Government has been estimated at £45million. As is the case with other products purchased by Central Government, there is a lack of disaggregated data at departmental level. There is also a shortage of any information about the environmental characteristics of that furniture. However, some survey data does exist, and the estimate of £45million has been based on the following:

a) The value of spend that went through the Government Procurement Service framework contract for central Government was £21 million (total spend through the framework was £42.5 million) (2011-12).
b) A survey by the Government Property Unit of central Government Departments reported £38 million spend. It did not achieve full coverage of Departments (2010-11).
c) Government Procurement Service asked Departments to report on spend across various categories. For furniture the reported figure was £33 million (i.e. an additional 12 million outside of the GPS framework contract) for 2011-12. It is likely that the £33 million does not include all spend as some furniture will be procured as part of broader contracts and may have been categorised differently.

After consultation with the Government Property Unit, a figure of £45 million was derived (in recognition that none of the above figures represent incomplete coverage of central Government spend on furniture). This estimate includes total spend on office furniture (and excludes baseline spending on refurbishment of products) in all Central Government departments and agencies. For the purposes of the model, changes to government spend have been calculated based on cost of refurbishment and savings made through lower procurement of new furniture.

The total proportion of Central Government spend on each individual furniture type (desk, chairs, pedestals and shelving) is also assumed to remain constant over the 10 year scope of the IA. Desks have been calculated to represent 15% of spend, chairs 24%, pedestals 6% and shelving 17%. These assumptions are drawn from an assessment of county council spend (unpublished confidential data obtained from English Local Authority, 2010). This study does not consider the impact of changes to GBS for furniture on other items such as carpets and sofas. The following table details the estimates used in the analysis to calculate government spend on furniture items.

Table 2: Estimates of current annual government spend and units purchased by furniture type

		Total	Desks	Chairs	Shelving	Pedestals
Percentage of total spend	%		15	24	17	6
Estimated spend by furniture type	£000s	£45,000	£6,750	£10,800	£7,650	£2,700
Average price of new furniture	£		£209	£122	£100	£107
Estimated number of units purchased	000s	223	32	89	77	25

Take-up:

Table 3 presents a best estimate of future percentage optimum capacity for furniture to be reused, refurbished or procured as new within one financial year (e.g. optimum conditions would mean that of 70% of furniture purchased in a year is reused (40%) or refurbished (30%)). The remainder of the desks must be purchased new (30%) as not all furniture will be suitable for reuse or refurbishment. This assumption has been based on the CRR's experience, including numerous studies in this area and informal conversations with industry.

Table 3: Optimum percentages of furniture bought new, reused or refurbished

	Current furniture procurement (%)	Optimum percentages of furniture procurement (%)
Reused	10%	40%
Refurbished	10%	30%
Bought new	80%	30%

These optimum levels of reuse and refurbishment are unlikely, however, to be achieved within a one-year period. As such the uptake rate of the proposed reuse and refurbishment policy has been phased in; it is assumed that this represents a more realistic uptake pattern. Table 4 presents this across the period of assessment. A range of uncertainty has been included which provides a high and low scenario. Note, the 70% optimum percentage for reuse and refurbishment has been assumed to be the maximum. A central estimate for the amounts reused and refurbished is shown in Table 4.

Table 4: High and low scenarios for increasing reuse and refurbishment

		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Amount bought new	High	72%	64%	59%	54%	44%	42%	35%	35%	30%	30%
	Low	87%	84%	89%	84%	64%	60%	52%	50%	50%	50%
	Central	80%	74%	74%	69%	54%	51%	44%	43%	40%	40%
Amount reused	High	15%	23%	28%	33%	38%	38%	40%	40%	40%	40%
	Low	5%	8%	3%	8%	23%	30%	33%	35%	35%	35%
	Central	10%	16%	16%	21%	31%	34%	37%	38%	38%	38%
Amount refurbished	High	13%	13%	13%	13%	18%	20%	25%	25%	30%	30%
	Low	8%	8%	8%	8%	13%	10%	15%	15%	15%	15%
	Central	11%	11%	11%	11%	16%	15%	20%	20%	23%	23%

This assumes that; (1) the amount of furniture 'bought new' must be at least 30% of all stock required annually. This takes into account the need to replenish some items of furniture which become unsuitable for either reuse or refurbishment; and (2) the amount of furniture refurbished will only be, as a maximum, 30% of all stock required annually. This reflects the likelihood that not all furniture is suitable for refurbishment.

The percentage refurbished furniture remains steady until 2016. This reflects the fact that current GPS framework contract does not currently support a significant increase in refurbishment. This ends in 2016; the phase-in is assumed to represent a realistic increase in refurbishment following this.

As outlined in section 5, furniture reuse is currently estimated at 10%, and refurbishment also at 10% of annual government furniture use. This IA applies these baseline assumptions to the total potential reuse figures to determine the additional impact of reuse and refurbishment above current practice. Table 5 shows the savings that will be realised by government from a reduced purchase of new furniture, and the costs of increased refurbishment.

Table 5: Savings in government procurement from a reduced purchase of new furniture

Central Estimate	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	**Total**
Saving from lower furniture spend	PV (£000)	£1,078	£2,084	£2,642	£3,161	£6,108	£6,582	£8,004	£7,945	£8,188	£7,912	**£53,704**
Cost of refurbishment	PV (£000)	£162	£156	£151	£146	£517	£454	£877	£848	£1,024	£989	**£5,323**

Impact on UK furniture manufacturers:

There is a potential negative impact on furniture manufacturers in the UK due to the projected fall in government procurement of new furniture. Such businesses may incur transitional costs of moving to other industries.

Wider society and environment:

The model has assumed that the carbon saved when utilising refurbished office furniture items is equivalent to that saved when utilising reused items. This proxy has been used due to the lack of any available data in the public domain with regard to carbon savings associated with refurbished furniture items.

The lifetime carbon emissions associated with each item have been calculated within the model by first identifying the carbon saving (tCO_2e) accrued through reusing and refurbishing furniture, rather than buying new (estimates sourced from CRR assumptions, 2011). This assumes that new furniture will not be manufactured if demand declines due to increased refurbishment and reuse.

To calculate the total carbon value for each item, DECC non-traded carbon values have been applied and the total value calculated. A 3.5% discount rate, as recommended by the HM Treasury Green Book, has been used to present the costs and benefits as 2012 present values.
Table summaries the carbon emissions for each of the four furniture types: chairs, desks, pedestals and shelving. This information is based on approximated material content of furniture items and data from the Ecoinvent database (Version 3.0, available at http://www.ecoinvent.org/database/).

Table 6: Assumed lifetime carbon emissions (kgCO2e) per unit of the office furniture, new, reused and refurbished

	Desks	Chairs	Shelving	Pedestals
Lifetime carbon emissions per unit of furniture (kgCO2e):				
• New	97	67	112	63
• Reuse/refurbishment	27	22	27	28
Carbon reduction per unit of furniture reused/refurbished (kgCO2e)	70	45	85	35

Table presents the estimated reduction in carbon emissions from increased reuse and refurbishment of furniture (shows a central estimate only) over ten years. It has been calculated by multiplying the carbon reduction per unit of furniture by the number of furniture items reused and refurbished.

Table 7: Carbon savings through reuse and refurbishment of furniture, and carbon values over ten years

	Units	Desks	Chairs	Shelving	Pedestals	Total
Total carbon saving through reuse and refurbishment	*tCO2e*	9,694	16,961	28,123	3,809	15,139
Non-traded carbon value (2011)	*£/t*	56	56	56	56	

Table shows the value of carbon savings from reuse and refurbishment; calculated from carbon savings volumes and values in the table above.

Table 8: Estimated annual reductions in carbon emissions from reuse and refurbishment of furniture

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
Number of units reused or refurbished (000s)	46	58	58	69	102	109	126	128	134	134	963
Carbon saving from reuse and refurbishment (PV £000s)	£28	£55	£71	£86	£169	£182	£225	£228	£239	£234	£1,516

Administrative burden:

Administrative burden costs include the costs to government of developing a new system to manage the reuse and refurbishment of furniture. It also includes additional costs associated with the storage of furniture awaiting reuse or refurbishment and any other processes or systems needed to be introduced to facilitate this. The administrative burden to the UK Government has been estimated to be 1.25% of total annual government expenditure on furniture (£45m). This percentage is the average of the low and

high scenarios (0.5% and 2%) presented in Table and is an assumption based on the professional opinion of the CRR. The annual costs of this (central estimate) are outlined in Table .

Table 9: Assumptions for administrative burden as a percentage of annual government spend on furniture

	Low (%)	High (%)	Central (%)
Administrative Burden	0.50%	2%	1.25%

Table 10: Annual Administrative Burden costs to government

	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
Administrative Burden	PV (£m)	£0.5	£0.5	£0.5	£0.5	£0.5	£0.5	£0.4	£0.4	£0.4	£0.4	£5

It should be noted that there is a significant uncertainty surrounding these. As there are no prior examples of a system of reuse and refurbishment being introduced in this way, the figures provided in Table should be assumed to be indicative only.

Assumptions for Net Present Value calculations:

Results of the analysis of costs and benefits of increased furniture reuse and refurbishment have been presented as Net Present Value (NPV). A 3.5% discount rate has been used as outlined in The Green Book: Appraisal and Evaluation in Central Government.

Impact on Individual Procuring Government Department:

Procurers may be more interested in the monetary costs incurred by their Department alone. A Department will incur waste management costs which are cancelled out in the above IA calculations. This is because the IA calculations consider the costs to Government as a whole, and the cost of waste disposal incurred by one department will be revenues gained elsewhere in the public sector. The following paragraph is to assist procurers in understanding the impact of implementing the GBS on their departmental budgets.

Procurers may be more interested in the monetary costs for their Department. For a Government Department that usually spends around £10 million per annum on furniture, implementing this latest GBS (i.e. the changes since the 2010 GBS) will deliver an estimated cost savings of £1.1million per annum (on average; the IA is based on a 10 year period). There will also be an estimated additional £32,000 (or £0.032million) saving per annum from a reduction in waste management costs . Implementing this standard is expected to cost an extra £0.1 million in administration. The net saving is an **estimated £1.0 million per annum** (to 1 decimal point).

6. RISKS AND IMPACTS

There is a potential negative impact on furniture manufacture and supply businesses in the UK. This is due to the projected fall in government procurement of new furniture over the 10 year period studied in this IA. This is a result of more efficient use of existing furniture stock, through reuse and refurbishment. There are however, potential opportunities for the growth of remanufactured furniture[2] and reused

[2] For the purpose of this document, remanufacture refers to altering an item of furniture to better suit the needs of the user; an example would include turning a corner desk into a straight desk.

furniture supply. It can also be assumed that remanufacture of furniture is likely to be wholly within the UK whereas manufacture may occur nationally or internationally.

These changes do not impact on competition per se. They will however reduce the purchase of new furniture and increase the use of refurbished with obvious impacts on the companies involved. In addition procurers will purchase new furniture from a core list of products wherever possible so companies may need to adapt their product range to suit.

Potential supply constraints:

There is a significant lack of capacity for remanufactured furniture in the UK. However, remanufactured furniture is only estimated to account for a small percentage of public sector demand (as mentioned in section 5) and so remanufacturing capacity may adapt with an increase in demand, although this assumption has not been tested. Similarly, the availability of reused furniture is largely constrained by a lack of demand. There is no evidence to suggest that the market cannot be increased significantly if the appropriate market forces become available.

Small firms' assessment:

SMEs have a significant role in the manufacture and supply of furniture to UK government. Spend through Buying Solutions (now known as Government Procurement Service) indicate that 38% of all furniture procured by value in 2008/09 was placed with SME suppliers. For 2009/10 this ratio reportedly is at 57% (Buying Solutions, 2009). This figure may relate to those companies involved in the direct supply of goods and it is expected that there will be a number of other small and medium sized firms that might be involved in different parts of the supply chain. These figures are not exclusive to central Government Departments and would relate to any spend that was made through Buying Solutions.

It is reported (Entec, 2009) that 67% of all UK furniture businesses employ fewer than nine staff, whilst the largest 300 companies employ 45% of all people working in furniture manufacturing and sales. To put this in perspective, it is reported that there are 7,500 companies employing a total of 124,000 people in the UK (www.bfm.org.uk). Previous estimates indicate that the MoD, in 2009, sourced 94% of all office furniture from SMEs, a value of £10.4m (MoD, November 2009). This highlights the significance of SMEs within procurement systems, and the potential impact that procurement changes may have.

Any proposal that imposes or reduces the cost on business requires a Small Firms Impact Test (SFIT), which becomes a mandatory part of the IA process when a proposal impacts SMEs. The SFIT aims to ensure that all the costs and benefits that may affect small businesses are considered and properly assessed (bis.gov.uk/SFIT, 2012). For this IA, the potential negative impacts on SMEs include a projected fall in government procurement of new furniture. This may, however, be somewhat offset by an increase in potential opportunities for the development of refurbishment and reuse activities and furniture supply.

Furniture composition:

As detailed in section 5, government spend data on furniture is primarily aggregated, and so assumptions must be made about the product split of this spend. In addition, there is little information about the environmental characteristics, or composition, of this furniture. For example, an office desk can be manufactured from a number of different components, each made from varying materials, with

varying environmental impacts across production, use and disposal. It should be noted that there will be some variance in purchase costs, ability to reuse and remanufacture and the carbon savings of the furniture items. The following section outlines how these uncertainties have been considered.

7. SUMMARY OF COSTS & BENEFITS

Table 6 summarises the estimated costs and benefits resulting from the proposed policy. All figures are presented as Net Present Values (£000) using the assumptions presented above.

Table 6: Summary of the estimated discounted costs and benefits from increased reuse and refurbishment of furniture

Central Estimate	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	**Total**
Costs												
Administrative cost to Government	PV (£000)	543	525	507	490	474	458	442	427	413	399	4,678
Total Costs	PV (£000)	543	525	507	490	474	458	442	427	413	399	4,678
Benefits												
Reduced carbon emissions from producing less new furniture	PV (£000)	28	55	71	86	169	182	225	228	239	234	1,516
Net savings in Government procurement	PV (£000)	917	1,927	2,491	3,015	5,591	6,128	7,127	7,098	7,165	6,923	48,381
Total Benefits	PV (£000)	944	1,982	2,562	3,101	5,760	6,310	7,352	7,325	7,403	7,157	49,897
Net benefit to UK from increased reuse and refurbishment	PV (£000)	**401**	**1,457**	**2,054**	**2,611**	**5,286**	**5,853**	**6,910**	**6,898**	**6,991**	**6,758**	**45,219**

* see table 12 for breakdown of this calculation

High	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	**Total**
Costs												
Administrative cost to Government	PV (£000)	870	840	812	784	758	732	707	683	660	638	7,485
Total Costs	PV (£000)	870	840	812	784	758	732	707	683	660	638	7,485
Benefits												
Reduced carbon emissions of producing less new furniture	PV (£000)	55	109	141	172	234	239	278	273	298	293	2,093
Net savings in Government procurement	PV (£000)	1,833	3,855	4,983	6,030	7,705	7,717	8,552	8,263	8,598	8,307	65,842
Total Benefits	PV (£000)	1,889	3,964	5,124	6,202	7,939	7,956	8,830	8,536	8,896	8,600	67,935
Net benefit to UK from increased reuse and refurbishment	PV (£000)	**1,019**	**3,124**	**4,312**	**5,417**	**7,181**	**7,223**	**8,123**	**7,853**	**8,236**	**7,962**	**60,450**

Low	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	**Total**
Costs												
Administrative cost to Government	PV (£000)	217	210	203	196	189	183	177	171	165	160	1,871
Total Costs	PV (£000)	217	210	203	196	189	183	177	171	165	160	1,871
Benefits	PV (£000)											
Reduced carbon emissions of producing less new furniture	PV (£000)	0	0	0	0	104	126	173	182	179	176	939
Net savings in Government procurement	PV (£000)	0	0	0	0	3,477	4,539	5,702	5,933	5,732	5,538	30,920
Total Benefits	PV (£000)	0	0	0	0	3,581	4,665	5,874	6,115	5,911	5,714	31,859
Net benefit to UK from increased reuse and refurbishment	PV (£000)	**-217**	**-210**	**-203**	**-196**	**3,391**	**4,482**	**5,698**	**5,944**	**5,746**	**5,554**	**29,988**

The following sections detail the calculations behind this summary, including costs and benefits for both the UK Government and UK office furniture suppliers. For each calculation, high and low scenarios and a central estimate are provided.

Government summary:

The net saving in government procurement costs through increased reuse and refurbishment of furniture are presented in Table . These savings include reduced spending on new furniture, increased spending on refurbished furniture and an administrative cost of introducing these buying standards.

Table 12: Estimated discounted costs and benefits for the UK Government

Central Estimate	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	**Total**
Administrative costs to government	PV(£000)	543	525	507	490	474	458	442	427	413	399	**4,678**
Saving from lower spend on new furniture	PV(£000)	1,078	2,084	2,642	3,161	6,108	6,582	8,004	7,945	8,188	7,912	**53,704**
Cost of increased refurbishment	PV(£000)	162	156	151	146	517	454	877	848	1,024	989	**5,323**
Total Benefit to Government	PV(£000)	**373**	**1,402**	**1,984**	**2,525**	**5,117**	**5,671**	**6,685**	**6,671**	**6,752**	**6,524**	**43,703**

High	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	**Total**
Administrative costs to government	PV (£000)	870	840	812	784	758	732	707	683	660	638	**7,485**
Saving from lower spend on new furniture	PV (£000)	2,157	4,167	5,284	6,321	8,457	8,625	9,868	9,534	10,236	9,889	**74,539**
Cost of increased refurbishment	PV (£000)	323	313	302	292	752	908	1,316	1,271	1,638	1,582	**8,696**
Total Benefit to Government	PV (£000)	**963**	**3,014**	**4,171**	**5,245**	**6,947**	**6,985**	**7,845**	**7,580**	**7,938**	**7,669**	**58,357**

Low	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	**Total**
Administrative costs to government	PV (£000)	217	210	203	196	189	183	177	171	165	160	**1,871**
Saving from lower spend on new furniture	PV (£000)	0	0	0	0	3,759	4,539	6,140	6,356	6,141	5,934	**32,869**
Cost of increased refurbishment	PV (£000)	0	0	0	0	282	0	439	424	409	396	**1,949**
Total Benefit to Government	PV (£000)	**-217**	**-210**	**-203**	**-196**	**3,287**	**4,356**	**5,525**	**5,762**	**5,567**	**5,379**	**29,049**

UK suppliers:

Table 7 presents the net cost to domestic businesses from the policy. We assume that to the UK economy as a whole, overall losses to furniture manufacturers will be the costs of switching resources to other industries (transitional costs) only. While furniture manufacturers may initially make losses due to the decrease in demand from government procurers, as resources are reallocated to other areas of the economy, gains will be made elsewhere and therefore counteract these losses. However, if we look at UK furniture suppliers alone, we consider these losses accrued due to Government purchasing less new furniture. Nevertheless, this will be partially offset as a result of lower energy costs and an increase in the revenue from refurbishing existing furniture.

Table 7: Estimated discounted reduction in profits for UK furniture suppliers

Central Estimate	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	**Total**
Reduced energy input of producing new furniture	PV (£000)	3	7	10	12	26	30	39	40	44	45	**257**
Profit lost due to lower purchase of new furniture	PV (£000)	17	32	41	48	94	101	123	122	126	121	**823**
Additional profit from increased spend on refurbishment	PV (£000)	4	4	4	4	13	11	22	21	26	25	**133**
Net reduction in profit of UK furniture makers	PV (£000)	**12**	**28**	**37**	**45**	**81**	**90**	**101**	**101**	**100**	**97**	**690**

High	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	**Total**
Reduced energy input of producing new furniture	PV (£000)	6	13	19	25	37	40	48	48	55	57	**348**
Profit lost due to lower purchase of new furniture	PV (£000)	33	64	81	97	130	132	151	146	157	152	**1,143**
Additional profit from increased spend on refurbishment	PV (£000)	8	8	8	7	19	23	33	32	41	40	**217**

Net reduction in profit of UK furniture makers	PV (£000)	**25**	**56**	**73**	**90**	**111**	**110**	**118**	**114**	**116**	**112**	**925**

Low	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	**Total**
Reduced energy input of producing new furniture	PV (£000)	0	0	0	0	16	21	30	32	33	34	**166**
Profit lost due to lower purchase of new furniture	PV (£000)	-	-	-	-	58	70	94	97	94	91	**504**
Additional profit from increased spend on refurbishment	PV (£000)	-	-	-	-	7	-	11	11	10	10	**49**
Net reduction in profit of UK furniture makers	PV (£000)	**0**	**0**	**0**	**0**	**51**	**70**	**83**	**87**	**84**	**81**	**455**

Wider society and environment:

Table 8 presents the estimated reduction in carbon emissions due to less new furniture being procured by Central Government and therefore less furniture produced.

Table 8: Estimated discounted reduction in carbon emissions due to lower quantities of new furniture being produced

Central Estimate	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	**Total**
Reduced carbon emissions of producing new furniture	PV (£000)	28	55	71	86	169	182	225	228	239	234	**1,516**

High	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	**Total**
Reduced carbon emissions of producing new furniture	PV (£000)	55	109	141	172	234	239	278	273	298	293	**2,093**

Low	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	**Total**
Reduced carbon emissions of producing new furniture	PV (£000)	0	0	0	0	104	126	173	182	179	176	**939**

Summary:

In summary, the estimated present value of costs from the policy (central estimates) is £4.7m, which is a cost to Government as a result of administrative tasks. The estimated NPV of benefits from the policy is £49.9m which includes £1.5m in reduced carbon emissions and £48.4m net savings in government procurement through furniture reuse and refurbishment.

Overall, the net present benefit to the UK is an estimated £45.2m over the period of ten years.

Annexes

Annex 1 should be used to set out the Post Implementation Review Plan as detailed below. Further annexes may be added where the Specific Impact Tests yield information relevant to an overall understanding of policy options.

Annex 1: Post Implementation Review (PIR) Plan

A PIR should be undertaken, usually three to five years after implementation of the policy, but exceptionally a longer period may be more appropriate. If the policy is subject to a sunset clause, the review should be carried out sufficiently early that any renewal or amendment to legislation can be enacted before the expiry date. A PIR should examine the extent to which the implemented regulations have achieved their objectives, assess their costs and benefits and identify whether they are having any unintended consequences. Please set out the PIR Plan as detailed below. If there is no plan to do a PIR please provide reasons below.

Basis of the review: [The basis of the review could be statutory (forming part of the legislation), i.e. a sunset clause or a duty to review , or there could be a political commitment to review (PIR)]; The sustainable procurement team in Defra looks to keep the suite of Government Buying Standards under review and update them as necessary.
Review objective: [Is it intended as a proportionate check that regulation is operating as expected to tackle the problem of concern?; or as a wider exploration of the policy approach taken?; or as a link from policy objective to outcome?]
Review approach and rationale: [e.g. describe here the review approach (in-depth evaluation, scope review of monitoring data, scan of stakeholder views, etc.) and the rationale that made choosing such an approach]
Baseline: [The current (baseline) position against which the change introduced by the legislation can be measured] A survey conducted by Cabinet Office in 2011; however it did not cover all spend; future data will be collected under the GGC but will not provide the same level of detail.
Success criteria: [Criteria showing achievement of the policy objectives as set out in the final impact assessment; criteria for modifying or replacing the policy if it does not achieve its objectives] Contracts that reflect the revised GBS criteria for furniture and furniture delivered to meet the criteria.
Monitoring information arrangements: [Provide further details of the planned/existing arrangements in place that will allow a systematic collection systematic collection of monitoring information for future policy review] Reporting is required under the Greening Government Commitments (GGC) and it is assumed this will mean procurers will comply with the regulation.
Reasons for not planning a review: [If there is no plan to do a PIR please provide reasons here]