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CIBSE (Chartered Institution of Building Services Engineers)

We usually publish a summary of all responses, but sometimes we are asked to publish the individual responses too. Would you be happy for your response to be published in full?

Yes

How did you hear about this consultation?

How did you hear about this consultation?:
Email from this department

Other (please specify):

Consultation questions

Question 1 Do you agree with the introduction of a modular approach to data input for existing builds, where assessors can enter complete data where available and rely on defaults for other elements?

Strongly agree

Please provide any comments or evidence to support your answer. :

CIBSE strongly agree in principle, as this approach provides flexibility and recognises that some existing dwellings do have access to substantially more information than others, allowing them to be assessed more accurately than through a “lowest common denominator” of inputs with high reliance on default values. However, the benefits of this approach in terms of EPC accuracy and quality will rely on 1) the default values, and 2) the alternative inputs allowed. For example, while CIBSE strongly supports the use of measured characteristics where robust methods exist, this is not always the case and measurements may therefore not always provide more robust results than default values. We recommend adopting the proposed approach, but refining it in consultation with industry, to review which parameters should be open to variable input routes, the default values, and the requirements to ensure relatively robust inputs when not using the default values. As stated in previous consultations, we also recommend reviewing whether default values could take account of state of repair and damp: these can significantly affect thermal performance of a given build-up, and would provide an incentive for basic repairs and maintenance before more substantial and costly retrofit works.

Question 2 Please share your views on the following potential impacts of a modular approach.

Quality of assessments and EPCs: a) assessment accuracy b) trust, usability, or consistency in EPCs c) how inputs are communicated to consumers/householders.:

see response to Q1. We also consider it would be very useful for consumers if EPCs included an indication of the level of bespoke vs default values: a consumer should be able to know, between two EPCs, if one used the “fully simplified” route for all inputs, or on the other hand whether it used the “full data” route. Even without influencing the banding, this would help consumer confidence and value the assessments carried out through the “full data” route. This could be something very simple e.g. the proportion of inputs using the “full data” route, or something more sophisticated e.g. how much the result (i.e. the banding) is reliant on “full data” inputs, based on a sensitivity analysis. This could be shown as a confidence rating (e.g. 1-5 stars), as for example recommended by the National Retrofit Hub https://nationalretrofithub.org.uk/resource/epc-reform/ .

Impact on assessors’ workloads, costs, training, and skills.:

Using full data would require more training into the assessment methods, and more work (and costs), whether from the assessor or other parties – hence the need to value this in one way, as per point a). As there is no guarantee before carrying out the investigation, that the “full data” input would provide a better EPC rating than the default value, why would a client or assessor otherwise do it? The alternative would be that default values are always on the

very “pessimistic” side, but this would probably skew a large number of EPCs unfairly towards a worse rating even when they have no reasonable way to assess the “full data” input (e.g. other than through very disruptive or very costly works).

Implementation risks, for example: QA/audit and fraud risk, supply□chain readiness and training needs.:

There is obviously a possibility that once an assessor (for their client) has obtained full data, and it results in a worse result than with using the default value, they would use the default value without declaring that the “full data” input is known. However, this is ultimately no different from the situation today, where all EPCs rely on a large number of default values. Overall, it is likely that EPCs with full data would often show better ratings, which in itself is an incentive for assessors & their clients to seek better information on the building.

Anything else you feel is relevant. :

CIBSE recommend that this proposal should be considered within a programme of digitalisation and building passports, so that inputs from previous versions of the EPCs are readily stored and available. While seeking “full input” data would lead to additional costs, digitalisation would over time reduce the cost burden.

Question 3 Please share your views or provide any evidence on any alternative approaches you think we should consider for existing dwellings.

Please provide a response here.:

Question 4 If a modular approach is adopted, the term “Reduced data HEM” (RdHEM) may not accurately reflect the model’s structure or purpose. We want to ensure the terminology clearly conveys this flexibility and avoids confusion with previous approaches. A clear, intuitive name will help stakeholders understand the purpose of the methodology and distinguish it from both full HEM and legacy RdSAP. Potential options for the new name are:

Do you have any views on the proposed alternative name(s) that would better capture the intent and flexibility of a modular version of HEM? Do you have any other suggested options that are not listed above?:

HEMEX – HEM for Existing Dwellings seems the most clearly related to what it is and simple to understand .
While HEMIE has an easy ring to it, HEM Input Expansion is difficult to understand.

Question 5 Do you agree with the proposal to evaluate fabric performance using FEE?

Strongly Disagree

Please provide any additional comments or evidence to support your answer. :

From this consultation, it seems the proposal is to use the same (or similar) FEE as proposed in the 2023 Future Homes Standard consultation. As per our response to that 2023 consultation, CIBSE supports the use of a fabric efficiency requirement, but have concerns about the Fabric Energy Efficiency as that metric, because it is theoretical, a moving target (set by the notional building), and not measurable in use, so it cannot be checked. The importance of measured parameters is all the more important for existing dwellings, where actual performance can vary widely from assumptions due to a range of factors – state of repair, damp, unknown build-ups, variety of build-ups & patches over time etc. This is difficult to reconcile with the consultation’s stated aim to encourage “full data” and technologies and methods that improve measurements of dwelling characteristics. Using measurable metrics would allow verification at the building level (providing a much stronger incentive for quality retrofit works), as well as open the opportunity to monitor policy implementation, overall much better meeting the government’s intent to improve actual in-use performance and outcomes for consumers.
Finally, it is not correct that, as stated in the consultation, the FEE calculates the space heating and cooling demand: as per Future Homes Standard consultation, which refers to SAP 10.2 - 03-02-2022, it is calculated using set “natural ventilation” assumptions, so does not evaluate an important component of heat loss, nor does it encourage efficient ventilation systems such as mechanical ventilation with heat recovery.
The rationale for not using other, measurable, metrics has not been explained e.g.:
• Heat Transfer Coefficient: as DESNZ is aware, CIBSE has been working of a new methodology for Heat Transfer Coefficients; we would be very happy to discuss this and fabric efficiency metrics more generally.
• space heating demand e.g. as recommended by the Climate Change Committee
https://www.theccc.org.uk/wp-content/uploads/2023/02/Annex-Reform-of-domestic-EPC-rating-metrics-to-support-delivery-of-Net-Zero.pdf) has not been explained.

Question 6 Do you agree with the approach to maintain broad equivalence between the C/D boundary in the current EER rating and the C/D boundary in the Fabric Performance metric?

Not Answered

Please provide any additional comments or evidence to support your answer, including evidence on the sorts of measures that should be prioritised under this metric.:

We understand in principle the benefits in having a roughly similar boundary C/D, given the significant amount of planning and investment that has been done by many parties, including housing providers, to put their stock on track towards an EPC C band. However, this is a difficult question to answer without understanding more about how this would be achieved, including with a sensitivity analysis (on a few typologies representative of the existing stock, and studying the distribution of impacts across the stock), since the EER is a fundamentally different metric influenced by other parameters than FEE: as a cost metric, it favours gas. Building A could have much better fabric efficiency than Building B, but if Building A has a heat pump and Building B a gas boiler, Building A could have a similar or worse rating than Building B. The intent of the proposals needs to be clarified e.g. is it that the FEE C/D boundary would be the same as that of an EER with gas boiler (as most of the current housing stock), or with heat pump (as electrification is to be

encouraged across the stock)?

Question 7 Do you agree with the Government's proposal to introduce an option for recording Heat Transfer Coefficients based on SMETER measurements, as supplementary information about fabric performance?

Neither agree nor disagree

Please provide any comments or evidence to support your answer.:

We do agree that HTC could be a very useful metric, but we think it should be considered as Fabric Efficiency Metric – see our response to Q5. While laudable, it is difficult to understand why such measurement would be carried out and reported on a voluntary basis, without any sort of recognition or incentive – especially as in many cases, issues such as poor state of repair or damp would be picked up by performance measurements and may lead to worse fabric performance than the default assumptions. We recommend this should be examined as part of the proposals. Potentially, one option could be as part of the confidence rating which we recommend should be considered (see Q2) for example, an EPC that had used full data for fabric efficiency inputs such as U-values, AND which had an)corroborating these values, could be rewarded in its confidence rating.

In any case, whether as FEE or simply reported, for consumer benefits and protection it would be important to ensure consistency in the methodology use and how results are reported. As DESNZ is aware, CIBSE has been working of a new methodology for Heat Transfer Coefficients; we would be very happy to discuss this and fabric efficiency metrics more generally.

Question 8 Do you have any views on how the provision of additional information, such as that derived from SMETERs, should be enabled within the energy assessment process in practice?

Please provide any evidence to support your answer.:

Please see response to Q7: incentives should be provided (e.g. as part of a confidence rating), otherwise it is highly unlikely that additional, voluntary, information will be provided. Specifically on SMETERs, this encompasses methodologies of widely different accuracies and value; given implications on consumer confidence and potentially property value, we strongly recommend that a list of approved methodologies should be developed – see also our response to Q7, and the upcoming CIBSE publication as framework HTC measurement methodology.

Question 9 Do you agree with our proposal on the design and methodology for the Heating System metric?

Agree

Please provide any additional comments or evidence to support your answer.:

We agree with the principles, but think that details of the rating scale should be consulted on to understand :
- how various technologies (including the range of room-based technologies, open fires etc) are represented, and
- how the rating scale will reflect the importance of good quality installation. Options to incorporate factors such as performance measurements or evidence of commissioning should be reviewed as part of this.
We also have one caveat on the principle that 'low carbon heat networks' would always score C or above. This should only be the case for genuinely low carbon heat networks, assessed on the same carbon content of heat basis as the on-site solutions, calculated without accounting "fudges" such as sleeving, and factors for CHP-generated electricity which do not represent the current (let alone future) carbon content of the electricity grid, and which artificially support gas-fuelled CHP. For details, see our response to the 2023 Future Homes & Buildings Standard consultation : https://www.cibse.org/media/jw3naohd/202402-dluch-fhs-fbs-cibse-response-appendices.pdf. Other carbon accounting issues would need to be addressed to ensure low-carbon heat networks in the case of waste incineration.

Question 10 Do you agree with the proposal to set the C/D boundary such that direct electric will always score a D or below, and that storage-based technologies would score above or below the C/D boundary based on their emissions relative to direct electric?

Neither agree nor disagree

Please provide a response here.:

We understand that direct electric heating should be rated less well than heat pump systems, because of their impact on the grid and on costs for consumers. However, it should still be rated more advantageously than fossil fuel systems, and more so if it includes storage. Furthermore, there will be cases of relatively small dwellings with very high fabric efficiency and efficient ventilation with heat recovery, where direct electric heating may genuinely provide a suitable solution to respond to the very low demand (with the other benefit that it is a low embodied carbon solution). This situation should be modelled as part of sensitivity analysis, in order to gauge how a range of dwelling typologies would fare overall across all rating bands.

Question 11 What is your view on the option of reserving the highest scores of A/B for electric cooking appliances?

Neither agree nor disagree

Do you have any views on how these should be reflected in EPCs (whether in terms of banding or advice to consumers?) :

This seems appropriate for a band A, for the benefits mentioned (no gas standing charge, and no fossil fuels), but a band B could potentially allow other cooking appliances, if the heating & hot water system is highly efficient and not using fossil fuels, given as stated in the consultation the small contribution (less than 10%) of cooking to overall energy use for heating, hot water & cooking.

Question 12 Do you have any views on the proposed list of technologies that would be recognised under the Smart Readiness Metric and their relative scoring?

Provide your views and any evidence on the proposed Smart Readiness Metric technologies and their scoring, using the text box below.:

We agree that the technologies listed can contribute to “smart readiness”, with the following caveats:. More importantly, please refer to our response to Q17: we recommend an overall assessment which would allow a range of approaches to be recognised, rather than being tied to and encouraging a specific list of technologies.
- thermal mass should be included, as a significant way to smooth thermal demand. We would refer to the 2025 NESO Future Energy Scenarios v3, which state: “Further flexibility [than that obtained through the flatter operating profile of heat pumps compared to boilers] can come from increasing the heat pump’s set point temperature before the peak, and reducing it slightly during, using the thermal mass of the building to maintain comfortable living temperatures for a few hours without turning the heating on. A NESO Decarbonising Heat: Consumer Choice and Affordability survey has shown 50% of consumers are willing to accept these changes in indoor temperature for a short time if it helps reduce energy bills”.
- smart appliances should be considered, or a rationale for not including them should be presented e.g. as unregulated loads which are consumer-dependent and not modelled in HEM, or if the intent of the metric is solely to include technologies that operate independently from consumer choices. Given the consultation’s stated aim of the metric is to “to integrate smart technologies that can optimise energy consumption and allow consumer-led flexibility in demand”, then it would seem logical to include them. The NESO Future Energy Scenarios v3 does include a contribution to peak demand reduction from flexibility in smart appliances, although relatively small compared to the reduction available through flexibility in residential heating, and it states “This engagement from consumers with EVs and smart tariffs encourages flexibility of heat pumps and other appliances away from peak times, such as dishwashers, washing machines and tumble driers”.
- Without “smart” controls, most heat pump or digital programmable thermostats can be used to reduce the temperature a bit during peak pricing periods on most dynamic tariffs, and domestic hot water reheat cycles can be timed during off-peak hours.
- While batteries are part of the range of technologies to manage demand, and there will be situations where these are suitable on individual homes and can offer significant demand management and/or cost benefits (e.g. if there is an EV charging point, or if the export tariff is not particularly advantageous), they can also be implemented grid-side where they may be better placed to respond to network constraints, rather than consumer-side where they may be more driven by price signals which do not necessarily respond to that network – see Q17 on the importance of carefully designing the metric to achieve its objectives. Finally, current batteries need replacing after about 10 years, which will generate a large e-waste stream and imply further capital & resource costs for replacement. Overall, given their significant capital cost and resource impact, we recommend this should be considered with caution, with a review of alternatives.
- PV hot water diverters may play an important role in network management (i.e. diverting PV electricity away from the network when demand is low and generation is high on summer days), so recognising them should be considered – again, a whole building assessment would help recognise specific situations, rather than encouraging too narrow a list of technologies.
- A building with solar generation could still have a high peak demand which cannot be shifted (e.g. on winter nights, with no solar generation), i.e. poor responsiveness / “smart readiness”. We understand and support the desire to recognise solar generation within the set of metrics, but it would be useful for DESNZ to explain the rationale for this to be within this metric. We expect the cost metric would reflect net costs on consumers (though little information is provided in the consultation, see our response to Q18), and would therefore already reflect both generation and the amount of it which is self-consumed.

Question 13 Do you have views on the options we have set out for how to achieve a C on the Smart Readiness Metric?

Do you have views on the options we have set out for how to achieve a C on the Smart Readiness Metric?:

See Q12: while we strongly agree with the intent to encourage solar generation (for decarbonisation of the grid and to reduce consumers’ energy bills), we are not convinced that this is best done within the Smart Building metric; even if it is, we think this should be considered as part of a clearer definition of the metric (see Q17). It would be useful to see a sensitivity analysis on the impact of all technologies, and a review of configurations which would allow the desired outcomes and therefore be considered to reach a C banding.

Question 14 Do you have any evidence to provide on what an appropriately sized solar array should be to reach a C?

Do you have any evidence to provide on what an appropriately sized solar array should be to reach a C? :

The requirements have to be sufficient stretching, to avoid tokenistic installations which lead to high capital costs (since most of it would be fixed and linked to installation costs) but low generation. We would be happy to provide the analysis carried out for the UK Net Zero Carbon Buildings Standard, on what is feasible to generate within a few residential typologies and locations. This leads to a kWh generation/year/m2 of building footprint (rather than, say, number of panels or kWp which do not guarantee performance). The Standard also provides an approach for how to consider constraints such as shading, access, planning etc. Altogether, this could prove informative to the upper and C-band expectations.

Question 15 Do you have any evidence to provide on what an appropriately sized electric battery should be to reach a C?

Do you have any evidence to provide on what an appropriately sized electric battery should be to reach a C?:

See our response to Q12. Without further analysis and evidence, we do not think that electric batteries should be a fundamental part of the C rating. Their sizing should be appropriate to the dwelling and solar system installation, not arbitrarily set.

Question 16 Do you agree that a bidirectional EV charge point should be recognised as an alternative to other forms of energy storage, such as batteries, in order to achieve a C on the Smart Readiness Metric?

Agree

Please provide any additional comments or evidence to support your answer.:

Question 17 Do you have any other comments regarding the design and methodology for the Smart Readiness metric?

Q Do you have any other comments regarding the design and methodology for the Smart Readiness metric?:

We understand the importance of the objective, and understand the opportunity that the EPC review offers to start addressing this. However, the design of the metric is a complex topic, made even more difficult by likely changes in price signals in future years (e.g. this could be influenced by future grid level dynamics which the Clean Power Action Plan 2030 and the grid connection reforms are producing; grid-based battery storage systems could change price differentials between peak and off-peak times.
What a "smart readiness" metric should be, and whether it is even possible to design a single metric which meets this objective, has been the subject of debate for a number of years e.g. CIBSE TM67 Electrification for Net Zero (2021) highlights the need for new performance metrics (beyond annual energy use and carbon emissions), but no single metric was identified and a number of factors were instead highlighted for consideration. More recently, a working group was put together as part of the UK Net Zero Carbon Buildings Standard, and while there was strong consensus that the importance of demand management should be recognised, again no consensus on a single metric was reached, which means that in its version 1, the Standard only requires reporting of peak demand and time of peak at various percentiles.
Currently, it is not clear from the consultation how the above has been taken into account, the various approaches which have been considered, and what the rating would ultimately be based on:
- a non-quantitative assessment based on the technologies implemented
- a quantitative assessment based on the building's net peak demand on the grid (kWp), and possibly time of peak
- a quantitative assessment based on the building's annual net energy demand on the grid (kWhyr)
- something else ?
This is a fundamental design question, and responding to it should be informed by the ultimate objectives from this metric. We strongly recommend this should be explored, and subject to further consultation.

Question 18 Do you agree with our proposed approach to the design and methodology for the Energy Cost metric?

Neither agree nor disagree

Please provide any comments or evidence to support your answer.:

There is little information available in the consultation to form an opinion. In particular, what energy tariff will be assumed in the assessment? The consultation states "EPCs will show energy costs that will be based on prices at the time they were generated", however:
- these prices are in fact highly dependent on the tariff;
- as noted in Q17, the structure of tariffs may change considerable in future years.
- If EPCs are produced for rental or sale purposes, the tariff to be used by the occupant will not be known.
With all these present and future unknowns, what would EPCs assume? How often would assumptions change, and how would this affect the stability of the metric i.e. what signals it sends for what are expensive and long-term decisions i.e. retrofit works, purchase and rental?
See also our response to Q12, about taking account of on-site generation: how will the metrics overlap, or will they reward different things e.g. the Smart Readiness one assuming a different, flexible, energy tariff?

Question 19 Do you agree that the cost metric should be presented in £, rather than bands?

Neither agree nor disagree

Please provide any comments or evidence to support your answer.:

We understand the potential value of using £ rather than bands, however as the consultation states, the costs will be based on prices at the time the EPC was generated, so could be widely inaccurate and therefore a band could offer benefits by providing more stable information (e.g. if the majority of tariffs increased, costs would be inaccurate, but a "low cost" band for a particular dwelling would still be true at least relatively to other dwellings).