

Response to Energy Company Obligation (ECO): Using a conversion factor to convert SAP/RdSAP 2012 CO2e emissions to SAP/RdSAP 2009 CO2 emissions



Introduction

Energy Action Scotland (EAS) is the Scottish charity with the remit of ending fuel poverty. EAS has been working with this remit since its inception in 1983 and has campaigned on the issue of fuel poverty and delivered many practical and research projects to tackle the problems of cold, damp homes. EAS works with both the Scottish and the UK Governments on energy efficiency programme design and implementation.

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EAS welcomes the opportunity to respond to this latest consultation.

Fuel Poverty in Scotland

The Scottish Government is required by the Housing (Scotland) Act 2001 to end fuel poverty, as far as is practicable, by 2016 and plans to do this are set out in the Scottish Fuel Poverty Statement. The number of Scottish households living in fuel poverty dropped from 756,000 (35.6%) in 1996 to 293,000 (13.4%) in 2002. Half the reduction was due to increases in household income, 35% to reduced fuel prices and 15% to improve energy efficiency of housing¹. The most recent figures² from the Scottish House Condition Survey Key Findings Report show that there were 684,000 households living in fuel poverty in Scotland in 2011, representing 28% of total households.

According to figures produced by the Scottish Government³ early in 2008, for every 5% rise in fuel prices an estimated 40,000 more households would go into fuel poverty. Based on these figures EAS estimates that there are currently 900,000 households, more than four in ten, in fuel poverty in Scotland. This significant increase in fuel poverty is widely accepted to be due to the dramatic increases in domestic fuel prices and EAS is very concerned about the impact on vulnerable customers.

Question 1: Will the use of the proposed weighted conversion factors lead to impacts on costs and/or planned delivery patterns for energy suppliers? If so, could you specify what impacts it could have? In particular, could it change delivery patterns to off gas grid properties?

For ECO there are already as a result of the consultation on the “The Future of the Energy Company Obligation” proposals to change the scoring for HHCRO to incentivise the delivery of measures in non-gas (mains) properties. This metric is about the cost savings that can be realised by improving energy efficiency and so will not be affected by changes in emissions calculations.

Any change to the assumed emissions factors for use in the calculation methodology will have some impact on the savings achieved, and also the rates paid to installers delivering the measures; at least for the current ECO period to 2015 this should be implemented in a way which does not confer a benefit nor a penalty to the delivery of already agreed (and for CERO, amended) obligation targets.

¹ Fuel Poverty in Scotland: Further Analysis of the Scottish Housing Condition survey 2002

² Revised Scottish House Condition Scotland Key Findings Report 2011

³ Estimate of Fuel Poverty Households in Scotland: Scottish House Condition Survey March 2011

It is unlikely that even if the CO_{2e} factors were to be implemented unadjusted to the calculation methodology, that this would in reality cause a significant shift in the delivery patterns. **It will always be more attractive to conduct operations to properties linked to the mains gas network as this is closely coupled to the population dense areas across the country and therefore less expensive to deliver.** There is also a close link to the distribution of ECO measures and the proportions of main fuels used in homes. According to the Scottish House Condition Survey 2012, 77% of homes used gas as the main fuel; electricity was 14%, oil 6% and other fuels 2%

Current rates of install for CERO/CSCO⁴

	CERO	CSCO
Gas	84.6%	95.5%
Electricity	12.8%	3.2%
Coal	0.5%	0.1%

Looking at an example property 4/5 apt traditional mid terrace home, electrically heated, built in 1950-64, with uninsulated walls, this property would require 10,633 kWh of energy to provide space heating alone. By installing cavity wall insulation, this brings the space heating cost down to 7,734 kWh a saving of 2,899 kWh per year. Repeating the same scenario for a coal fired back boiler system and a non-condensing mains gas boiler provides some insight into the impact on ECO.

Main Fuel	Savings (SAP 2009) [kg/year]	Savings (SAP 2012) [kg/year]	Emissions difference [kg/year]
Electric	1,499	1,505	6
House coal	918	1,202	284
Mains Gas	534	583	49

There is approx. a 2/3 fold increase in the current carbon dioxide emissions for ECO under SAP 2009 which can be obtained by carrying out measures such as cavity wall insulation in non-gas homes, yet this fact alone does not act as a significant incentive to increasing the rate of work in these property types over that provided to main gas.

Applying the unadjusted rates to properties with coal fired systems does provide a 31% increase to the emissions saved netting in the above example around half the annual savings of the same measure in a mains gas property. Whilst this does constitute a significant uplift in the carbon scoring for measures applied to this type of property, there are not that many properties like this in accessible areas and so perhaps this would act as an unintended benefit to action. This clearly aligns with Government intention to tackle poor energy efficiency in non-gas properties.

If it appears unlikely that unadjusted figures would result in a significant shift in the focus of work delivered, then the adjusted approach is even less likely to cause this. Keeping this in perspective, the example home above results in an increase of 0.049 tonnes of carbon dioxide per year for a mains gas heated home. Therefore to gain a 1 tonne advantage would require work to be completed to 20 homes. Being pragmatic about this, there are many other areas of the RdSAP assessment process which are routinely incorrectly applied that would result in a much bigger carbon benefit e.g. ignoring the effect of low energy lighting.

⁴ Green Deal, Energy Company Obligation (ECO) and Insulation Levels in Great Britain, Quarterly report: to March 2014

Question 2: What is your preferred Option? If you do not agree with the proposed Options, what other option do you think should be considered and why?

BRE paper on “Proposed Carbon Emission and Primary Energy Factors for SAP 2012” states that:

For most energy sources the carbon impacts are not expected to change over time so it is reasonable to assume that the current emission factor provides the best indication of future factors. This is not the case for grid supply energy sources and in particular, for electricity where substantial changes in the generation mix can be anticipated.

The SAP 2009 emission factors are based on the most recently available information except for grid supply electricity which was based the projected supply. For SAP 2012 it will be necessary to consider the impact of increasing amounts of imported liquefied natural gas (LNG) in the UK gas grid on the emission factor for mains gas.

Therefore for grid supplied electricity and the LNG proportion in mains gas there may need to be an on-going scrutiny every 3-5 years to ensure that the emissions for these fuels remains current, for other fuels, the carbon dioxide levels are not expected to change. So according to this BRE paper, it should be fine to continue to use the SAP 2009 carbon dioxide figures for most fuels rather than defining a single factor to be applied across all fuel types.

We do not agree that a single figure correction factor approach given the future variability for emissions in mains gas and electricity would be a consistent and robust methodology. We would support the view that the 2009 carbon dioxide emission rate be retained for ECO calculation purposes to the end of the current obligation period in 2015, and that the specific CO₂ factors are provided for all fuels, separate to and alongside the CO₂e figures for the future ECO calculations 2015-17.

Whilst it may appear convenient to adjust an aggregated emission factor, the future projections for emissions in the range of domestic fuels used will not all be moving in the same direction nor at the same rate, so we believe that this is not a prudent way forward. It is not out with the scope of the software providers to generate both the CO₂e figures for the wider environmental policies and also the CO₂ figure for the purpose of ECO. The latter could even only be implemented within the ECO scoring tools which are now available, meaning that correct calculation of CO₂ emissions is not an added burden on SAP software approval, that it is incorporated within a post calculation process only relevant for ECO.

Question 3: Do you agree with the proposed approach, which enables energy suppliers to use either SAP/RdSAP 2009 or SAP RdSAP 2012 for a specific period of time?

This issue could prove problematic in terms of aligning with the requirements of EPBD. When Governments agree to implement the new version of RdSAP (9.92), from that point all EPCs produced and lodged will need to be this version. Whilst ECO scoring does not require a “lodged” EPC, guidance is such that Ofgem and suppliers require both pre and post lodged EPCs. So the question of whether you have a 9.91 or a 9.92 version EPC is not one of choice, rather it is dictated by policy.

There are many other factors brought in by the change from 9.91 to 9.92 which will result in greater or lesser savings being calculated. Allowing freedom in the choice of the version of methodology will only result in suppliers choosing the version which is most beneficial i.e. generates the greatest savings. There may also be geographic differences brought about by the difference in implementation dates between Scotland and England for version 9.92, thus creating a north/south bias for certain measures, properties and heating systems.

Ofgem could allow the use of version 9.92 up to the end of the current obligation in 2015 under the rules that it already operates for other calculation methodologies, i.e. that these cannot be used just because they result in greater savings but can be used where RdSAP 9.91 or SAP 2009 are unable to effectively model a certain property or heating system. In the obligation period 2015-17, we would expect that all calculations to be carried out under version 9.92.

Question 4: Do you agree that the proposed conversion factor should be used in the ECO Order 2015-2017?

No, we believe that specific CO₂ emission factors should be utilised alongside the CO₂e calculation. This is the only robust approach, relying on a constantly reviewed fudge factor to adjust the CO₂e factor downwards is not sustainable over time.

Question 5: Do you agree that Government should keep the conversion factor under review and consider further changes, as appropriate?

No, there should be no need for a conversion factor, it is not an appropriate nor an accurate method for assessing the CO₂ emissions related to domestic fuel usage. The proportions of CH₄ and of N₂O emissions per kWh are not all the same across the fuels used and so we should not be using a single figure to adjust for this across the board.