An estimate of the effects of a reduction in the rate of VAT on housing renovation and repair work: 2015 to 2020

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Foreword

The Cut the VAT Campaign Coalition is an alliance of more than 60 charities, trade associations, business groups and financial institutions that are urging all mainstream political parties to include a 2015 General Election manifesto commitment to reduce VAT on housing renovation and repair work from 20% to 5%.

This new independent research report from Experian demonstrates that a targeted reduction in VAT from 2015 to 2020 – that is the lifetime of the next Parliament – could bring with it a number of tangible economic, social and environmental benefits.

At a time when economic growth is still tentative, a cut in VAT on housing renovation and repair could provide a huge economic stimulus of more than £15 billion over the five-year period to 2020. This VAT reduction could also create more than 42,000 extra full-time equivalent construction jobs and an additional 53,000 jobs in the wider economy by the end of this period.

In addition to jobs and growth, equally as pressing is the need to bring down the cost of living for individuals and families. A single cut in VAT on housing renovation and repair work could help up to 92,000 homes benefit from retrofitting over the five years to 2020. Without such help to reduce energy usage, the number of households living in fuel poverty may continue to grow as more and more people struggle to protect themselves against ever-increasing energy prices.

A targeted VAT reduction would not only reduce the cost of living but also help the next government progress towards the UK's legally binding carbon reduction targets by reducing the emissions from our existing housing stock.

Contrary to popular belief, EU rules do permit member states to apply a reduced rate of VAT on housing renovation and repair. Currently 12 EU countries are applying a reduced rate on this type of work in the public and/or private domestic sector and thus are enjoying the numerous benefits this reduction can bring. Furthermore, the right of the UK government to follow suit will not be affected by the European Commission's Reasoned Opinion, regardless of the outcome of the challenge regarding the UK's right to apply a reduced rate of VAT on the installation of some energy saving materials.

We therefore urge all political parties to take on board the findings of this research report and include a 2015 General Election manifesto commitment to reduce VAT on housing renovation and repair. This will help the UK secure long-term economic growth, fulfil our environmental pledges and lessen the impact of the cost of living crisis on hard-working individuals and families.

Cut the VAT Campaign Coalition
(see page 37 for full list of supporters)

This research was co-funded by the following organisations:

FMB The sign of building quality

GGF Glass & Glazing Federation

NFRC THE NATIONAL FEDERATION OF ROOFING CONTRACTORS LIMITED

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Contents

Executive summary

KEY POINTS

- **A VAT reduction on housing renovation and repair could provide a £15.1 billion stimulus to the wider UK economy and 95,480 extra jobs by 2020**
- **It could also lead to almost 240,000 tonnes of CO2 savings from 92,000 homes**
- **EU rules permit member states to apply a reduced rate of VAT on housing renovation and repair (VAT Directive 2006/112/EC)**
- **Similar VAT reductions have resulted in an increase in consumer demand and employment in the Isle of Man and the Netherlands**

The benefits of this VAT reduction from 2015 to 2020 – the lifetime of the next Parliament

If government were to reduce VAT from 20% to 5% on the labour element of all housing renovation and repair work from 2015 to 2020, this could generate significant economic, social and environmental benefits to the UK, including:

- A total stimulus effect of more than £15.1bn in the UK economy as a whole;
- 42,050 extra full-time equivalent construction jobs by the end of 2020;
- An additional 53,430 jobs in the wider economy by the end of 2020;
- A total of 95,480 extra jobs in the UK by the end of 2020;
- Up to 3,586 new construction jobs in Scotland, 1,475 in Wales and 416 in Northern Ireland;
- Total extra expenditure of around £1.08bn on energy efficiency measures;
- A potential saving of up to 237,128 tonnes of CO2 as 91,660 homes are retrofitted with loft and wall insulation, double glazing and energy efficient boilers.

However, the benefits mentioned above would lead to a cumulative net loss of £6.6bn to the Treasury over the 2015 to 2020 period.

The benefits of this VAT reduction in 2015

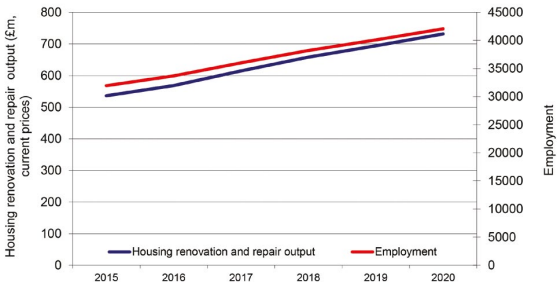
In 2015 alone, the following benefits are likely to occur:

- A total stimulus effect of £2.1bn in the UK economy as a whole;
- 31,950 extra full-time equivalent construction jobs in 2015;
- An additional 39,140 jobs in the wider economy in 2015;
- Up to 2,417 new construction jobs in Scotland, 1,119 in Wales and 315 in Northern Ireland;
- Extra expenditure of around £145m on energy efficiency measures;
- A potential saving of up to 36,358 tonnes of CO2 as 14,000 homes are retrofitted with loft and wall insulation, double glazing (where appropriate) and energy efficient boilers.

However, in the first year of implementation, net losses to the Treasury of £921m are expected once revenue gains and losses from lower unemployment benefits, higher income tax and national insurance are taken into account.

Figure 1: Extra housing renovation and repair output and employment generated by a VAT reduction to 5% on labour

Source: ONS, Experian



Informal economy

Reducing VAT from 20% to 5% on the labour element of all housing renovation and repair work would also reduce the competitive advantage of the £9.76bn per annum informal economy in construction – which is a significant problem in the industry. This would help support compliance with Building Regulations, planning law, health and safety legislation, consumer protection provisions, and employment law, as well as tax collection from the sector.

What are our neighbours doing? Proof that it works

Evidence from the Isle of Man and the Netherlands illustrates the numerous benefits that these economies are experiencing once a reduced rate of VAT on the labour element of all housing renovation and repair work has come into force. Both nations have experienced an increase in business with around 96% of traders registering a rise in the Isle of Man, while a rise in consumer demand and a positive impact on employment is also a common theme. Another major benefit highlighted is that rogue traders have either been forced to comply and register for VAT or they have been driven out of the market altogether while some customers have also stopped requesting 'cash-in-hand' deals.

Environmental and social benefits

The reduced 5% rate in VAT will also benefit the environment as more consumers install energy efficiency measures. Assuming a 5% rise in demand for housing renovation and repair work, as well as the share of energy efficiency works rising as a proportion of total housing renovation and repair work given the government's sustainability agenda, around £1.08bn extra could be spent on energy efficiency measures by 2020. This could lead to 91,660 homes installing loft and wall insulation, double glazing and energy efficient boilers, creating a saving of up to 237,128 tonnes of CO2. Currently the installation of energy-efficient projects comes with complex VAT rules and rates therefore an argument could be made for a flat-rate reduction to 5% for simplicity's sake. This could incentivise demand for these measures through the tax system.

A VAT reduction on housing renovation and repair would also reduce the perverse incentive to demolish existing buildings to avoid the excessive VAT liabilities concomitant with refurbishing them. Particularly in light of the 0% VAT charged on new build properties.

Introduction and myth busting

What is the housing renovation and repair market?

The housing renovation and repair market is a huge and diverse one. It covers everything from small painting and decorating jobs to major refurbishment and improvements, such as extensions and room conversions. It includes repairs, maintenance, improvements, house and flat conversions, extensions, alterations and redecoration on existing housing. In fact, it covers everything that can be done in the residential market short of building a completely new dwelling.

According to the latest data from the Office for National Statistics (ONS), output in the housing renovation and repair sectors totalled just over £22.63bn in current prices in 2012, the latest year for which full-year data is available. This represented a 1.1% rise on the previous year. Of this £22.63bn, £15.02bn was private work by home owners and landlords, and £7.61bn was for public sector housing, mostly undertaken by housing associations and local authorities.

- **In addition to the £22.63bn of work undertaken in the 'formal' economy in the private market, a further £9.76bn of work is estimated to have been undertaken in the 'informal' economy in that year.[1]**
- **Also, some £7.14bn of building materials were purchased for do-it-yourself (DIY) improvements to domestic property in 2012, which would generate a 'notional' labour element of £4.42bn.**
- **Thus the total market for housing renovation and repair in 2012 was in the region of £44bn in current prices.**

Myth busting – some misunderstandings about the current situation

Despite common misconception, the European Union does indeed allow member states to decide their own rates of VAT on a number of categories of goods and services - see VAT Directive 2006/112/EC for further information. In 2009 the EU amended this Directive to allow all member states to permanently reduce VAT to 5% on the renovation of private dwellings, excluding materials. Therefore EU rules are not a barrier to the UK government choosing to apply a reduced rate of VAT on this type of work.

The Isle of Man example – proof that it can work

The Isle of Man has been applying a reduced rate of VAT on housing renovation and repair since 2000. The background to this is as follows:

- In 1999 the European Commission (EC) under Directive 199/85/EC permitted member states on an experimental basis to charge VAT on certain labour intensive activities at a lower rate in order to stimulate employment and decrease the size of the black economy;
- As part of this, the Isle of Man, via the UK, applied to the EC to take advantage of this Directive and in January 2000 the Isle of Man was given permission to introduce a reduced VAT rate of 5% on domestic property repairs where labour contributed towards a large part of the supply;
- The trial was due to complete in 2003 but the EC (via a series of further Directives) extended the period of the application of reduced rates by member states until 31st December 2010. Following an application by the Isle of Man via the UK under EC Directive 2009/47/EC it was confirmed that this lower rate of 5% could be made permanent;
- Evidence from the Labour Intensive Services report released in January 2003 suggests that the trial has been a success, with various indicators showing a positive boost to business as a result of the reduced rate. Nearly all (96%) traders reported a rise in business, just under two thirds (64%) believed that the shadow economy had decreased and around 43% stated an increase in the number of employees. Furthermore, approximately 40% of firms indicated that customers were having work done that would have not been carried out under the previous VAT rate of 17.5%, whilst around a fifth claimed that it had stopped customers from either carrying out work themselves; using rogue traders; or requesting 'cash-in-hand deals'.

The Island's Office for Fair Trading also backed the reduced rate stating that rogue traders had either been forced out of the market or they had been obliged to register for VAT. However, drawing a firm conclusion from the analysis should be done with caution as other policy changes at the beginning of 2000 may have influenced the outcome.

[1] *In this context the informal economy includes businesses legitimately not on the VAT/PAYE register as well as those operating illegitimately*

KEY POINTS

- **For every £1.54 of expenditure recorded in the private housing and renovation market, it is estimated that £1 is spent in the informal economy.**
- **EU rules permit member states to apply a reduced rate of VAT on housing renovation and repair (VAT Directive 2006/112/EC).**
- **In the Isle of Man, where a 5% VAT rate currently applies, 96% of construction firms reported a rise in workloads.**
- **Out of 28 EU member states, 12 charge a reduced rate of VAT on housing renovation and repair.**
- **Evidence from the Netherlands, where a 6% VAT rate currently applies, shows €800m of extra work to place in the first three months when the reduced rate was brought in.**

Evidence from other EU countries – what are our neighbours doing?

See the table in Appendix B on page 35 of this report which has been adapted from a EU document, which shows rates of VAT levied by other EU member states under the VAT Directive 2006/112/EC. Those with reduced rates have been highlighted in blue.

Of the 28 EU countries, 12 member states charge a reduced rate of VAT in the social housing sector. The lowest rate is currently in Luxemborg at 3%. At present 12 countries also have reduced VAT rates on the renovation and repair of private dwellings, with Cyprus and the Isle of Man with the lowest rates of 5%.

The Netherlands example

The Euroconstruct Network was approached to establish whether any evidence on the impact of a reduction in VAT on the labour element of renovation and repair is available. At present only data from the Netherlands is available where a reduced VAT rate of 6% came into force in 2000 on the labour element of painting and plastering. Three years later the Netherlands Bureau for Economic Research (CPB) evaluated a study that was carried out by Research voor Beleid (RvB) on the effects of a reduction in VAT. The CPB suggests that a VAT reduction to 6% has had a positive impact, however due to the limited availability of data statistical inferences cannot be made using the RvB study.

Between October 2010 to June 2011 and March 2013 to December 2014, the Netherlands is also subject to trial runs where the lower VAT rate is applied to virtually all renovation work. The latter trial period was due to end in March 2014 but has been extended to the end of the year. Numerous surveys have been carried out on these temporary measures which suggest a range of benefits from a rise in consumer demand to workers keeping their jobs. For example, a survey of business firms carried out in January 2011 indicated that three quarters of firms have seen a significant gain in commissions in the first three months of the reduced rate coming into force. In addition to this, it was also estimated that the value of extra commissions received in these three months totaled €800 million, which would safeguard around 4,000 jobs.

"In the Netherlands, three quarters of construction firms have seen a significant gain in commissions"

KEY POINTS

Whatever the outcome of the EU Reasoned Opinion infringement action, it will not impact on the right of the UK Treasury to reduce VAT on housing renovation and repair work.

EU Reasoned Opinion infringement action against the UK

The UK and European Commission (EC) are currently in dispute over compliance with Article 98, which refers to the application of VAT in member states. In particular the conflict refers to the possibility of charging reduced rates on energy saving materials installed in residential buildings. The EC believes that Schedule 7A of the UK VAT Act of 1994 runs contrary to the provisions of Annex III of Directive 2006/112/EC, which states in relation to the construction market that a reduced rate can only be enforced on supplies of the relevant goods and services if;

"(10) provision, construction, renovation and alteration of housing, as part of a social policy;

(10a) renovation and repairing of private dwellings, excluding materials which account for a significant part of the value of the service supplied;"

The Commission believes that the reduced rate has been applied as part of an environmental policy and thus is not allowable under EU rules and has delivered the following reasoned opinion that these supplies;

"cannot be considered as part of a social policy, and fall outside the purview of renovation and repairing and/or do not exclude from the reduced rate materials which account for a significant amount (50% or more) of the value of the services supplied, and/or give rise to distortions of competition with similar supplies that are VAT able at the standard rate"

The UK government is continuing to defend its position in this area, thus the EC is intending to undertake legal proceedings in relation to the perceived infraction.

VAT in the housing renovation and repair market

There are already a number of different types of housing renovation and repair work that attract a lower rate of VAT and thus it is clear that government understands the value of charging reduced rates to support or advance that work. For example the renovation or alteration of empty residential premises attracts a lower rate to support the government's desire to bring more of these properties back into use and by doing so increase the supply of housing.

Full details of the current VAT regime for the housing renovation and repair market are available in HM Revenue & Custom's (HMRC) Notice 708, October 2013, and Notice 708/6, November 2011. The vast majority of housing renovation and repair work attracts VAT at the standard rate of 20%. However, there are a number of areas which are currently zero-rated and those that attract a rate of 5%.[2]

These include:

- Alterations to suit the condition of people with disabilities (zero-rated);
- Conversion (other than for housing associations) of a non-residential building into a qualifying dwelling or communal residential building and conversions of residential buildings to a different residential use (5%);
- Conversion for a housing association of a non-residential building into a qualifying dwelling or communal residential building (zero-rated);
- First time gas and electricity connections (zero-rated);
- Installation of energy saving materials; and grant funded heating system measures and qualifying security goods (5%);
- Installation of mobility aids for the elderly for use in domestic accommodation (5%);
- Renovation or alteration of empty residential premises that have been unoccupied for more than two years (5%).

[2] *Following an announcement in the 2013 Budget Statement, reduced rates for approved alterations to listed dwellings and communal residential buildings and certain listed buildings used by charities (zero-rated) were withdrawn as of 1st October 2013 and VAT now applies at the standard rate, although transitional arrangements to mitigate the effects of this change will apply until 30th September 2015*

Economic overview

The UK economy is recovering after the recession of 2008. But the path back to normality is challenging. Ongoing issues in the banking sector, efforts by households and government to address their debt burdens and the euro's problems will continue to weigh on prospects, although their impact is gradually easing. The pace of expansion is set to stay below the long-term trend throughout the period 2015 to 2020. GDP growth is expected to average 2.4% per annum, against 2.8% from 1981 to 2008.

A key factor in the slower growth outlook is a weaker contribution from consumers, whose debt-fuelled boom helped underpin the UK's strong growth rate in the decade or so prior to the recession. Heavy indebtedness, a greater tax burden, higher savings and pension contributions, and more modest job creation will limit future expansion. Consumer spending will outpace GDP growth but only slightly, after much faster growth before 2008.

Growth will also be constrained by continued balance sheet adjustment in the banking system. Our expectation is that growth in financial and business services will be less vigorous than in the last cycle. Job shedding then stabilisation in the public sector, compared with strong gains prior to 2008, will be the pattern.

With the recent improvements in public finances, there is a reasonable chance that growth turns out to be higher than in our base case. Fiscal austerity will continue for a few more years, but some relaxation may prove possible sooner than previously expected, ie by 2018.

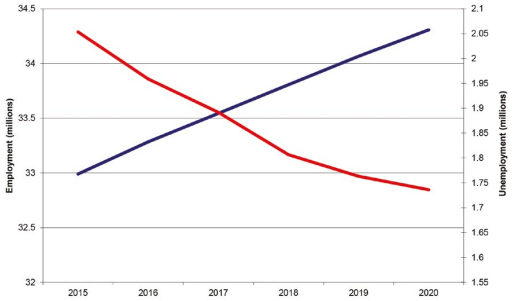
Small and medium-sized enterprises (SMEs)

It comes as no surprise that UK SMEs have struggled in the wake of the most recent financial crisis. SMEs in the UK are important to economic growth and according to the Department for Business Innovation & Skills SME Access to External Finance paper, small businesses create the majority of new jobs (75%).

Latest figure show that there were 247,105[3] construction firms in the third quarter of 2012, of which around 99.9% were SMEs. However data from the Business Population Estimates 2012 suggests that the number of construction firms is much higher at 907,480. This is because there are a large number of sole proprietors that do not get counted in official statistics as they are not VAT/PAYE registered. The vast bulk of work in the private housing renovation and repair market is undertaken by construction SMEs, thus they would benefit most from any boost in demand from a reduction in VAT.

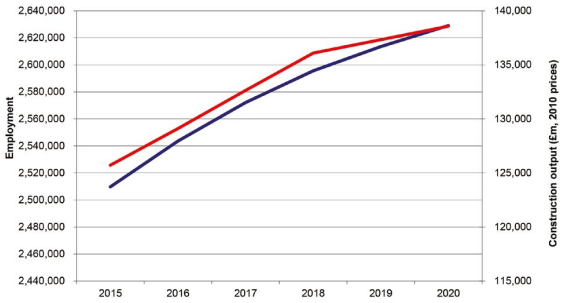
[3] *Construction statistics – No. 14 – 2013 Edition*

Figure 2: Forecast employment and unemployment for the UK, 2015 to 2020



Note: Employment is on the workforce jobs measure, unemployment the Labour Force Survey measure. Source: ONS, Experian

Figure 3: Forecast UK construction output and employment, 2015 to 2020



Source: ONS, Experian

Construction output and employment between 2015 to 2020

As can be seen in the chart above, both UK construction output and employment are expected to grow at a modest pace between the 2015 to 2020 period. By 2020, output is likely to reach £138.58bn. Simultaneously employment is expected to be around 2.63m in 2020, 5% higher than 2015 levels but still lower than the 2.86m peak registered in 2008.

Assumptions underlying fiscal calculations

It is important to note that the following assumptions are used in this report:

- Output data from the ONS on housing renovation and repair is inclusive of labour and materials. As this report is only looking at the impact of a reduction in the rate of VAT on the labour element of this, we have used a figure of 38%[4] for the labour element of housing renovation and repair. This was calculated as an average of labour-materials spend across a range of housing renovation and repair work which came out of the CFR/BSRIA 1996 survey on the home improvement market[5] and there is no reason to believe that this has changed significantly;
- Unless otherwise stated, the figures given will be based on the central scenarios of a demand increase of 5% and a price elasticity of 0.4. Price elasticity refers to how sensitive the demand for a product or service is to movements in price. Thus a 10% increase in price leading to a 10% decrease in demand would represent a price elasticity of 1. A 10% increase in price leading to a 5% decrease in demand would represent a price elasticity of 0.5 and so forth;
- However the research has modelled effects based on demand increases of 2% and 10% as well as price elasticities of 0.16 and 0.8. The potential effects of these variations are covered in the full matrices to this report which are to be found in Annex B;
- The results of the CFR/BSRIA survey demonstrated that the main reason for expenditure on home improvements was due to things being worn out or damaged, ie cyclical. This and other evidence suggests that a price elasticity of less than 1 is appropriate;
- The 'informal' economy is, by its nature, very difficult to quantify. However, the CFR/BSRIA survey gives some guidance in this area, suggesting an 'informal' economy of around 65% of the size of the formal one. The three figures we have used for the shift to the formal economy are 10%, 20% and 30%. Our central scenario of a 20% move in value terms from the informal to the formal economy is purely as a result of legitimate firms ceasing to offer 'cash-in-hand' prices exclusive of VAT and that there is no movement of illegitimate traders into the formal economy.

[4] *Within this average some activities will have a higher labour ratio (and some lower) such as highly skilled heritage workers*
[5] *CFR/BSRIA: GB Private home improvement market, 1996*

Jobs and growth

The estimated effects of a reduction in the VAT rate on housing renovation and repair[6]

KEY POINTS

The likely effects of a reduction in the rate of VAT from 20% to 5% on the labour element of housing renovation and repair are as follows:

- **In the central scenario a reduction in the rate of VAT from 20% to 5% would result in a 5% increase in demand for housing renovation and repair work across the private and social housing sectors;**
- **This means that by 2020, approximately 95,480 extra jobs could be created across the whole UK economy alongside a boost in total output of £15.1bn following this reduction in VAT to 5%;**
- **During 2015 it is likely that an additional 31,950 UK full-time equivalent jobs would be created in the construction sector assuming a 5% increase in demand and a shift from the informal to the formal economy. Taking into account the multiplier effect, around 39,140 extra jobs in the wider economy could be generated in 2015, giving a total of 71,090 jobs in that year;**
- **Taking into account the benefits produced by a 5% increase in demand, the shift from informal to the formal economy, increased income tax, National Insurance and other social benefits, net tax losses to the Treasury in 2015 would be a modest £921m;**
- **Although there would be total base VAT loss to the Treasury of £1.6bn in 2015, it is estimated that £2.1bn would be generated in the wider economy.**

Devolved nations (2015)

Scotland
The central scenario for a cut in VAT from 20% to 5% could lead to the creation of 2,417 construction jobs in Scotland and an additional 1,996 in the wider Scottish economy in 2015. The overall expectation is that the cut would result in 4,413 extra jobs in the Scottish economy and a stimulus effect of around £116m in 2015.

Wales
The central scenario for a cut in VAT from 20% to 5% could lead to the creation of 1,119 construction jobs in Wales and an additional 868 in the wider Welsh economy. The overall expectation is that the cut would result in 1,987 extra jobs in the Welsh economy and a stimulus effect of £47m in 2015.

Northern Ireland
The central scenario for a cut in VAT from 20% to 5% could lead to the creation of 315 construction jobs in Northern Ireland and an additional 243 in the wider Northern Irish economy. The overall expectation is that the cut would result in 558 extra jobs in the Northern Irish economy and a stimulus effect of £13m in 2015.

[6]As far as has been possible, the calculations around activity and employment creation have been based on empirical evidence available from a number of sources, including our own. However, any up-to-date primary research into the price elasticity of demand for housing renovation and repair works, or the relationship between the formal and informal economy, is outside of the scope of this update.

Introduction

In the following sections we have examined the likely results of a reduction in VAT to 5% on the labour element of all housing renovation and repair work. This is based on what we believe are a series of realistic assumptions relating to the likely affects on overall demand for housing renovation and repair, as well as transfers from the informal to the formal economy.

Headline numbers

In 2015 a reduction in VAT to 5%, plus an assumption of a rise in demand of 5%, the shift from the informal economy and multiplier effects could generate a total stimulus impact to the wider UK economy that is worth £2.1bn. By 2020, this figure increases to £15.1bn. This translates into 71,087 jobs created in 2015, rising to 95,481 by 2020.

These impacts on the wider economy and employment could be gained by a modest net tax loss of £921m once revenue gains and losses from lower unemployment benefits, higher income tax and national insurance are taken into account.

Figure 4: Potential stimulus impacts in the wider economy from a reduction in VAT from 20% to 5%, 2015 to 2020 (£millions)

£m	2015	2016	2017	2018	2019	2020
Annual stimulus effect (including multiplier)	2,133	2,262	2,447	2,620	2,762	2,912
Cumulative total stimulus effect	2,133	4,395	6,842	9,462	12,224	15,136

Figure 5: Potential employment impacts from a reduction in VAT from 20% to 5%, 2015 to 2020

	2015	2016	2017	2018	2019	2020
Construction jobs	31,949	1,729	2,322	2,211	1,873	1,968
Wider economy jobs	39,138	2,368	3,383	3,187	2,606	2,747
Annual total jobs	71,087	4,097	5,705	5,398	4,479	4,715
Cumulative jobs	71,087	75,184	80,889	86,287	90,766	95,481

Figure 6: Summary effects of a reduction in the rate of VAT to 5% assuming a 5% increase in demand and a shift of 20% from the informal to the formal economy (£millions)

		2015	2016	2017	2018	2019	2020
Base vat receipt loss due to reduction		-1608	-1705	-1844	-1975	-2082	-2195
VAT generated from shift from DIY to professional		12	13	13	14	14	15
VAT generated on price elasticity = 0.4	5%	27	28	31	33	35	37
VAT loss/gain on price elasticity = 0.4 (2)		-1569	-1664	-1800	-1929	-2033	-2144
shift from informal to formal economy B - increase in VAT receipts	20%	121	128	138	148	156	165
Total VAT loss/gain on PE (2) B		**-1448**	**-1536**	**-1662**	**-1781**	**-1877**	**-1979**
Xtra income tax & ni generated on employment on PE (2)		409	432	461	490	514	539
Unemployment & other social benefits saved on PE (2)		118	124	133	141	148	155
Net tax losses/gains on PE (2) B		**-921**	**-981**	**-1068**	**-1150**	**-1216**	**-1285**

The central scenario of a rise in demand of 5% would initially lead to a decline in VAT revenue of £1.7bn. However once the shift from the informal to the formal economy is taken into account, this would lead to a smaller loss of £1.4bn in 2015. It may be the case that there are some unexpected impacts on taxes that have not been captured by these figures, but these are likely to only have a small effect on overall revenue. Although this scenario leads to a net revenue loss for the Treasury using our calculations, the full benefits of an increase in employment may not have been included; for example higher levels of consumption expenditure resulting in higher VAT revenue and also the social benefits of a reduction in unemployment.

All previous studies on the subject suggest that any reduction in VAT on the labour element is unlikely to be revenue positive for Treasury VAT and tax receipts. As an example, let us assume a labour element of £1.2bn for simplicity's sake. The VAT revenue would be £200m. With a VAT rate of 5%, this revenue would fall to just £50m, a decline of £150m. In order to generate £200m of tax revenue at the 5% VAT rate, output would need to more than triple to £4bn.

Headline numbers in detail

Figures underlying the headline numbers mentioned above assume that a reduction in the rate of VAT to 5% would give a base VAT receipt loss of £1.6bn to the Treasury in 2015. This assumes forecast output of £28.2bn, in current prices, in 2015.

Figure 7: Base annual VAT receipt loss due to VAT rate reduction to 5% (£millions)

	2015	2016	2017	2018	2019	2020
Base vat receipt loss due to reduction	-1608	-1705	-1844	-1975	-2082	-2195

However, there are a numerous factors which will ease the overall impact of the cut throughout the 2015 to 2020 timeframe. These include:

- The projected shift from DIY to 'professionals'.
- The projected shift from the informal economy.
- The financial benefits of job creation.

The shift from DIY to 'professionals'

Factoring in the 5% shift from DIY to 'professionals' assumed under this level of VAT reduction and the central price elasticity scenario, the net VAT loss to HM Treasury is estimated at £1.7bn in 2015, as shown in the figure below.

Figure 8: Summary of the VAT effects of various rates of increase in demand and a shift of 5% from DIY to professionals resulting from a reduction in the rate of VAT to 5% (£millions)

	2015	2016	2017	2018	2019	2020
Base vat receipt loss due to reduction	-1608	-1705	-1844	-1975	-2082	-2195
VAT generated from shift from DIY to professional	12	13	13	14	14	15
VAT generated on price elasticity = 0.16	11	11	12	13	14	15
VAT generated on price elasticity = 0.4	27	28	31	33	35	37
VAT generated on price elasticity = 0.8	54	57	61	66	69	73
VAT loss/gain on price elasticity = 0.16 (1)	-1585	-1681	-1819	-1948	-2054	-2166
VAT loss/gain on price elasticity = 0.4 (2)	-1569	-1664	-1800	-1929	-2033	-2144
VAT loss/gain on price elasticity = 0.8 (3)	-1542	-1636	-1770	-1896	-1999	-2107

The shift from the informal economy

We have assumed in the central scenario a 20% shift from the informal economy on top of the 5% increase in demand for housing renovation and repair. The combined effects of this should result in a return to the Treasury of £409m in extra income tax and National Insurance previously lost to the informal economy, and would save a further £118m in unemployment and other social benefits in 2015.

Figure 9: Summary of the estimated non-VAT tax and benefit effects of reduction in the rate of VAT to 5% (£millions)

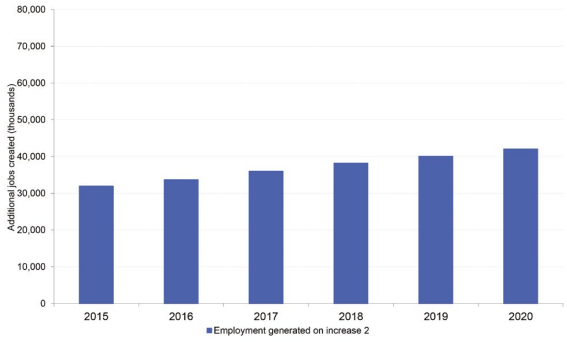
	2015	2016	2017	2018	2019	2020
Xtra income tax & ni generated	409	432	461	490	514	539
Unemployment & other social benefits saved	118	124	133	141	148	155

The financial benefits of job creation

In order to examine the possible labour effects of a reduction in VAT, we have used labour coefficients, developed for CITB, to forecast employment requirements, which give a figure for the amount of employment created per £1m of output across a range of sectors, including housing renovation and repair work.

The central scenario of a rise in demand by 5% plus an assumed 5% shift from DIY work to professionals would create up to 31,949 extra full-time equivalent construction jobs in 2015 alone, with further job growth forecast over the subsequent five years.

Figure 10: Effects of a reduction in the rate of VAT to 5% on construction employment on the central scenario



The additional employment levels will lead to a reduction in payments of unemployment benefits and other social benefits, calculated at between £69m and £199m in 2015, depending on the assumed shift in demand. Higher employment will also lead to increased revenue from extra income tax and National Insurance receipts, calculated at between £240m and £692m in 2015 (depending on the assumed rate of increase in demand). The impact of the potential rise in employment on HM Treasury receipts are summarised in the following figure:

Figure 11: Effects of increased employment on income tax and National Insurance receipts and social benefit savings (£million)

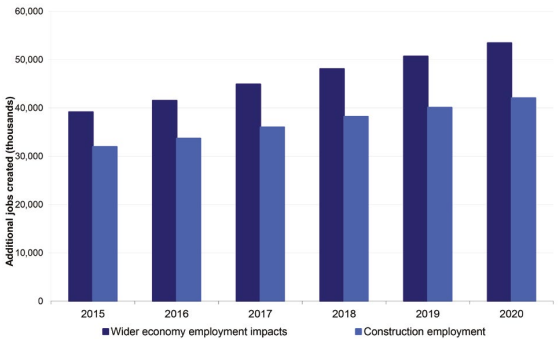
	2015	2016	2017	2018	2019	2020
Xtra income tax & ni generated on employment PE (1)	240	252	267	281	294	307
Xtra income tax & ni generated on employment on PE (2)	409	432	461	490	514	539
Xtra income tax & ni generated on employment PE (3)	692	731	785	837	879	925
Unemployment & other social benefits saved on PE (1)	69	72	77	81	85	88
Unemployment & other social benefits saved on PE (2)	118	124	133	141	148	155
Unemployment & other social benefits saved on PE (3)	199	210	226	241	253	266

Furthermore, a fall in unemployment will have wider benefits on HM Treasury revenues. For example, there may be a rise in consumption expenditure which would increase HM Treasury revenues from VAT on those goods.

A rise in employment will have wider impacts outside the construction industry. The multiplier effect for the construction industry in the UK has been calculated at 2.98. This means that for every extra £1m of output, around £2.98m of effects are likely to be produced throughout the wider economy. In order to produce figures of the employment impacts in the whole economy, we have used an approximate calculation to give a figure of £40,809 as the cost of employment (using a proxy of an employee's mean salary and employer's National Insurance contribution as an estimate). The central scenario of a 5% increase in demand will lead to approximately £536m of additional construction output in 2015, thus the multiplier effect gives a figure of £1.6bn. As a result, using our approximation for the average cost of employment, gives an increase of up to 39,140 full-time equivalent jobs generated in 2015. This is summarised overleaf.

"For every £1m of construction output, £2.98m is generated in the wider economy"

Figure 12: Effects of a reduction in the rate of VAT to 5% on employment in the wider economy



Thus the total effect of the VAT reduction could also provide a boost of £2.1bn to the UK economy as a whole in 2015 alone, once the impact of the multiplier effect is taken into account. Between the 2015 and 2020 period this would equate to £15bn of extra value created in the economy for a cumulative tax decrease of £6.6bn.

Turning to employment, the direct and indirect (multiplier) effects could potentially lead to approximately 95,500 additional jobs in the UK by the end of 2020.

Devolved nation differences

At a UK level, construction accounted for 5.9% of output in 2012, in gross value added (GVA) terms. In contrast, the industry is relatively more important to the devolved nations' economies with Scotland seeing the greatest dependence as its construction industry accounted for 7.4% of total GVA. The corresponding figures for Wales and Northern Ireland are 6.7% and 6.2% respectively. Thus the effect of an increase in housing renovation and repair activity in the devolved nations is likely to have a proportionally greater impact on employment when compared to the UK as a whole.

Variations in the size of the informal economy

However, the most significant difference in the analyses on the potential impact of a VAT reduction for England, Scotland, Wales and Northern Ireland is the size of the informal economy in each nation. These figures came from the 1996 CFR/BSRIA survey in the case of England, Scotland and Wales, and in the absence of any specific breakdown for Northern Ireland, we have applied the Great Britain (GB) average of 65% to the province, suggesting that the informal economy there is valued around £88m per annum. The implied size of the informal economy in Wales was estimated at an equivalent 40% of the size of the formal economy, making it worth around £200m per annum, whilst the informal economy in Scotland is estimated to be around 46% giving it a value of £552m.

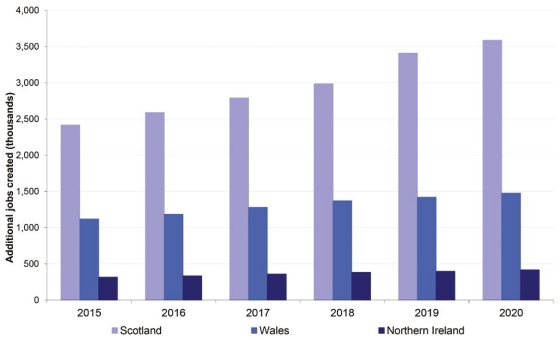
Differences in the size of the housing renovation and repair market

Another difference is the relative sizes of the housing renovation and repair sectors in the devolved nations. In 2012 Northern Ireland had a small housing renovation and repair sector, accounting for just 9% of total construction output in the province. In contrast, the figure for GB was 20%, with the housing renovation and repair market in both Wales and Scotland accounting for a slightly smaller proportion of 19%.

Employment impacts

In 2015, assuming the central scenario – an increase of 5% in demand and a shift of 5% from DIY to professionals – would generate up to 2,420 new jobs in the construction sector in Scotland with further jobs growth forecast over the period to 2020. In Wales, the figure is up to 1,120 full-time equivalent jobs and 320 in Northern Ireland. This rise in employment is likely to have a positive impact on HM Treasury revenues through increased tax and National Insurance revenue and savings on social benefits payments. A summary of the employment effects of the central scenario in the devolved nations is shown below.

Figure 13: Effects of a reduction in the rate of VAT to 5% on employment in the devolved nations



England

Figure 14: Potential stimulus impacts in the wider economy in England from a reduction in VAT from 20% to 5%, 2015 to 2020

£m	2015	2016	2017	2018	2019	2020
Annual stimulus effect (including multiplier)	1,768	1,870	2,019	2,159	2,253	2,375
Cumulative total stimulus effect	1,768	3,638	5,657	7,816	10,069	12,445

Figure 15: Potential employment impacts in England from a reduction in VAT from 20% to 5%, 2015 to 2020

	2015	2016	2017	2018	2019	2020
Construction jobs	28,099	1,476	2,002	1,898	1,389	1,711
Wider economy jobs	32,187	1,871	2,712	2,541	1,713	2,224
Annual total jobs	60,285	3,346	4,714	4,440	3,102	3,934
Cumulative jobs	60,285	63,632	68,346	72,786	75,888	79,822

Scotland

Figure 16: Potential stimulus impacts in the wider economy in Scotland from a reduction in VAT from 20% to 5%, 2015 to 2020

£m	2015	2016	2017	2018	2019	2020
Annual stimulus effect (including multiplier)	116	126	138	150	178	188
Cumulative total stimulus effect	116	241	379	529	706	894

Figure 17: Potential employment impacts in Scotland from a reduction in VAT from 20% to 5%, 2015 to 2020

	2015	2016	2017	2018	2019	2020
Construction jobs	2,417	171	201	197	422	178
Wider economy jobs	1,996	172	208	203	484	178
Annual total jobs	4,413	343	409	401	906	356
Cumulative jobs	4,413	4,756	5,165	5,566	6,471	6,828

Wales

Figure 18: Potential stimulus impacts in the wider economy in Wales from a reduction in VAT from 20% to 5%, 2015 to 2020

£m	2015	2016	2017	2018	2019	2020
Annual stimulus effect (including multiplier)	47.3	50.4	55.3	60.0	62.1	64.7
Cumulative total stimulus effect	47.3	97.8	153.1	213.1	275.2	339.8

Figure 19: Potential employment impacts in Wales from a reduction in VAT from 20% to 5%, 2015 to 2020

	2015	2016	2017	2018	2019	2020
Construction jobs	1,119	65	94	92	48	57
Wider economy jobs	868	57	89	87	38	47
Annual total jobs	1,987	122	183	179	86	104
Cumulative jobs	1,987	2,108	2,291	2,470	2,557	2,660

Northern Ireland

Figure 20: Potential stimulus impacts in the wider economy in Northern Ireland from a reduction in VAT from 20% to 5%, 2015 to 2020

£m	2015	2016	2017	2018	2019	2020
Annual stimulus effect (including multiplier)	13.3	14.2	15.4	16.6	17.2	18.2
Cumulative total stimulus effect	13.3	27.6	43.0	59.6	76.8	95.0

Figure 21: Potential employment impacts in Northern Ireland from a reduction in VAT from 20% to 5%, 2015 to 2020

	2015	2016	2017	2018	2019	2020
Construction jobs	315	18	24	23	14	21
Wider economy jobs	243	16	22	21	11	19
Annual total jobs	558	34	46	44	25	40
Cumulative jobs	558	592	639	683	708	748

Environmental benefits

The estimated effects of a reduction in the VAT rate on housing renovation and repair

KEY POINTS

- **The UK Climate Change Act 2008 commits the government to reducing carbon emissions by 80% by 2050.**
- **Under the Doha Amendment to the Kyoto Protocol, the UK needs to reduce its carbon emissions by 20% by 2020 when compared to its 1990 levels.**
- **Our existing housing stock is a major contributor of CO2 emissions and thus ongoing reductions in energy usage from our homes is vital if the UK is to meet its legally binding commitments.**
- **The extra demand created by a reduction in VAT on housing renovation and repair to 5% could generate around £1.08bn extra expenditure over the period to 2020 on energy efficiency measures.**
- **This would equate to an extra 91,000 homes fully insulated and with energy efficient boilers between 2015 and 2020 and would save around 237,130 tonnes of CO2 emissions.**
- **The installation of energy-efficient projects comes with complex VAT rules and rates thus a good case can be made for a flat-rate reduction to 5% for simplicity's sake.**

Introduction

The government has committed itself to reducing the UK's carbon emissions by 80% by 2050[7] and arguably the most challenging part of this will be tackling our leaky and inefficient existing homes. If we have any hope of meeting our legally binding target, we must vastly improve the energy efficiency of our 26 million domestic properties – the majority of which will still be standing in 35 years' time.

Furthermore, under the Doha Amendment to the Kyoto Protocol, the UK needs to reduce its carbon emissions by 20% by 2020 when compared to its 1990 levels. Since then, the European Union has committed itself to a 40% cut in greenhouse gas emissions by 2030 compared with 1990 levels.

CO2 emissions directly from the residential sector reached 74.2 Mt in 2012, an increase of 12% on the previous year. This is a major concern as the existing housing stock accounts for a major proportion of the UK's CO2 emissions and thus ongoing reductions in residential energy usage remains an important part of meeting our international and legally binding commitments.

In general terms, the carbon footprint of an existing dwelling can be mitigated by two types of work, take-up of energy efficiency measures, and the installation of microgeneration technologies. The main energy efficiency measures are:

- Boiler replacement;
- Cavity wall insulation;
- Double glazing[8];
- Internal and external wall insulation;
- Loft insulation.

The main microgeneration technologies are:

- Biomass;
- Combined heat and power district heating systems;
- Ground and air source heat pumps;
- Photovoltaic panels;
- Solar panels;
- Wind turbines.

The former reduces a property's need for energy and the latter provides part or all of a property's energy requirements from renewable sources.

[7] UK Climate Change Act 2008
[8] The figures quoted from the 1996 CFR/BSRIA survey would have only covered traditional double glazing at the time. Technological advance has since made triple glazing and energy efficient glazing possible.

The VAT treatment of energy efficiency measures

The VAT rules and rates around the installation of energy efficient projects are somewhat complex and a good case can be made for a flat-rate reduction to 5% just for simplicity's sake. A review of the HMRC notice on energy saving materials (708/6 – November 2011) also forces one to the conclusion that the logic around the choices of what would attract the reduced rate of VAT is somewhat debatable.

The current VAT regime with its many and varied reductions in the rate for specific types of work, has created a very complicated and difficult to understand system for many, with the following likely consequences:

- High compliance costs for contractors;
- Overcharging of VAT due to the difficulties in separating out work that attracts a lower rate when it is part of a large package;
- Deterring the adoption of some energy efficient measures, such as boiler replacement through the higher costs of installation, due to the higher rate of VAT applied to the installation of this particular measure.

The most obvious example is that all forms of insulation listed below attract the reduced rate of 5%, but the installation of double-glazing does not, despite its contribution to energy efficiency. According to the Energy Saving Trust, the installation of double glazing can save up to 720kg of CO2 emissions a year in an average dwelling. Furthermore, the installation of central heating and hot water system controls attracts a VAT rate of 5% but the installation of a more energy-efficient boiler does not, unless it is part of a grant-funded installation. To complicate matters further, if heating and water system controls are installed as part of the supply of a whole central heating system, they are not eligible for the reduced rate. An analysis of the figures shows just how little sense the current rules make if it is assumed that the government is genuine in its attempts to incentivise energy efficiency measures through the tax system.

However, leaving aside all the qualifications, in a nutshell the following installations qualify for VAT at the reduced rate of 5% on both labour and materials:

- Controls for central heating and hot water systems;
- Draught stripping;
- Insulation;
- Solar panels;
- Wind turbines;
- Water turbines;
- Ground source heat pumps;
- Air source heat pumps;
- Micro combined heat and power units;
- Wood-fuelled boilers.

Estimating expenditure on energy efficiency measures

The CFR/BSRIA 1996 survey of repair, maintenance and improvement expenditure by owner-occupiers provides some useful data on the level of expenditure on energy efficiency measures in that year. According to the grossed up survey data, the following expenditure was made on the above energy efficiency measures by owner-occupiers in the year to October 1996:

"The current VAT regime, with its many and varied reductions… has created a very complicated and difficult to understand system"

Figure 22: Expenditure by owner occupiers on energy efficient measures, 1996

	No of jobs (000s)	Total expenditure (£m)	Average expenditure per job
Double glazing	1427	£2442m	£1,711
Boiler only replacement	249	£282m	£1,133
Cavity wall insulation[1]	86	£36m	£419
Other external wall insulation[1]	17	£4m	£235
Loft floor insulation[1]	137	£28m	£204
Roof insulation[1]	75	£15m	£200
TOTAL		£2724m	

Note: 1These installations already attract the reduced rate of 5% thus are omitted from the total.
Source: The GB Home Improvement Market, CFR/BSRIA/GfK, 1996.

From this table it can be concluded that 97% of estimated expenditure on the above energy efficiency improvement measures remains ineligible for the reduced rate allowed for under existing rules despite some less efficient measures attracting a reduced rate of 5%.

As the total expenditure on housing renovation and repair was estimated in the survey at £12.3bn, expenditure on energy efficiency measures, at £2.8bn, accounted for nearly 23% of the total. If we assume that environmental concerns and cost saving implications have increased expenditure in these areas relative to the totality of the private housing renovation and repair works market to 25% of total spending, this would indicate expenditure on these measures in 2012, the last year for which we have full statistics, of around £3.75bn in current prices. This can be broken down as follows:

Figure 23: Estimated expenditure in 2012

Estimated expenditure in 2012	Total expenditure
Double glazing	£3267m
Boiler only replacement	£377m
Cavity wall insulation[1]	£48m
Other external wall insulation[1]	£5m
Loft floor insulation[1]	£37m
Roof insulation[1]	£20m
TOTAL	£3644m

Note: 1These installations already attract the reduced rate of 5% thus are omitted from the total.

Given that a number of energy efficiency measures attract the reduced rate of VAT on both labour and materials as long as they are installed, a good case can be made for a similar regime for double-glazing and boilers. However, if we assume this, they would at best attract a reduced VAT rate on the labour element only, in line with the proposal for generic housing renovation and repair. The 1996 survey indicated a labour input of 29% of the total cost of the installation of double glazing and for boiler-only replacements.

Thus this would give us a labour element on the above figures of:

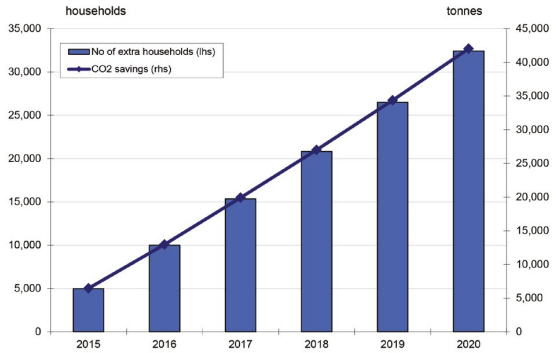
Figure 24: Labour element of expenditure in 2012

	Labour element
Double glazing	£947m
Boiler only replacement	£109m
TOTAL	£1057m

Thus around £1bn would be the element of the above installations that would attract a VAT rate of 20%. In theory the above figure should be adjusted for the fact that the figures from the 1996 survey include the informal economy. However, we believe these types of installations are unlikely to be installed by contractors outside of the legitimate economy. Most of the major double glazing manufacturers either have their own installation staff or will have lists of certified installers who they will insist do the work. Boiler replacement can only be undertaken by Gas Safe[9] registered installers.

A reduction in the rate of VAT on the installation of these two products (double glazing and boiler only replacement) from 20% to 5% would cost the Treasury in the region of £158.5m in reduced VAT receipts. However, it would have significant benefits in carbon reduction terms as demonstrated in the following two figures.

Figure 25: Estimated cumulative effects of 5% demand increase for double glazing and boiler only replacement on CO2 emissions, 2015 to 2020



Source: Experian

[9]*Since 1 April 2009, Gas Safe Register has replaced CORGI gas registration as the official gas safety body.*

Figure 26: Estimated cumulative effects of 5% demand increase for double glazing and boiler only replacement on CO2 emissions and the cumulative number of extra households, 2015-2020

	2015	2016	2017	2018	2019	2020
Number of extra households (thousands)	4,969	9,987	15,348	20,815	26,501	32,406
CO2 savings (tonnes)	6,445	12,953	19,906	26,998	34,372	42,031

As such it can be concluded that harmonising the tax treatment of energy efficiency measures at 5% so as to include double glazing and boiler only replacements could potentially result in an additional 32,406 households with both measures installed, saving around 42,031 tonnes of CO2 by 2020.

The environmental benefits of reducing VAT on the labour element of all housing renovation and repair market

According to the VERD study carried out by the University of East Anglia, households are far more likely to install energy efficiency measures as part of general renovation and refurbishment work while only a tenth of householders indicated that they would consider efficiency-only renovations. The report concludes that energy efficiency work is more likely to be bundled and carried out with general renovation work. The reduction of VAT from 20% to 5% on the labour element of all housing renovation and repair could therefore also deliver substantial carbon savings.

Furthermore the rationalisation of the existing tax treatment of energy efficient measures would be highly beneficial in carbon reduction terms. Assuming a reduction in VAT to 5%, our central scenario sees an increase in demand of 5% which would be equivalent to £536m of extra work on housing renovation and repair in 2015, rising to £732m in 2020. If we further assume that double glazing, boiler replacement, cavity and other wall insulation, and loft and roof insulation, account for 25% of total spending in the housing renovation and repair market, and assuming that this share will rise to 30% in 2020 driven by the sustainability agenda, then we end up with the following figures:

Figure 27: Projected extra annual expenditure on energy efficiency measures, 2015 to 2020 as a result of a reduction in VAT to 5% on the labour element of all domestic housing renovation and repair work.

£m	2015	2016	2017	2018	2019	2020
Increased spending on housing renovation and repair	536	568	615	658	694	732
Increased spending on energy efficiency measures	145	153	172	184	201	219

The estimates suggest that approximately £1.08bn extra could be spent on energy efficiency measures between 2015 and 2020. Using the figures in Figure 22 on average expenditure per job, and taking account of likely inflation, this could result in 91,660 extra homes; both public and private, installing double glazing, cavity wall or other wall insulation, loft or roof insulation, and energy efficient boilers over the period 2015 to 2020.

Using figures from the Energy Saving Trust on the possible carbon emission reduction from each of the measures in Figure 23, this would lead to a saving of up to 237,128 tonnes of CO2 in the six year period to 2020.

Figure 28: Estimated cumulative effects of 5% demand increase on CO2 emissions, 2015 to 2020

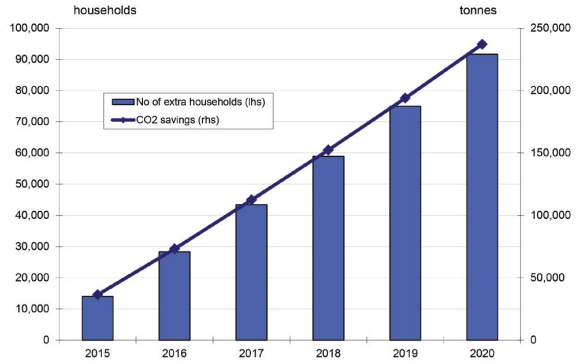


Figure 29: Estimated cumulative effects of 5% demand increase on CO2 emissions and the cumulative number of extra households, 2015 to 2020

	2015	2016	2017	2018	2019	2020
Number of extra households (thousands)	14,054	28,249	43,411	58,877	74,958	91,661
CO2 savings (tonnes)	36,358	73,080	112,305	152,314	193,917	237,128

Conclusion

While the rationalisation of VAT on energy efficiency measures would be a significant step in the right direction, there is a potentially far greater carbon reduction gain to be had from an overall reduction to 5% on the labour element of all housing renovation and repair. The possible rise in demand for energy efficiency measures as a result of a 5% increase in overall demand for housing renovation and repair could result in an additional 91,660 homes being retrofitted with loft and wall insulation, double glazing and energy efficient boilers by 2020, leading to a saving of up to 237,128 tonnes of CO2.

A flat rate of 5% on the installation of all energy efficiency measures would produce a more coherent and more readily implementable treatment of energy efficient retrofitting.

Owner-occupiers may well be tempted to spend some of the VAT saving on energy efficient measures, particularly as they would generate long term savings. Furthermore, social housing providers are likely to see this as one of their priorities should extra funds become available.

Government support for energy efficiency

The Green Deal is the government's flagship energy efficiency scheme and has been open for business since January 2013. The aim of the scheme is to encourage householders to commission energy efficiency work by allowing them to do so with no upfront cost. However, so far engagement in the Green Deal scheme has been somewhat limited. Latest figures show that there were a total of 129,842 Green Deal assessments lodged up to the end of December 2013. Around 1,612 households had Green Deal Plans which is up from 1,478 recorded in November. Of these, 493 were at the pending stage where the plans have been signed and progress is being made to install the measures and 626 were at the live stage, where all measures have been installed. This is in contrast to the Energy and Climate Change Minister's aim of securing 10,000 Green Deals by the end of 2013.

The government could potentially improve take up of the Green Deal scheme by broadening the financial incentives. So far the government has put some incentives in place and most recently a Stamp Duty incentive was announced as part of the December 2013 Autumn Statement where those installing measures under the Green Deal could benefit from a rebate of £1,000. This could rise to as much as £4,000 depending on the type of installation and would be made available to all individuals moving home, including those who do not pay stamp duty. This could have a positive impact but will clearly not act as a financial incentive to those who have no intention of moving to a new property.

Another potentially more inclusive approach to financial incentives would be to reduce VAT from 20% to 5% on housing renovation and repair as this would appeal to all home owners, regardless of whether or not they are a landlord or whether they have a plan to move home.

A VAT reduction would make the overall cost of the Green Deal loan smaller and possibly less daunting to those who are considering the scheme. Furthermore, as referred to as part of the VERD research from the University of East Anglia, home owners may be more likely to commission energy efficiency work. Indeed, in the Committee on Climate Change's (CCC) latest report to Parliament on the government's progress towards meeting our carbon budgets, the CCC advised government to carry out an early review of the Green Deal and ECO, and consider further incentives to encourage take up of energy efficiency measures. A VAT reduction is one such incentive government should consider.

The government could also potentially improve the Green Deal by simplifying the process which may encourage more usage of the scheme. Another potential barrier to take up is the Green Deal finance package: in most cases individuals can access better value loans via remortgaging or for smaller amounts, credit cards could also be cheaper alternative.

In order to reduce households' energy bills government has announced its intention to cut green taxes which could potentially impact on ECO subsidies. Subject to the outcome of a consultation in January 2014, as part of the government's Energy Bills announcement, government has extended the timeframe for ECO to 2017 as well as decreasing the programme's Carbon Emissions Reduction Obligation by 33 per cent. Energy suppliers are now obliged to install 100,000 solid-wall insulations in the four years to 2017. The government hopes that this change to ECO will also contribute towards lower energy bills for consumers. However, it is believed that some energy firms have held back funding for new projects until uncertainty over the scheme is resolved.

Appendix A
The full matrices

Figure 30: Impact in reduction of VAT from 20% to 5% - UK, 2015 to 2020

		2015	2016	2017	2018	2019	2020
Base vat receipt loss due to reduction		-1608	-1705	-1844	-1975	-2082	-2195
VAT generated from shift from DIY to professional		12	13	13	14	14	15
VAT generated on price elasticity = 0.16	2%	11	11	12	13	14	15
VAT generated on price elasticity = 0.4	5%	27	28	31	33	35	37
VAT generated on price elasticity = 0.8	10%	54	57	61	66	69	73
VAT loss/gain on price elasticity = 0.16 (1)		-1585	-1681	-1819	-1948	-2054	-2166
VAT loss/gain on price elasticity = 0.4 (2)		-1569	-1664	-1800	-1929	-2033	-2144
VAT loss/gain on price elasticity = 0.8 (3)		-1542	-1636	-1770	-1896	-1999	-2107
shift from informal to formal economy A - increase in VAT receipts	10%	60	64	69	74	78	82
shift from informal to formal economy B - increase in VAT receipts	20%	121	128	138	148	156	165
shift from informal to formal economy C - increase in VAT receipts	30%	181	192	207	222	234	247
Range of total VAT loss/gain on PE (1)A-C		**-1525/-1404**	**-1617/-1489**	**-1750/-1611**	**-1874/-1726**	**-1976/-1820**	**-2084/-1919**
Range of total VAT loss/gain on PE (2)A-C		**-1509/-1388**	**-1600/-1472**	**-1731/-1593**	**-1855/-1706**	**-1955/-1799**	**-2062/-1897**
Range of total VAT loss/gain on PE (3)A-C		**-1482/-1361**	**-1572/-1444**	**-1700/-1562**	**-1822/-1674**	**-1921/-1764**	**-2025/-1860**
Xtra income tax & ni generated on employment PE (1)		240	252	267	281	294	307
Xtra income tax & ni generated on employment on PE (2)		409	432	461	490	514	539
Xtra income tax & ni generated on employment PE (3)		692	731	785	837	879	925
Xtra income tax & ni generated on shift from informal to formal economy C		636	674	729	781	823	868
Unemployment & other social benefits saved on PE (1)		69	72	77	81	85	88
Unemployment & other social benefits saved on PE (2)		118	124	133	141	148	155
Unemployment & other social benefits saved on PE (3)		199	210	226	241	253	266
Unemployment & other social benefits saved on shift from informal to formal economy C		183	194	210	225	237	250
Range of net tax losses/gains on PE (1) A-C		**-1216/-277**	**-1293/-297**	**-1406/-329**	**-1512/-359**	**-1597/-382**	**-1688/-406**
Range of net tax losses/gains on PE (2) A-C		**-982/-43**	**-1045/-49**	**-1137/-60**	**-1224/-71**	**-1294/-78**	**-1368/-86**
Range of net tax losses/gains on PE (3) A-C		**-591/348**	**-630/365**	**-689/388**	**-744/409**	**-788/428**	**-835/447**

Figure 31: Impact of reduction in VAT from 20% to 5% - England, 2015 to 2020

	Rate	2015	2016	2017	2018	2019	2020
Base vat receipt loss due to reduction		-1417	-1500	-1619	-1731	-1806	-1904
VAT generated from shift from DIY to professional		11	11	11	12	12	13
VAT generated on price elasticity = 0.16	2%	9	10	11	12	12	13
VAT generated on price elasticity = 0.4	5%	24	25	27	29	30	32
VAT generated on price elasticity = 0.8	10%	47	50	54	58	60	63
VAT loss/gain on price elasticity = 0.16 (1)		-1397	-1479	-1597	-1708	-1782	-1879
VAT loss/gain on price elasticity = 0.4 (2)		-1383	-1464	-1581	-1690	-1764	-1860
VAT loss/gain on price elasticity = 0.8 (3)		-1360	-1439	-1554	-1662	-1734	-1828
shift from informal to formal economy A - increase in VAT receipts	10%	30	32	35	37	39	41
shift from informal to formal economy B - increase in VAT receipts	20%	60	64	69	74	77	81
shift from informal to formal economy C - increase in VAT receipts	30%	91	96	104	111	116	122
Range of total VAT loss/gain on PE (1)A-C		**-1367/-1307**	**-1447/-1383**	**-1562/-1493**	**-1671/-1597**	**-1744/-1667**	**-1838/-1757**
Range of total VAT loss/gain on PE (2)A-C		**-1353/-1292**	**-1432/-1368**	**-1546/-1477**	**-1653/-1580**	**-1726/-1648**	**-1819/-1738**
Range of total VAT loss/gain on PE (3)A-C		**-1329/-1269**	**-1407/-1343**	**-1519/-1450**	**-1625/-1551**	**-1695/-1618**	**-1788/-1706**
Xtra income tax & ni generated on employment PE (1)		207	217	230	242	252	263
Xtra income tax & ni generated on employment on PE (2)		354	372	397	421	439	460
Xtra income tax & ni generated on employment PE (3)		598	631	677	720	751	789
Xtra income tax & ni generated on shift from informal to formal economy C		313	331	358	382	399	421
Unemployment & other social benefits saved on PE (1)		61	64	67	71	74	77
Unemployment & other social benefits saved on PE (2)		104	109	116	123	128	135
Unemployment & other social benefits saved on PE (3)		175	185	198	211	220	231
Unemployment & other social benefits saved on shift frm informal to formal economy C		92	97	105	112	117	123
Range of net tax losses/gains on PE (1) A-C		**-1100/-634**	**-1166/-674**	**-1265/-734**	**-1358/-790**	**-1418/-825**	**-1498/-873**
Range of net tax losses/gains on PE (2) A-C		**-896/-431**	**-951/-458**	**-1032/-501**	**-1109/-541**	**-1158/-565**	**-1224/-599**
Range of net tax losses/gains on PE (3) A-C		**-556/-91**	**-591/-99**	**-644/-113**	**-694/-125**	**-725/-132**	**-768/-142**

Figure 32: Impact of reduction in VAT from 20% to 5% - Scotland, 2015 to 2020

	Rate	2015	2016	2017	2018	2019	2020
Base vat receipt loss due to reduction		-117	-127	-139	-151	-180	-190
VAT generated from shift from DIY to professional		1	1	1	1	1	1
VAT generated on price elasticity = 0.16	2%	1	1	1	1	1	1
VAT generated on price elasticity = 0.4	5%	2	2	2	3	3	3
VAT generated on price elasticity = 0.8	10%	4	4	5	5	6	6
VAT loss/gain on price elasticity = 0.16 (1)		-115	-125	-137	-149	-177	-188
VAT loss/gain on price elasticity = 0.4 (2)		-114	-124	-136	-148	-175	-186
VAT loss/gain on price elasticity = 0.8 (3)		-112	-122	-134	-145	-172	-183
shift from informal to formal economy A - increase in VAT receipts	10%	3	3	4	4	5	5
shift from informal to formal economy B - increase in VAT receipts	20%	6	7	7	8	9	10
shift from informal to formal economy C - increase in VAT receipts	30%	9	10	11	12	14	15
Range of total VAT loss/gain on PE (1)A-C		**-112/-106**	**-122/-115**	**-134/-127**	**-145/-137**	**-173/-163**	**-183/-173**
Range of total VAT loss/gain on PE (2)A-C		**-111/-105**	**-121/-114**	**-132/-125**	**-144/-136**	**-171/-162**	**-181/-171**
Range of total VAT loss/gain on PE (3)A-C		**-109/-103**	**-119/-112**	**-130/-123**	**-141/-133**	**-168/-159**	**-178/-168**
Xtra income tax & ni generated on employment PE (1)		17	18	19	21	23	24
Xtra income tax & ni generated on employment on PE (2)		29	31	33	35	40	43
Xtra income tax & ni generated on employment PE (3)		48	51	56	60	70	73
Xtra income tax & ni generated on shift from informal to formal economy C		9	10	11	12	14	15
Unemployment & other social benefits saved on PE (1)		5	6	6	6	7	7
Unemployment & other social benefits saved on PE (2)		9	10	10	11	13	13
Unemployment & other social benefits saved on PE (3)		15	16	17	19	22	23
Unemployment & other social benefits saved on shift from informal to formal economy C		9	10	11	12	14	15
Range of net tax losses/gains on PE (1) A-C		**-90/-65**	**-98/-72**	**-108/-79**	**-118/-87**	**-143/-105**	**-151/-112**
Range of net tax losses/gains on PE (2) A-C		**-74/-49**	**-80/-54**	**-89/-60**	**-97/-66**	**-118/-80**	**-125/-85**
Range of net tax losses/gains on PE (3) A-C		**-47/-22**	**-51/-25**	**-57/-28**	**-63/-31**	**-77/-39**	**-81/-42**

Figure 33: Impact of reduction in VAT from 20% to 5% - Wales, 2015 to 2020

	Rate	2015	2016	2017	2018	2019	2020
Base vat receipt loss due to reduction		-57	-61	-67	-72	-75	-78
VAT generated from shift from DIY to professional		0.4	0.4	0.4	0.5	0.5	0.5
VAT generated on price elasticity = 0.16	2%	0.4	0.4	0.4	0.5	0.5	0.5
VAT generated on price elasticity = 0.4	5%	1.0	1.0	1.1	1.2	1.2	1.3
VAT generated on price elasticity = 0.8	10%	1.9	2.0	2.2	2.4	2.5	2.6
VAT loss/gain on price elasticity = 0.16 (1)		-56	-60	-66	-71	-74	-77
VAT loss/gain on price elasticity = 0.4 (2)		-56	-59	-65	-71	-73	-76
VAT loss/gain on price elasticity = 0.8 (3)		-55	-58	-64	-69	-72	-75
shift from informal to formal economy A - increase in VAT receipts	10%	1	1	1	2	2	2
shift from informal to formal economy B - increase in VAT receipts	20%	3	3	3	3	3	3
shift from informal to formal economy C - increase in VAT receipts	30%	4	4	4	5	5	5
Range of total VAT loss/gain on PE (1)A-C		**-55/-52**	**-59/-56**	**-64/-61**	**-70/-66**	**-72/-69**	**-75/-72**
Range of total VAT loss/gain on PE (2)A-C		**-54/-52**	**-58/-55**	**-64/-61**	**-69/-66**	**-71/-68**	**-74/-71**
Range of total VAT loss/gain on PE (3)A-C		**-53/-51**	**-57/-54**	**-62/-59**	**-68/-65**	**-70/-67**	**-73/-70**
Xtra income tax & ni generated on employment PE (1)		6	7	7	7	8	8
Xtra income tax & ni generated on employment on PE (2)		11	11	12	13	14	14
Xtra income tax & ni generated on employment PE (3)		18	19	21	22	23	24
Xtra income tax & ni generated on shift from informal to formal economy C		10	11	12	13	13	14
Unemployment & other social benefits saved on PE (1)		2.39	2.52	2.69	2.86	2.96	3.07
Unemployment & other social benefits saved on PE (2)		4.12	4.36	4.71	5.05	5.23	5.43
Unemployment & other social benefits saved on PE (3)		7.01	7.43	8.07	8.70	9.01	9.37
Unemployment & other social benefits saved on shift frm informal to formal economy C		3.88	4.14	4.54	4.92	5.09	5.30
Range of net tax losses/gains on PE (1) A-C		**-46/-30**	**-50/-32**	**-55/-35**	**-60/-39**	**-62/-40**	**-64/-42**
Range of net tax losses/gains on PE (2) A-C		**-40/-23**	**-42/-25**	**-47/-27**	**-51/-30**	**-53/-31**	**-55/-32**
Range of net tax losses/gains on PE (3) A-C		**-28/-12**	**-30/-13**	**-34/-14**	**-37/-16**	**-38/-16**	**-39/-17**

Figure 34: Impact of reduction in VAT from 20% to 5% - Northern Ireland, 2015 to 2020

	Rate	2015	2016	2017	2018	2019	2020
Base vat receipt loss due to reduction		-16	-18	-19	-20	-21	-22
VAT generated from shift from DIY to professional		0.1	0.1	0.1	0.1	0.1	0.1
VAT generated on price elasticity = 0.16	2%	0.1	0.1	0.1	0.1	0.1	0.1
VAT generated on price elasticity = 0.4	5%	0.3	0.3	0.3	0.3	0.4	0.4
VAT generated on price elasticity = 0.8	10%	0.5	0.6	0.6	0.7	0.7	0.7
VAT loss/gain on price elasticity = 0.16 (1)		-16.3	-17.3	-18.8	-20.2	-21.0	-22.2
VAT loss/gain on price elasticity = 0.4 (2)		-16.1	-17.1	-18.6	-20.0	-20.8	-22.0
VAT loss/gain on price elasticity = 0.8 (3)		-15.8	-16.9	-18.3	-19.7	-20.4	-21.6
shift from informal to formal economy A - increase in VAT receipts	10%	0.6	0.6	0.7	0.7	0.8	0.8
shift from informal to formal economy B - increase in VAT receipts	20%	1.2	1.3	1.4	1.5	1.5	1.6
shift from informal to formal economy C - increase in VAT receipts	30%	1.8	1.9	2.1	2.2	2.3	2.5
Range of total VAT loss/gain on PE (1)A-C		**-16/-14**	**-17/-15**	**-18/-17**	**-19/-18**	**-20/-19**	**-21/-20**
Range of total VAT loss/gain on PE (2)A-C		**-15/-14**	**-17/-15**	**-18/-17**	**-19/-18**	**-20/-18**	**-21/-20**
Range of total VAT loss/gain on PE (3)A-C		**-15/-14**	**-16/-15**	**-18/-16**	**-19/-17**	**-20/-18**	**-21/-19**
Xtra income tax & ni generated on employment PE (1)		1.7	1.8	1.9	2.0	2.1	2.2
Xtra income tax & ni generated on employment on PE (2)		3.0	3.1	3.4	3.6	3.7	3.9
Xtra income tax & ni generated on employment PE (3)		5.1	5.4	5.8	6.2	6.4	6.8
Xtra income tax & ni generated on shift from informal to formal economy C		4.6	4.9	5.4	5.8	6.0	6.3
Unemployment & other social benefits saved on PE (1)		0.66	0.70	0.74	0.78	0.81	0.85
Unemployment & other social benefits saved on PE (2)		1.16	1.23	1.32	1.40	1.46	1.53
Unemployment & other social benefits saved on PE (3)		1.99	2.12	2.28	2.44	2.53	2.67
Unemployment & other social benefits saved on shift frm informal to formal economy C		1.82	1.94	2.11	2.27	2.35	2.49
Range of net tax losses/gains on PE (1) A-C		**-13/-6**	**-14/-6**	**-15/-7**	**-17/-7**	**-17/-7**	**-18/-8**
Range of net tax losses/gains on PE (2) A-C		**-11/-4**	**-12/-4**	**-13/-4**	**-14/-5**	**-15/-5**	**-16/-5**
Range of net tax losses/gains on PE (3) A-C		**-8/-0.5**	**-9/-0.5**	**-10/-0.6**	**-10/-0.7**	**-11/-0.8**	**-11/-0.8**

	10. Social housing		10a. Renovation and repairing of private dwellings excluding materials which form a significant part of the value of the supply		
Belgium	12[1]	6	21	6[3]	
Bulgaria	20		20		
Czech Republic	15		15		
Denmark	25		25		
Germany	19		19		
Estonia	20		20		
Greece	13	[ex]	13[4]		
Spain	4		10[5]		
France	5.5	20	5.5	10[6]	20
Croatia	25		25		
Ireland	13.5		13.5		
Italy	4	10	10		
Cyprus	19		5		
Latvia	21		21		
Lithuania	21		21		
Luxembourg	3[2]	15	15		
Hungary	27		27		
Malta	[ex]		18		
Netherlands	21		6[7]		
Austria	20		20		
Poland	8		8		
Portugal	[ex]	6	6		
Romania	5		24		
Slovenia	9.5		9.5		
Slovakia	20		20		
Finland	24		24		
Sweden	25	[ex]	25		
United Kingdom	20	5	5[8]	0	

Source: EU document 'VAT Rates Applied in the Members States of the European Union

1) Belgium: Provided that all the conditions are fulfilled
2) Luxembourg: Houses used as a principal dwelling
3) Belgium: 6% on renovation and repairing of private dwellings completed more than five years ago
4) Greece: Only for old private dwellings
5) Spain: Bricklaying work for the repair of private dwellings
6) France: Renovation and repairing of private dwellings complete at least two years ago
7) Netherlands: Painting and plastering services for the renovation and repairing of private dwellings more than 15 years old; application of a reduced 6% VAT rate for rebuilding, renovation and repair of owner-occupied dwellings from 1st March 2013 until 1st March 2014
8) United Kingdom: For the Isle of Man only

Appendix B

Appendix C

Appendix D

Appendix E

Glossary

Constant price output: output measured in relation to a base year (currently 2005) in order to exclude the effects of inflation. Often also known as output in real terms

Current price output: output measured in current prices, including the effects of inflation. Often also known as output in nominal terms.

Full-time equivalent employment: for some occupations a full-time equivalent may equal one worker on site for a full year, however for others this may mean more workers on site for a shorter period. For example, a carpenter is likely to undertake a range of work over a long period of time, whereas scaffolders will be on site to either erect or dismantle scaffolding, which requires short spells of intense work.

Price elasticity: the responsiveness of demand to a change in price

Multiplier: for every £X of extra output created directly, there are indirect effects of £Y

Construction statistics changes

Between the original report in 2009 and the first update in 2011 there was a significant change to the methodology of data collection for construction output statistics. From the first quarter of 2010, the ONS began publishing construction output data series based on the results of a new survey methodology. Thus there were significant changes to the base data between the two reports. The main changes were:

- Sampling frame – use of the Interdepartmental Business Register (IDBR) instead of the Building Address File (BAF). The former covers both VAT and PAYE registered firms, the latter only VAT registered;
- Removal of an estimate of unrecorded output for the renovation and repair sectors.

These changes led to an alteration in the relativity between new work and renovation and repair – new work increased its share of total construction output by approximately 6% while the renovation and repair share was reduced by 6%.

Since the first update there has been a further change to construction output statistics in real terms, namely the move to chain-linked data to bring it into line with other National Accounts data. Annual chain-linking is a method for aggregating the volume measures on a more frequent basis. It can be thought of as rebasing every year; thus instead of referring back to value shares from the most recent base year, volume measures for each year are produced in prices of the previous year. These volume measures are then 'chain-linked' together to produce a continuous time series. The main benefit of chain-linking is that as the weighting is updated every year it will more accurately reflect the importance of various sectors in the economy. The primary drawback to chain-linking is a loss of 'additivity', that is, prior to the base year the sum of the parts will not equal the total.

Currently construction output data in real terms is produced on a chain-linked basis in 2010 prices. On this basis housing renovation and repair output accounted for just under 19% of total construction output in 2012.

Sources

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The Cut the VAT Campaign is supported by the following coalition of organisations:

Association of Interior Specialists
Association of Plumbing and Heating Contractors
Bathroom Manufacturers Association
Brick Development Association
British Blind and Shutter Association
British Precast Concrete Federation
British Property Federation
British Woodworking Federation
Builders Merchants Federation
Building & Engineering Services Association
Built Environment Forum Scotland
Campaign to Protect Rural England
Civil Engineering Contractors Association
Chartered Institute of Building Services Engineers
Civic Voice
Clay Roof Tile Council/British Ceramic Confederation
The Construction Centre
Council for Aluminium in Building
Country Land & Business Association
Countryside Alliance
Electrical Contractors' Association
The Electrical Safety Council
Empty Homes
European Builders Confederation
Federation of Master Builders
Glass and Glazing Federation
The Heritage Alliance
Historic Houses Association
Historic Towns Forum
HomeOwners Alliance
House Beautiful Magazine
ICAEW
Institute of Historic Building Conservation
Insulated Render and Cladding Association
Joint Taxation Committee
KBBNews
Kitchen Bathroom Bedroom Specialists Association
Knauf Insulation
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Lister Trade Frames
Mineral Wool Insulation Manufacturers Association
Modern Masonry Alliance
National Association of Shopfitters
National Energy Action
National Federation of Builders
National Federation of Roofing Contractors
National Home Improvement Council
National Landlords Association
National Specialist Contractors Council
National Trust
Painting and Decorating Association
Property Owners Directory
Royal Institute of British Architects
Royal Institution of Chartered Surveyors
Scottish Building Federation
SELECT – Scotland's electrical trade association
Shawbrook Bank
The TaxPayers' Alliance
Thatched Owners Group
The Theatres Trust
The Tile Association
The VAT Consultancy
Town and Country Planning Association
UK Green Building Council

Appendix F

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