

# ENERGY SAVINGS TRUST

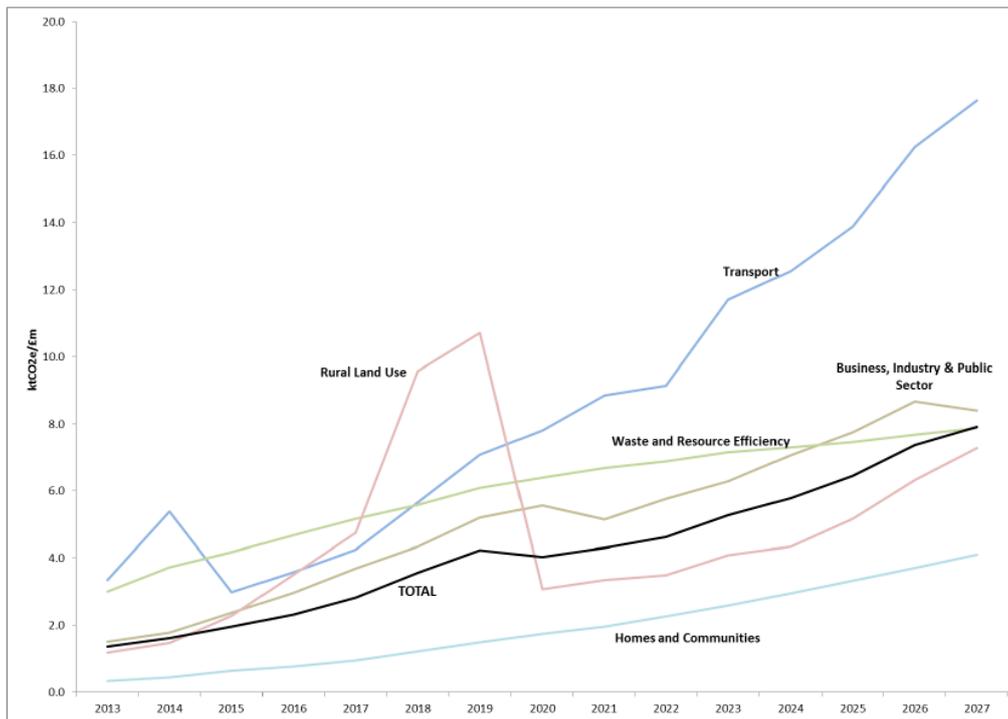
## WRITTEN SUBMISSION

### Low Carbon Scotland: Meeting our Emissions Reduction Targets

2013 - 2027

The Energy Saving Trust welcomes many of the policies and proposals for homes and communities outlined in the RPP2, and are particularly pleased to see proposals to introduce a minimum standard for all private sector housing. However, we believe that significant opportunities exist to strengthen the likely effectiveness (in terms of CO<sub>2</sub> reduction) of some of the policies and proposals – strengthening these would have the added advantage of reducing fuel poverty. Doing so would also enable a greater proportion of overall emissions reductions to come from the household sector. Available evidence suggests that it is more cost-effective to reduce emissions from existing housing than in any other sector. This is well illustrated by the following graph:

**Figure 3: Value for money of Abatements**



**Source:** SPICe Briefing – RPP” and Scotland’s Climate Change Targets, February 2013, see (page 12):

[http://www.scottish.parliament.uk/ResearchBriefingsAndFactsheets/S4/SB\\_13-07.pdf](http://www.scottish.parliament.uk/ResearchBriefingsAndFactsheets/S4/SB_13-07.pdf)

For these reasons (the ability to meet multiple government objectives – those for climate change and fuel poverty, and the cost-effectiveness of reducing CO<sub>2</sub> emissions in this sector) **we believe it would be sensible to aim for**

**higher emissions reduction in this sector – at least in line with the overall 42% target<sup>1</sup>.**

There are a number of ways that the policies and proposals outlined in RPP2 could be strengthened and their effectiveness improved, specifically:

**1. Integration of water efficiency measures within wider energy efficiency retrofit programmes**

We believe that water efficiency measures should be integrated into wider domestic energy efficiency retrofit programmes. Policies to improve water efficiency in Scotland's homes could significantly reduce carbon emissions in this sector, and also result in a reduction in carbon emissions associated with water supply and treatment.

In Scotland, domestic water use accounts for approximately 14% of household CO<sub>2</sub> emissions and approximately 23% of domestic heating bills (about 13% of a home's total energy bill). The devices needed (water efficient showerheads and tap aerators) to help save hot water in the home are very affordable and easy to install, and result in significant, cost effective, CO<sub>2</sub> and energy bill savings. Their installation also makes a positive contribution to the alleviation of fuel poverty. In addition, for people living in flats where low cost cavity wall and loft insulation may not be an option reducing hot water use is one of the few things they can do easily and cheaply to reduce their CO<sub>2</sub> emissions.

Tables 1 and 2 outline potential annual and lifetime savings<sup>2</sup> on a per household basis for homes retrofitted with water saving devices (showerheads, tap aerators) and residents changing their behaviour (by reducing their time in the shower by 1 minute and turning off taps when not in use). Two CO<sub>2</sub> emission reduction figures are supplied, one for domestic hot water savings benefiting the householder and one for the reduction in water supplied and treated (referred to as the embodied CO<sub>2</sub> saving) benefiting Scottish Water. These savings numbers are indicative of the retrofit and behaviour changes proposed. Savings will always vary across households due to occupancy and household specific water use practices.

<sup>1</sup> Note: It appears that the policies and proposals outlined in RPP2 will deliver savings of around 34% by 2020 in the 'household and communities' sector.

<sup>2</sup> These indicative savings have been derived using typical water device and behaviours found in the average home, as a baseline. Occupancy and heating performance co-efficients relevant to Scotland's existing housing stock were used. They have been calculated using the Energy Saving Trust WEMlite tool. The assumptions used to calculate these figures are summarised in the table below.

<b>Summary of retrofitting and behaviour change assumptions:</b>	
Baseline House:	Person takes 7 showers per week. 7mins per shower. 10L/min. 9-litre toilet. Sink & Basin use. Washing machine & Dishwasher (Total = 150L/p/day)
Behaviour Change:	6min shower, turn off taps when not in use.
Retrofit:	7L/min showerhead, tap aerators. 6L/min shower, <6L/min taps,

**Table 1: Potential annual savings from water efficiency per household**

	<b>Water Savings (m<sup>3</sup>/yr)</b>	<b>Energy Bill Savings (£/yr)</b>	<b>CO2 Savings (kg/yr)</b>	<b>Embodied CO2 Savings (kg/yr)</b>
<b>Behaviour Change only</b>	14	£25	148	14
<b>Retrofit only</b>	30	£36	216	31
<b>Retrofit + Behaviour Change</b>	40	£55	327	42

**Table 2: Potential lifetime savings from water efficiency per household**

	<b>Water Savings (m<sup>3</sup>)</b>	<b>Energy Bill Savings (£)</b>	<b>CO2 Savings (kg)</b>	<b>Embodied CO2 Savings (kg)</b>
<b>Behaviour Change only</b>	140	£250	1,480	140
<b>Retrofit only</b>	300	£360	2,160	310
<b>Retrofit + Behaviour Change</b>	400	£550	3,270	420

The installation of such devices is already an integral part of a number of energy efficiency retrofitting programmes operating in other parts of the UK, including the London Re:New programme<sup>3</sup>.

## **2. Proposed new standards for new build should be in line with those recommended in the Sullivan Review**

We believe that the proposed new standards for new build from 2014 should remain in line with those recommended in the Sullivan Review. The proposed changes will deliver a 45% reduction on 2007 emissions for new homes (21% on 2010 standards) – not the 60% reduction on 2007 standards recommended in the Sullivan review.

It is important to remember that every new home that is built in Scotland adds to Scotland's overall CO<sub>2</sub> emissions, and new homes will be built every year between now and 2050 – so the cumulative impact of their emissions over the next 37 years will not be negligible.

It is also important to note that if the current proposals are adopted it is likely that homes built from 2014 will need to be revisited at some point in the future in order to undertake work to further reduce emissions. It is more cost effective to undertake emissions reduction work at the point of construction and as such not bringing these properties up to appropriate standards now is likely to be a decision that will result in overall costs being higher – as such this does not seem to be a sensible approach.

<sup>3</sup> For more information about the London Re:New programme please see: <http://www.london.gov.uk/priorities/environment/climate-change/energy-efficiency/homes-energy-efficiency-for-tomorrow>

### **3. Bring forward the introduction of minimum standards for all private sector housing, ensure that standards are sufficiently challenging, and that supporting policies are in place**

We very much welcome the Scottish Government's intention to introduce minimum standards for all private sector housing, and believe that such standards are likely to be necessary if the Scottish Government is to meet its climate change targets.

We believe that it would be appropriate to apply regulations at an earlier date than suggested by the Scottish Government, ideally from 2015/2016. By 2016 the Scottish Government aims to eradicate fuel poverty and so a significant proportion of those on low incomes should have received assistance to have at least their loft and cavities insulated where possible.

We also note that only measures '*that are currently most cost effective for private households (i.e. loft insulation, cavity wall insulation, floor insulation and efficient boilers)*' have been included in modelling the impacts of minimum standards for private housing. Given that Green Deal finance will be available (and householders will therefore have no up-front costs to pay) for a much wider set of measures, including solid wall insulation, we believe it will be important that regulation is sufficiently challenging - at least after its very early years - to ensure that it results in significant numbers of solid wall installations and ultimately significant CO<sub>2</sub> emissions reductions.

Leading up to the introduction of regulation additional policies will be required – these should include:

- A programme of public engagement to help gain buy-in into the technologies and policies (including regulation) required to effect the emissions reductions required.
- A variety of incentives (for example relief for more energy efficient homes through the Land and Buildings Transaction Tax) and awareness raising activities, developed around people's behaviour and the lifetime of their homes, in preparation for eventual regulation.
- Continued funding for the Energy Saving Scotland advice centres (ESSacs) so that they can continue to provide advice and support to householders across Scotland about the various options available to them. In a regulatory environment it will be more important than ever that people have access to free, impartial advice to ensure that they are able to meet the new regulatory standards in that way that is most cost effective, and appropriate to them.

Finally, when considering how effective the proposals and policies within the draft RPP2 will be at delivering CO<sub>2</sub> emissions reductions it also important to consider the following:

**1. A considerable amount of abatement in 2020 and 2027 will be delivered by yet undefined policies.**

We note that there are no policies or proposals identified to unlock the '*additional technical potential in fabric and energy efficiency*'. The abatement attributed to unlocking this technical potential makes up a considerable proportion of total abatement from the housing sector in 2020 and 2027. Indeed, this represents 20% of total abatement from the 'housing and communities' sector in 2020, and 28% in 2027. We believe that this represents too large quantity of carbon reduction for there not to be any specified policies or proposals to ensure its delivery.

**2. Greater consideration should be given to whether assumed savings are actually delivered in practice.**

We believe that there needs to be greater consideration of whether assumed savings are actually delivered in practice, and we believe that the Scottish Government needs to provide a commitment to undertake monitoring to ensure that assumed savings from specific activities are being delivered. Given that savings from solid wall insulation will now make up a larger and larger proportion of CO<sub>2</sub> savings from the housing sector we believe that this is an area where particular attention should be focussed. Specifically, research should be undertaken to be able to provide clear advice on the energy saving impacts of solid wall insulation, and indeed of the energy performance of different types of solid wall pre-insulation – particularly in the Scottish context.

We would also like to see a commitment and timeframe for post occupancy testing of homes to ensure they meet the energy standards of the Building Regulations, and do in fact deliver the CO<sub>2</sub> savings that they are expected to. Clearly without such monitoring there is the possibility of "booking" carbon savings in policy terms which are not actually realised in practice.

**ENERGY SAVINGS TRUST**  
**20 February 2013**