

## Centre for Sustainable Energy response to Ofgem

### Energy Company Obligation (ECO): Consultation on how to account for the percentage of measure installed when calculating ECO scores

Whilst recognising the legislative framework within which this consultation has been issued, the Centre for Sustainable Energy (CSE) does not support the proposed changes in the existing methodology for calculating ECO scores.

Indeed, we believe the proposed changes will harm the development of the market in ECO 'offers' in ways which are against the interests of energy consumers. The proposed changes are also based on a misplaced confidence in the accuracy of SAP and, particularly, RdSAP in their practical application 'in the field', leading to an undue level of concern by Ofgem e-serve about the impact on the accuracy of ECO scoring of simplifications such as the P factor.

We address each of these issues – the market impact and the SAP/RdSAP practical accuracy issues – below.

Before that, we would also like to express our concerns about the way in which evidence has been presented in the consultation and the lack of any description of the overall benefit (in 'scoring error avoided') which Ofgem believes this change will deliver across the ECO programme as a whole.

It is extremely difficult to formulate a response where the analysis referred to in the consultation is neither referenced nor published in full. For example, the maximum 19% "inaccuracy" associated with use of the P factor reported for internal wall insulation was:

- a) Reportedly only for some types of home with focal point heaters.
- b) Not clearly expressed in the document as always inaccurate in one direction or just generally up to 19% (i.e. plus or minus) or whether that applies to all P factors assessed or just some.
- c) Not compared with confidence limits for SAP and RdSAP calculations and input data more generally.

Failure to publish this evidence in full alongside the consultation or to put the analysis 'received by Ofgem' into context, makes it impossible to test its validity or to take a view on what level of purported scoring error Ofgem is trying to avoid across the ECO programme as a whole. Given that (a) only certain types of (relatively rare) home appear to be at the upper limits of the purported scoring errors, and (b) we understand (from subsequent email correspondence with Ofgem e-serve) that the error is plus or minus, we believe the 'error avoidance' theoretically achieved across the ECO programme by dropping the P factor is likely to be negligible. Such a negligible theoretical benefit does not, in our view, justify the negative impact on the market and consumers which we believe the changes will have.

#### **a. The negative impact on the developing ECO market of the proposed changes**

As an organisation that has extensive experience of delivering energy supplier funded schemes for over a decade, CSE has concerns over the practical application of a change in ECO scoring in terms of scheme management and customer experience.

The consultation fails to take into account the existing complexity of ECO scoring, scheme management and the challenges of translating this into a coherent customer journey. The proposed change in methodology would add an additional layer of intricacy and cost which will impact (and ultimately reduce) the offers available to consumers who both need, and want, to participate in ECO - one of the key determinants of the distributional impact of the wider policy.

Stating that assessors will be required to model the actual extent of a measure installed demonstrates a fundamental lack of appreciation of the various routes and scales for ECO delivery. In the vast majority of cases, ECO scoring will not be done by the assessor, but by the managing agent once the customer has had chance to digest the recommendations and has received a visit from an installer. In the case of internal or external wall insulation there may be several reasons for insulating less than 100% of the property, and many of these will only become apparent after an installer has conducted a technical survey. Where this is the case there is a significant practical and logistical constraint in the application of the proposed scoring methodology for the managing agent/installer/ECO delivery agent. This expertise and specialist skill set should not be required at this stage of the ECO delivery model and will only serve to drive delivery costs upward.

CSE believes that the proposed approach will unfairly penalise delivery models where the assessment, installation and scoring stages are not tightly bound together. Where ECO is delivered at scale, (e.g. where a Provider, supplier or installer targets properties en masse), it may be that the changes to the proposed methodology are more easily implemented. However, where ECO is delivered on a smaller scale (and particularly where a customer is offered more choice and flexibility in the assessor or installer), adding an additional layer of complexity risks severely restricting the offer available to the customer and creating a fractured customer experience. CSE strongly believes that customer choice should not be restricted through ECO<sup>1</sup>, and that it has an integral role to play in driving demand, instilling confidence in the industry and ensuring the success of the policy. CSE believes that ECO will only be successful where the framework allows not just one, but a variety, of delivery models to operate. This approach could restrict the different models of ECO delivery as it so heavily reliant on an assessor to do the scoring.

In our opinion, there are more pressing issues with current ECO scoring calculations in terms of their negative market and consumer impacts. In particular, we believe that time would be better spent by Ofgem e-serve focusing on establishing a workable solution to the issue of system builds (which are not currently accommodated for within RdSAP), and the ECO scoring and notification process for hybrid wall insulation (i.e. a mix of internal and external wall insulation on the same property).

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<sup>1</sup> Feedback from CSE's previous schemes (including the [Bristol Home Energy Upgrade](#), [Somerset West Home Energy](#), and [Somerset West Hard to Treat](#)), reveals that the overwhelming majority of households value and appreciate flexibility, particularly when it comes down to being offered choice in the assessor and installer they use. Furthermore, there is a strong desire to support local assessors and SME installers.

Failure to address these adequately and swiftly poses a much greater risk to the development of the ECO market (particularly the CERO element), and is likely further damage confidence in the policies designed to support those living in hard-to-treat properties.

**b. The limitations of SAP and RdSAP – why the result is only ever a ‘rough estimate’**

We are very concerned that Ofgem’s proposals do not reflect a solid understanding of SAP and RdSAP and the inherent limitations to their accuracy in practical application for assessing the energy savings associated with energy efficiency improvements in any given property.

We would recommend that Ofgem e-serve staff familiarise themselves more with the origins of SAP and its limitations (and those of the BREDEM model which underpins it) in order to understand better these real limitations in the accuracy of SAP and RdSAP for predicting energy savings. This would reveal more clearly the inaccuracies which are anyway embedded in the use of SAP and (particularly) RdSAP within ECO scoring (a legislative requirement).

A more practical and nuanced understanding of these would increase the confidence required at Ofgem e-serve to introduce and sustain simplifications such as the P factor to the ECO scoring process within the legislative framework within which it is having to operate.

Kelly *et al* (2012) is a good example of an academic paper exploring the origins of SAP and its foundations in BREDEM. They point out that the SAP focus on calculating energy running costs for a property make it highly dependent on the fuel prices table which are updated once every 6 months. Given the dominant role of energy prices in determining the SAP score, these can result in wide confidence limits within SAP ratings for any given home and in the estimates of energy savings (i.e. SAP improvements) resulting from installations of measures.

They also point out that BREDEM upon which SAP is based has never been fully validated against a representative sample of UK housing stock which it is supposed to be modelling. This would require a carefully monitored sample of approximately 384 dwellings. Yet no more than 45 properties, mostly in the same geographic location, have ever been monitored in detail to validate the model. As Kelly *et al* (2012) conclude; *“The homogeneity and limited sample size of these early building models [upon which SAP is based] severely limits the accuracy and robustness of the models for predicting energy demand from a large cross-section of homes in the UK.”*

Banks’ (2008) working paper for the UK Energy Research Council comments on some of the conventions – or simplifications – which are embedded within RdSAP which can significantly reduce its accuracy in any given circumstance. These include:

- “Heated conservatories are ignored (not included in the floor area of the house) if an ‘external grade’ door links the conservatory with the main house. This convention will tend to underestimate the heating costs of the home and therefore attribute a higher SAP score than is justified;
- Only insulation at joist level is considered in the model. Insulation at rafter level (e.g. Celotex board lining the rafters of a roof space) is ignored;
- Floor insulation is not modelled;

- There is no means of specifying different types or depths of external wall insulation;
- Rooms in the roof are defined by whether there is a solid staircase rather than some other means of reaching the converted space - a heated room in the roof would be ignored if it were reached by a ladder. The result of this is that RdSAP will tend to underestimate the home's actual heating costs if a room in the roof was accessed through something other than a solid staircase. However, as rooms in the roof are generally used for guests and are therefore only sporadically heated this is probably not a significant issue;
- If less than 50% of the radiators have TRVs, any installed TRVs are ignored;

These conventions have been put in place to simplify the data entry process; however there is a danger that oversimplification results in inaccuracy" (Banks 2008, pp 43 – 44).

In addition to these direct simplifications, Banks identifies a number of 'grey areas' which require assessor judgement (such as allowances for thickness of window frames in calculating glazing areas) which further compromise the accuracy of RdSAP in practical application.

These two papers are a sample of the academic literature which identifies limitations in the accuracy of SAP and RdSAP calculations for any individual property. Without a detailed understanding of these limitations and a reflection of them in Ofgem's assessment of the impact of different approaches which might be taken to achieving an appropriate degree of accuracy in ECO scoring, Ofgem's proposals are theoretically flawed.

With this in mind, it would be very useful if Ofgem could develop a clearer sense of what it considers to be an appropriate degree of accuracy in ECO scoring across the anticipated ECO programme as a whole. Such a 'sense' would need to reflect the inherent inaccuracies within SAP and RdSAP at their practical application 'in the field'. It would therefore reveal the degree of accuracy currently embedded with the ECO scoring method and also allow Ofgem to explore what improvements are made to this (if they are felt necessary) by any future changes to methodology.

## References

Banks N (2008) Implementation of Energy Performance Certificates in the Domestic Sector: Working Paper, UK Energy Research Centre, February 2008: REF [UKERC/WP/DR/2008/001](#)

Kelly S, D Crawford-Brown & M Pollitt (2012) Building performance evaluation and certification in the UK: is SAP fit for purpose? [Tyndall Centre Working paper 155](#), August 2012