Department for Business, Energy & Industrial Strategy

Ministry of Housing, Communities & Local Government

CALL FOR EVIDENCE

Energy Performance Certificates for Buildings

26 July 2018

CALL FOR EVIDENCE: ENERGY PERFORMANCE CERTIFICATES FOR BUILDINGS

The Call for Evidence can be found on GOV.UK: https://www.gov.uk/government/consultations/energy-performance-certificates-in-buildings-call-for-evidence

Any enquiries regarding this publication should be sent to us at epcevidence@beis.gov.uk.

Ministerial Foreword

Improving the energy performance of our buildings is a key part of the government's aim of building a Britain fit for the future - boosting productivity, helping business create high quality jobs right across the country, and ensuring an economy that works for everyone.

Clean growth is identified in our Industrial Strategy as one of four areas of rapid change and economic opportunity where the UK can lead the global technological revolution. Improvements to building energy performance lie at the heart of this, which is why the Prime Minister recently set out the first Clean Growth Grand Challenge mission to halve the energy use of new buildings by 2030 while halving the costs of reaching the same standard in existing buildings.

By making our buildings more energy efficient and embracing smart technologies, we can slash bills for householders and businesses, improve health and comfort, and benefit from higher value, better quality places to live and work. At the same time, this will reduce UK energy demand, improve our economic resilience, and contribute to our targets for carbon reduction. The benefits to our wider economy will also be significant – in 2016, the domestic and non-domestic energy efficiency industry employed over 140,000 people, with a turnover in excess of £20 billion.

Recognising this, the Clean Growth Strategy set out ambitious policies and proposals to reduce building energy use, underpinned by the extended use of Energy Performance Certificates (EPCs). This set an aim for homes in the private rented sector and all fuel-poor homes to be upgraded to EPC band C by 2030 and an aspiration for as many homes as possible to be upgraded to band C by 2035. In April 2018 legislation came into force which for the first time requires residential and commercial landlords to improve the energy performance of buildings they let to a minimum standard based on EPC ratings.

EPCs are already giving people the information they need on the energy performance of buildings, allowing consumers to make informed purchase and rental decisions and providing building owners with recommendations for improving their properties. At the same time EPCs provide a wealth of data on the performance of the country's building stock, which is being used by researchers, government, and lenders to gain new insights into buildings and develop new products and services.

EPCs have the potential to do even more. New sources of data and information, including from smart meters, could allow EPCs to more accurately reflect energy performance, whilst other changes could help make EPCs and the data underpinning them more accessible to people. EPC ratings could also underpin an evolving market in 'green mortgages' and other green finance products, allowing people to benefit financially from better performing properties.

The government is therefore launching a Call for Evidence, to gain a more detailed understanding of how EPCs are currently performing and to gather feedback on suggestions for ways they might be further improved, extended or streamlined.

Contents

General information

Purpose of this consultation

This Call for Evidence aims to gain evidence on the effectiveness of Energy Performance Certificates, to gather information on the suitability of the current system of EPCs for both their current and emerging uses, and to obtain feedback on suggestions for improvement.

Issued: 26 July 2018

Respond by: 19 October 2018

Enquiries to:
Home and Local Energy
Department for Business, Energy & Industrial Strategy,
Orchard 1, 6th Floor,
1 Victoria Street
London, SW1H 0ET
Tel: 0207 215 2495
Email: epcevidence@beis.gov.uk
Consultation reference: Call for Evidence for buildings

Territorial extent:

England and Wales. EPCs are a devolved matter in Scotland and Northern Ireland. However, in practice implementation relies upon a number of mutual arrangements (eg Northern Ireland requires that energy assessor accreditation schemes are first approved in England, conventions groups meetings have input from all administrations etc). The National Calculation Methodology (NCM) which underlies EPCs is also used in Scotland and Northern Ireland and therefore this would need to be taken into account when considering any potential changes to the NCM as a result of this Call for Evidence. Future policy development for England and Wales will therefore need to consider the impact in devolved administrations particularly if consistent application of the Energy Performance of Buildings Directive 2010/31/EU is to continue to be required. Evidence on any issues or practical workings around this would be welcomed in responses to this document.

How to respond

Your response will be most useful if it is framed in direct response to the questions posed. Further comments and evidence are also welcome, but it would be helpful if you could provide

this in answer to the last question which asks for any further comments. For further guidance on how to answer, please see paragraphs 1.17 to 1.20.

Responses should be provided via Citizen Space unless there is a clear reason not to use Citizen Space. In this instance, respondents should contact BEIS for information on how to provide a response through alternative means. Citizen Space allows for additional features such as ranking of options, and so will improve the analysis of responses.

Additional copies:
You may make copies of this document without seeking permission. An electronic version can be found at https://www.gov.uk/government/consultations/energy-performance-certificates-in-buildings-call-for-evidence.

Confidentiality and data protection

Information you provide in response to this consultation, including personal information, may be disclosed in accordance with UK legislation (the Freedom of Information Act 2000, the Data Protection Act 2018 and the Environmental Information Regulations 2004).

If you want the information that you provide to be treated as confidential please tell us, but be aware that we cannot guarantee confidentiality in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not be regarded by us as a confidentiality request.

We will process your personal data in accordance with all applicable UK and EU data protection laws. See our privacy policy.

We will summarise all responses and publish this summary on GOV.UK. The summary will include a list of names or organisations that responded, but not people's personal names, addresses or other contact details.

Quality assurance

This consultation has been carried out in accordance with the government's Consultation Principles.

If you have any complaints about the consultation process (as opposed to comments about the issues which are the subject of the consultation) please address them to:

Email: beis.bru@beis.gov.uk

Executive Summary

We are looking for evidence on how well Energy Performance Certificates currently perform and how they could be improved.

The role of EPCs

Energy Performance Certificates (EPCs) are a widely used measure of the energy performance of buildings, in the residential, commercial and public sectors, and are a key tool in promoting energy performance improvements in buildings.

EPCs are already used in a number of policies and their use is growing, for example, through the introduction of minimum energy efficiency standards which require landlords of privately rented properties to improve these to EPC Band E from 2018, as well as setting long term aspirations for as many homes as possible to be EPC Band C by 2035. At the same time changes are occurring which will affect EPCs. The introduction of new technologies such as smart meters could improve the data used to produce EPCs and the rise of 'green mortgages' could place greater financial importance on EPCs.

Aims of the Call for Evidence

In this context the Clean Growth Strategy, published last year, committed to a Call for Evidence seeking views on extending EPCs to other trigger points and how EPCs could be further improved in the light of new sources of data and capabilities.

The aims of this Call for Evidence are:

a) to gain evidence on how the current EPC system is working;

b) to gather information on the suitability of the current system of EPCs for both their current and emerging uses in measuring building energy performance; and

c) to obtain feedback on suggestions for improvement.

Understanding what we need from EPCs

The expanding role for EPCs gives rise to certain challenges. EPCs were designed to provide information for the consumer, but increasingly there is more legal and financial weight being placed on an EPC rating, with some financial incentives and requirements to improve buildings now being dependent on the EPC rating. In looking at the current and emerging uses of EPCs we have identified certain things that EPCs may need to provide in order to support these uses.

Quality

EPCs should contain good quality data, which is reliable, accurate and up to date. For uses where financial implications rest on an EPC rating and the recommendations, consumers and investors need to have confidence that these adequately reflect the performance of the building and the improvements that can be made. The quality assurance arrangements for EPCs have been strengthened recently to include higher operating standards and improved auditing, but this document seeks evidence on whether further changes are needed.

Encouraging action

EPCs encourage improvements to energy performance both directly, through the rating and recommendations, and indirectly by encouraging energy performance improvements to be valued in property decisions. Although the use of EPCs is increasingly shifting towards the provision of information for other policies which drive improvements, they are still an important tool in themselves to encourage building owners to improve energy performance.

Availability

The government has taken significant steps to make EPC data more widely available. We are interested in exploring what more can be done, subject to the requirements of the General Data Protection Regulation (GDPR) and the Data Protection Act 2018. To ensure EPCs themselves are widely available there also needs to be a high level of compliance with the requirement for an EPC, and the cost and ease of EPC procurement should not be a barrier to compliance.

Aims of the Call for Evidence

This Call for Evidence asks for feedback from respondents on the relative importance of the different attributes described above and for evidence on how well the current EPC system performs against these attributes. It also asks for feedback on a range of suggestions to improve the performance of EPCs against these attributes.

Improving quality

To improve the reliability of EPCs we need to understand what may cause discrepancies between EPCs for the same or similar buildings. Possible causes are variations in assessor expertise and accreditation body requirements, difficulty assessing certain buildings or features, competition on cost driving down quality, or gaming of EPCs to get a better score. This document seeks evidence on where improvements might be made.

To improve the accuracy of EPCs we avoid focusing on improvements to the underlying EPC modelling methods, which have existing processes, and look at wider changes. There is the potential to use smart meter data and other sources of data on energy use (e.g. smart thermostats) to feed into the EPC modelling process. This would allow ‘as built’ data to be factored in to EPC calculations rather than relying on assumed characteristics.

To improve how up to date EPCs are, we are looking at the trigger points for when an EPC is required. The current trigger points for EPCs are those set out in the Energy Performance of

Buildings Directive. Notwithstanding the policy of previous governments to avoid 'gold plating', the government wishes to explore options for other 'trigger points' for requiring an updated EPC. These might include, for example, major works to buildings, changes to houses in multiple occupation (HMOs), and green mortgage applications. New trigger points would not just bring EPCs up to date, but could also serve to nudge building owners into acting on EPC recommendations at a time they may be considering wider renovations and improvements. Consideration could also be given to reducing the validity period for EPCs.

Encouraging action

To improve the effect of EPCs in prompting building owners to make energy performance improvements, the government recently made available to the public a new digitally-led energy saving advice service for the domestic sector which allows users to add occupancy data and provides more tailored recommendations[1]. Further to this, the format of EPC recommendations and their relevance to the consumer could be improved and recommendations could be made more appropriate to the specific building. We also consider the possibility of 'nudge points' where building owners could be required to consult their EPC, even if a new EPC is not required.

To improve the impact of EPCs on decisions to buy and rent, awareness of the EPC could be improved by working with property comparison sites and mortgage lenders to make EPC data more visible, subject to data protection requirements. The EPC could also be made more relevant by including additional or more user-friendly data or information about government policies and targets. We also ask for views on the current domestic EPC rating based on cost and whether other ratings such as carbon or primary energy would improve engagement with consumers.

Availability

The government has made EPC data more widely available on the Open Data Communities website[2]. This has had wider benefits beyond providing more information about the energy efficiency of the building stock and the government is keen to explore further options for using this data.

To improve access to EPC data some EPC survey data could be made available to the building owner, which they might then choose to pass on to third parties when commissioning works. Other sources of data might be combined with the EPC to form a 'building log book' containing information on works that have been done, or a 'green building passport' containing a detailed roadmap for making energy improvements to the building. All options to make data more accessible and user friendly will of course be subject to the requirements of data protection legislation.

To improve coverage we consider possibilities for improving enforcement, in particular streamlining the enforcement of EPCs and minimum energy efficiency standards for rented

---

1 https://www.eachhomecountsadvice.org.uk/
2 https://epc.opendatacommunities.org/

properties, which are currently enforced by different bodies in some cases. Compliance might also be improved by means other than enforcement, such as targeted provision of information.

We also consider the fact that some of the suggestions put forward may change compliance requirements and have the potential to increase the costs of EPCs. Where there is likely to be an increase in costs, the benefits of a given improvement will need to be carefully assessed, but there is also the option to combine such improvements with other suggested changes that might decrease costs, such as making better use of existing data.

Although this Call for Evidence is focussed on EPCs, many of the issues may be relevant to Display Energy Certificates, e.g. the use of smart meter data and additional trigger points.

Once the government has analysed responses to this Call for Evidence, we will publish a government response. Where potential changes would impact on Scotland and Northern Ireland we will share and discuss our findings with the devolved administrations in order to ensure that any changes proposed are not detrimental to the delivery of current obligations and reserved policy. Some of the ideas set out here would require comprehensive changes and require further development and consultation, while others would require less complex alterations and have the potential to be implemented sooner. The intention therefore is that this response will lay out a programme of work for the years to come, taking into consideration any broader developments.

1 Introduction

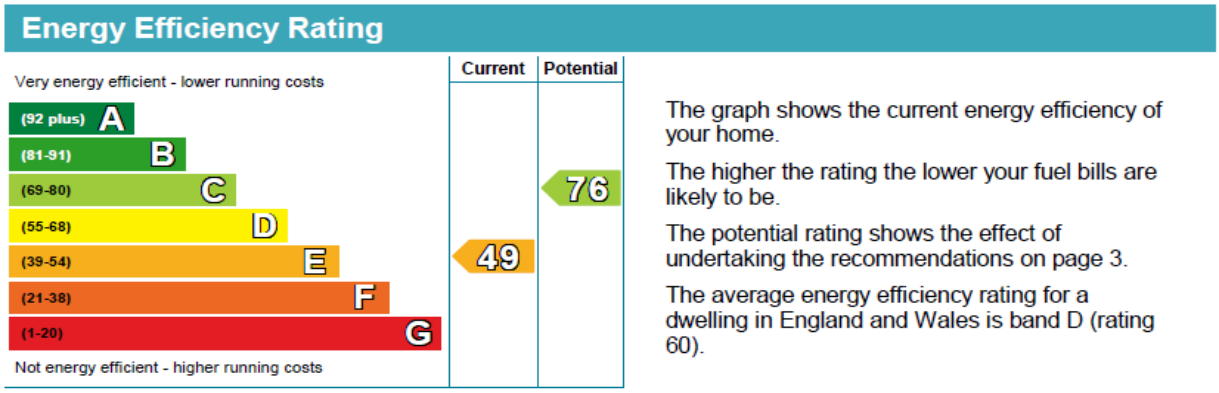
Energy Performance Certificates are an established tool for measuring the energy performance of buildings and their use is evolving.

The role of Energy Performance Certificates

Introduction to Energy Performance Certificates

1.1. Energy Performance Certificates (EPCs) are designed to allow consumers to reliably compare the energy performance of different properties, providing a relative understanding of energy efficiency and running costs. EPCs are required in the UK when residential and commercial buildings are constructed or put up for sale or rent, and are also required to meet the eligibility criteria for some government schemes supporting renewable energy.

1.2. EPCs have two main components. The first is an A-G rating (A+ to G for non-domestic buildings), similar to that found on many electronic products, which provides comparative information on the building's performance, as shown below. This rating is based on the cost of energy per square metre of the building.



1.3. EPCs also include recommendations to the property owner or landlord or prospective owner or tenant on how they could improve their property. An example which shows the top three recommended measures for a property is shown below.

Top actions you can take to save money and make your home more efficient

Recommended measures	Indicative cost	Typical savings over 3 years
1 Floor insulation (solid floor)	£4,000 - £6,000	£ 99
2 Low energy lighting for all fixed outlets	£30	£ 72
3 Hot water cylinder thermostat	£200 - £400	£ 171

See page 3 for a full list of recommendations for this property.

1.4. EPCs also contain supplementary information including ratings on individual components of the property such as walls and windows, as well as clarifying text on various aspects and a second rating of the property based on the carbon emissions. An example of an EPC is included in Annex 1 to this Call for Evidence.

1.5. In order to allow consumers to objectively compare one building to another using the EPC, the performance of the building itself needs to be measured independently from the way it is used by the occupants. The EPC therefore uses a model based on the building composition (the fabric) and its services (such as heating, insulation ventilation and fuels used). The model does not include energy use of appliances, as these are not considered permanent fixtures of the building. Not all buildings are used in the same way, so the EPC uses 'standard occupancy' assumptions to estimate energy use which may be different from the way the actual building is used.

1.6. EPCs have been required since 2007 when the UK transposed the requirements of the EU Directive on the energy performance of buildings (EPBD)[3] into domestic legislation, and there are now over 18 million EPCs recorded on the central Energy Performance of Buildings Registers. Recasts of the EPBD and new government initiatives have resulted in some changes to the EPC system, and there have also been changes to the methodology in response to regular consultations.

1.7. A Display Energy Certificate (DEC) is required for public buildings over 250m^2, frequently visited by the public. It shows the energy performance of a building (the operational rating) based on the actual energy consumption as recorded over 12 months. Like EPCs, DECs include recommendations, which enables the occupier to identify what may be done to improve the building and the way they use it in order to make it more energy efficient.

1.8. DECs were introduced to help public authorities understand the energy performance of their buildings and consider energy efficiency improvements. As the certificate must be displayed in a prominent location, they make a public statement to visitors about the building they are visiting. Whilst not a regulatory requirement, private building owners may also commission and display a DEC in other buildings visited by the public, e.g. supermarkets. Although this Call for Evidence is focussed on EPCs many of the issues may be relevant to DECs, e.g. the use of smart meter data and additional trigger points.

Why a Call for Evidence?

A developing role for EPCs

1.9. The recent Clean Growth Strategy[4] set out the government's ambitions to improve the energy performance of buildings in both the domestic and non-domestic sector. In particular, it set out an aim for homes in the private rented sector and all fuel-poor homes to be upgraded to EPC band C by 2030, and an aspiration for as many homes

---

[3] The Energy Performance of Buildings Directive was implemented in England and Wales through the Energy Performance of Buildings Regulations which have since been amended following changes to the Directive

[4] Department for Business, Energy and Industrial Strategy, 'Clean Growth Strategy' 2017 (viewed on 31 May 2018)

as possible to be upgraded to band C by 2035. It also set out an aim to improve energy efficiency in businesses and industry by at least 20% by 2030.

1.10. Alongside the Clean Growth Strategy, the government published a Call for Evidence on 'Building a Market for Energy Efficiency' (BMEE) in domestic properties[5] which included ideas to encourage people to make energy performance improvements to their homes at natural 'trigger points' for home renovation and discussed ways to increase the visibility of EPCs. A summary of responses to the BMEE Call for Evidence will be published later this year. Respondents expressed support for price signals linked to EPC ratings and general support for increasing the visibility of EPCs. In March this year, the Green Finance Taskforce[6] made a number of recommendations that the government is currently considering a response to, including recommendations that the government set a target for all commercial properties to meet EPC band B by 2035, as well as mandatory operational ratings for buildings and the introduction of 'building passports', a form of enhanced EPCs.

1.11. There are also strong links between EPCs and the Industrial Strategy, and reforms to EPCs could help support the Clean Growth Grand Challenge and the five foundations for productivity set out in the strategy[7]. Around 25,000 assessors already work in a sector that supports jobs in places up and down the country[8]. EPCs have been used by financial institutions to launch ground-breaking green finance products including Barclays' €500m Green Bond and Green Home Mortgage[9]. These products could help support the Buildings Mission outlined by the Prime Minister in May for buildings built in 2030 to be twice as energy efficient as today[10]. Reforms to EPCs could also help drive new ideas and innovation in the measurement of building performance.

A changing policy landscape

1.12. The EU have adopted changes to the Energy Performance of Buildings Directive, which included some changes to EPCs. These changes come into force on 9 July 2018 and Member States have 20 months from this date in which to transpose the requirements of the changes to the Directive into their domestic legislation and administrative provisions. Until 29th March 2019 the UK remains a full member of the European Union and all the rights and obligations of EU membership remain in force. During this period the government will continue to implement and apply EU legislation. The outcome of the exit negotiations will determine what arrangements apply in relation to EU legislation in future once the UK has left the EU.

---

5 Department for Business, Energy and Industrial Strategy, 'Building a market for energy efficiency: call for evidence' 2017 (viewed on 31 May 2018)

6 Green Finance Taskforce, 'Accelerating green finance: Green Finance Taskforce report' 2018 (viewed on 31 May 2018)

7 Department for Business, Energy and Industrial Strategy, 'Industrial Strategy: building a Britain fit for the future' 2017 (viewed on 8 June 2018)

8 There were 25,377 domestic energy assessor accreditation scheme members listed on the EPB Domestic Register with the status of 'Registered' as of 16 June 2018

9 See Barclays Green Bond and Barclays Green Home Mortgage (visited 31 May 2018)

10 PM speech on science and modern Industrial Strategy: 21 May 2018 (viewed on 8 June 2018)

Challenges and new opportunities

1.13. Additional policies have been introduced that depend on EPC ratings, such as the Private Rental Sector (PRS) minimum energy efficiency standards that came into force in April this year[11]. As a result, EPCs now serve a broader range of purposes than simply informing the consumer. As a widely available and objective assessment of energy performance, EPCs are increasingly being used as a standard on which to base obligations and eligibility criteria, not just in government policy, but also outside of government, such as in the development of green mortgages.

1.14. However, these new uses, for which EPCs were not originally designed, present new challenges. Responses to the BMEE Call for Evidence sounded a note of caution in extending the use of EPCs, with some respondents raising concerns such as reliability, consumer misunderstanding, and barriers to the inclusion of innovative new technologies. The performance gap between predicted energy use and actual performance has also been raised as a concern in relation to EPCs[12].

1.15. It is therefore important to reflect on whether changes can and, should be made to the EPC system to support these evolving needs. For example, new technologies are being developed which were not available when EPCs were first introduced. The rollout of smart meters and advances in measurement and machine learning techniques, although not yet established, are opening up new potential ways to measure building performance.

Aims and scope of the Call for Evidence

Aims of the Call for Evidence

1.16. In this context, the Clean Growth Strategy committed to a Call for Evidence seeking views on introducing additional points when EPCs might be required and ways in which EPCs could be further improved.

1.17. The aims of this Call for Evidence are:

a) to gain evidence on how the current EPC system is working;

b) to gather information to help government assess the suitability of the current system of EPCs for both their current and emerging uses in measuring building energy performance; and

c) to obtain feedback on suggestions for improvement.

Scope of the Call for Evidence

1.18. This Call for Evidence covers domestic and non-domestic EPCs for all tenure types and includes both new-build and existing dwellings. We will also consider the use of Display Energy Certificates (DECs) in Section 5, as these are relevant to the discussion

---

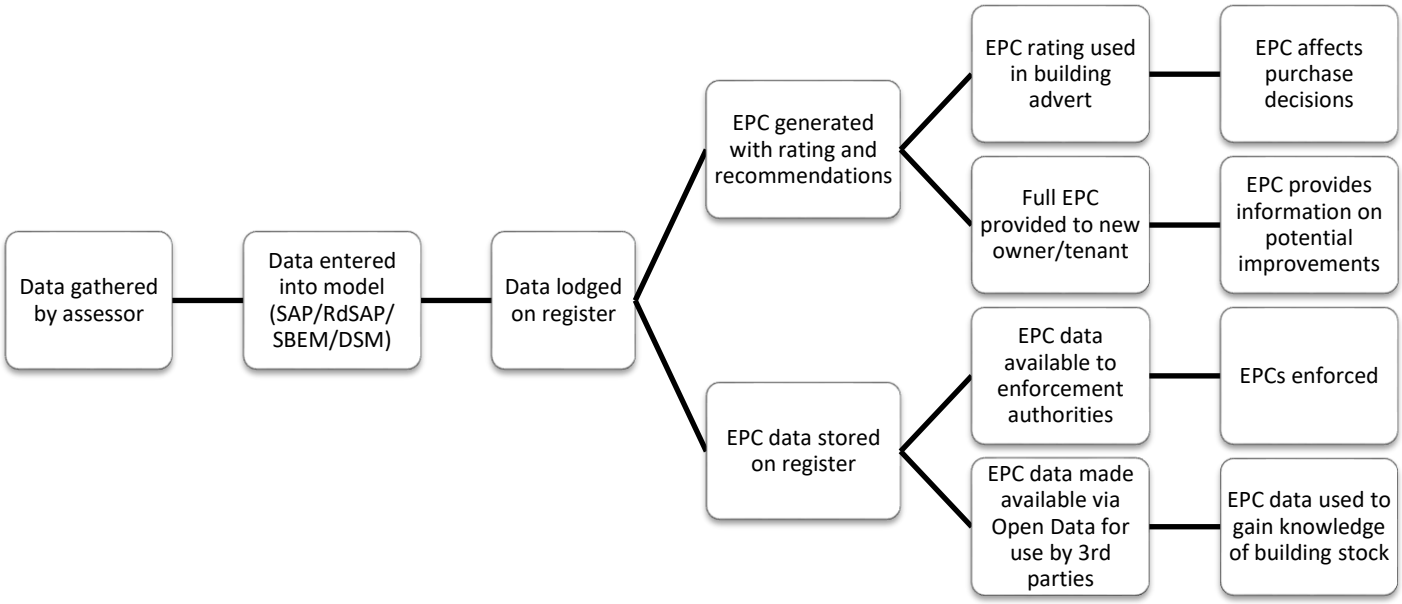
[11] Private Rental Sector Minimum Energy Efficiency Regulations. See https://www.gov.uk/government/publications/the-private-rented-property-minimum-standard-landlord-guidance-documents for details (viewed on 31 May 2018)

[12] Innovate UK 'Building Performance Evaluation Programme: Findings from domestic projects' 2016 (viewed on 31 May 2018); Innovate UK 'Building Performance Evaluation Programme: Findings from non-domestic projects' 2016 (viewed on 31 May 2018)

of operational ratings, although these are not the primary subject of the Call for Evidence.

1.19. We are interested in not just the physical document which is provided to a building owner or occupier, but the whole process for gathering, generating, storing, using and making available the information found on an EPC. This is set out below, with a fuller description set out in Annex 2 to this Call for Evidence:

Figure 1. Process for generation and use of EPCs[13]



Navigating and responding to the Call for Evidence

1.20. This Call for Evidence first sets out the various things that EPCs need to do to meet the needs of current policies and asks for respondents' views on how important these different attributes of EPCs are. In sections 3, 4 and 5 the performance of the current system is discussed against the attributes identified, under the overarching headings of data quality, encouraging action and availability. Respondents are asked for additional evidence on current performance and views on suggestions for improvement, evidence on how they might work and what the benefits might be. Finally, Section 6 outlines the next steps once the Call for Evidence closes.

1.21. When answering questions that request evidence, we are seeking evidence not already set out in the Call for Evidence. In answering these questions, respondents should set out clear facts, figures, survey data or experience. When answering questions that request opinions, answers with clear justification and evidence where appropriate will be given more weight in the analysis of responses. When providing suggestions, please provide as much detail as possible on what the proposal would achieve and how and why it might work. If you have comments or suggestions not directly related to

[13] Under the National Calculation Methodology (NCM), the building model used for domestic EPC is the Standard Assessment Procedure (SAP), and for existing buildings where less data is available, reduced data SAP (RdSAP) is used. Non-domestic EPCs use the Simplified Building Energy Model (SBEM) or Dynamic Simulation Model (DSM).

a particular section, please provide these in answer to question 26, which provides an opportunity to give additional comments.

1.22. The building modelling that sits behind EPCs has undergone various improvements since EPCs were first introduced, and there is an existing consultation process for such iterative improvements which we do not intend to duplicate here[14]. Although respondents will likely need to make reference to these modelling systems in their responses, and some broader issues regarding them will be touched upon, we are not seeking detailed responses on improvements that could be made to these modelling approaches.

1.23. Certain sections of the Call for Evidence may relate to only one type of EPC, for example non-domestic EPCs, but unless otherwise specified it should be assumed that text and questions refer to all types of EPC. When answering questions, it would be helpful for respondents to indicate whether the answer relates to all EPCs, or only a specific type. It will otherwise be assumed that answers refer to all EPCs.

1.24. Similarly, although this Call for Evidence is focused on EPCs if respondents wish to provide evidence relevant to Display Energy Certificates, they are welcome to do so but are asked to make that clear in the response.

[14] See, for example the government response to the latest SAP consultation at https://www.gov.uk/government/consultations/public-consultation-on-proposals-to-amend-the-standard-assessment-procedure-sap (viewed on 31 May 2018)

2 Aims, uses and key attributes of EPCs

Why do we need EPCs, what current purposes do they serve, and what are their key attributes?

Original aim of EPCs

2.1. EPCs were originally designed to be a simple and cost-effective way of enabling people to make informed decisions on the energy performance of a building. For prospective buyers or tenants of a building, EPCs provide information on the energy performance of a building that they would not otherwise be able to find out. In particular they show an A-G rating (A+ to G for non-domestic buildings) which allows an easy comparison between buildings. For the current owner or occupant (and also for prospective buyers and tenants) EPCs also include recommendations on how the energy efficiency of the property could be improved.

Additional uses of EPCs

2.2. As described in Section 1, EPCs are also now serving a wider set of uses than their original purpose. Their use as a rating of performance, originally aimed primarily at the consumer, has now been incorporated into a number of government policies which rely on an understanding of the energy performance of buildings, and they are also being used outside of government such as in the development of green mortgages. A table of uses we are aware of is shown below (see table 1).

Table 1: Current uses of EPCs

Use	Role performed by EPC
Original EPC purpose	• The EPC provides a benchmark of building energy performance that can be used to compare buildings, advice on cost-effective improvements. It is also used for adherence to Part L of Building Regulations.

PRS[15] minimum standards for rented buildings	• The EPC is an independent benchmark that demonstrates that properties meet a minimum standard, plus it includes recommendations for actions to meet that standard
Eligibility criteria for FiT[16] scheme on renewable electricity	• The EPC is used as an independent source of data on the energy efficiency of a building, with properties of D and above eligible for a higher payment
Eligibility criteria for RHI[17] scheme on low carbon heat	• The EPC is used as an independent source of data on the current insulation level and heat demand
Eligibility criteria for social housing ECO[18] funding	• The EPC is used as an independent source of data on the energy efficiency of a building, with properties below a D rating eligible for funding
Forms part of the Green Deal Advice Report (GDAR)[19]	• EPC data is included in the GDAR and the recommendations are used in conjunction with an occupancy assessment to identify options eligible for Green Deal financing
Data source made available as Open Data[20]	• EPC data on ratings and characteristics of buildings can be used by third parties under certain licensing, copyright and data protection conditions
'Green tagging' assets for green finance[21]	• The EPC rating gives an indicator of running costs, allowing this to be effectively valued by finance providers leading to green bonds and preferential green mortgage products
Goal setting in the Clean Growth Strategy	• The EPC is an indicator that is widely available and understood, which can be used to measure progress

15 Private Rental Sector Minimum Energy Efficiency Regulations. See https://www.gov.uk/government/publications/the-private-rented-property-minimum-standard-landlord-guidance-documents for details (viewed on 31 May 2018)

16 Feed-in Tariffs. See https://www.ofgem.gov.uk/environmental-programmes/fit/about-fit-scheme for details (viewed 31 May 2018)

17 Renewable Heat Incentive. See https://www.gov.uk/domestic-renewable-heat-incentive and https://www.gov.uk/non-domestic-renewable-heat-incentive for details (viewed 31 May 2018)

18 Energy Company Obligation. See https://www.ofgem.gov.uk/environmental-programmes/eco/about-eco-scheme for details (viewed 31 May 2018)

19 For more information on the Green Deal and GDARs see https://www.gov.uk/green-deal-energy-saving-measures/get-an-assessment (viewed 31 May 2018)

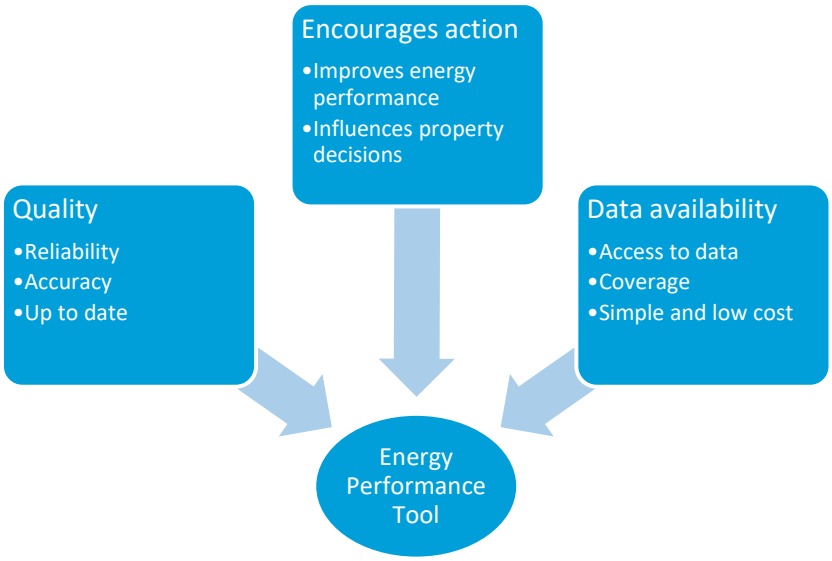
20 See https://epc.opendatacommunities.org/ (viewed 31 May 2018)

21 For example Barclays are now offering a lower rate Barclays Green Home Mortgage (visited 31 May 2018)

What are the key attributes of EPCs?

2.3. We are keen to ensure that EPCs meet existing and emerging policy needs, whilst also meeting the needs of consumers and other individuals or organisations that make use of EPCs. In order to understand what a good EPC should look like, we have identified a number of key characteristics that an EPC should have in order to meet the needs of the policies listed above. These have been grouped together in three sections.

Figure 2. Key attributes of EPCs



Quality

2.4. It is important that the data on EPCs is of sufficient quality to meet the requirements they are used for. For policies where financial implications rest on an EPC rating and the recommendations, consumers need to have confidence that these adequately reflect the performance of the building and any improvements that can be made.

Reliability

2.5. EPCs should be reliable and not vary too much by chance, so that if two different assessors visit the same property with no alterations between visits, or the same assessor visited a property on two different days, they should produce EPCs with broadly the same score.

Accuracy

2.6. EPCs should be an accurate measure of building performance and should not systematically over- or underestimate the energy consumption from certain buildings. There should be a sufficient level of confidence that an A-rated building has lower energy costs than a B-rated building, given standard patterns of occupancy and use of the building.

Up-to-date

2.7. EPC data should also be up to date. The EPC should best reflect the current situation, so that the rating and the recommendations are relevant.

Encourages Action

2.8. EPCs have been designed to encourage building owners to make improvements to the energy performance of their building. Although the use of EPCs is increasingly shifting towards the provision of information for other policies which drive improvements, they are still an important tool in themselves to encourage building owners to improve energy performance.

Improves energy performance

2.9. EPCs should encourage building owners to make appropriate improvements to the energy performance of the building, which is mainly achieved through the recommendations.

Influences property decisions

2.10. EPCs should enable consumers to make more informed decisions and potentially place financial value on the energy performance of a building. If consumers are prepared to pay more for a more efficient building, this could encourage building owners to make improvements before selling or leasing a building.

Availability

2.11. The widespread availability and coverage of EPCs is important for a number of their uses. EPCs are an increasingly important source of data for some government policies and other uses such as research, and there are a number of factors that affect how many properties have EPCs and the ability to use EPC data for different purposes.

Access to data

2.12. In order to make the best use of EPCs as a data source, it needs to be possible to share EPC data effectively and use it together with other building data. It is important to ensure that licensing, copyright and data protection requirements are taken into account when considering any changes to the data infrastructure.

Coverage

2.13. For EPCs to be an effective tool for a number of policies they need to have a wide coverage across the building stock. An important consideration here is ensuring the legal requirement for EPCs is complied with.

Simple and low cost

2.14. Part of ensuring that there is wide coverage is ensuring that EPCs are easy and affordable to procure. The requirement to produce an EPC should not be a barrier to the process of selling or letting a building.

Have we identified the right attributes?

2.15. We are interested in respondents' feedback as to whether we have identified all of the relevant uses of EPCs and whether we have identified the most important attributes. It also needs to be recognised that there may have to be trade-offs between some attributes, for example lowering costs might reduce quality and vice versa. Such trade-offs will be taken into consideration when looking at suggestions for improvement.

2.16. In the following three sections we will consider the current performance of EPCs against these attributes.

Call for Evidence questions

1. Have we captured all of the current uses of EPCs? Are there any existing or emerging uses we should be aware of?
2. Do you agree that we have identified the key attributes for EPCs? Are there other important attributes we have not listed? Please indicate how important you consider each attribute and provide details to explain your answer.
3. Which attributes are important for which uses and why?

3 EPC data quality

We are looking for evidence of how reliable, accurate and up to date EPCs are, as well as feedback on suggestions for improvement

Evidence on EPC data quality

3.1. It is important that consumers have confidence in the quality of the data on an EPC, and for some policy uses this becomes more important when financial benefit derives from a particular EPC rating.

3.2. In the BMEE Call for Evidence, some concerns were raised relating to the quality of the data that is used to produce an EPC rating and how up to date the EPC is. Investigations of modelled energy performance in comparison with actual measured performance of buildings have also raised concerns that there is a 'performance gap' between predicted energy use and actual performance, and these concerns extend to EPCs[22].

3.3. As described in Section 1 the EPC would not be expected to predict actual consumption, because the EPC assumes standard occupancy patterns and only includes 'regulated' energy uses rather than all energy use[23]. However, relevant issues that have been identified in relation to EPCs are:

1. **Design not matching construction**
   The EPC for a new building is based on the as-built SAP assessment. However, inaccurate information regarding changes made since the design stage or poor workmanship can mean that the building as constructed does not perform as designed. A similar situation can also occur in the retrofit of existing buildings, for example where an insulation measure has not been installed correctly, leading to reduced performance.
2. **Poor information about actual construction (existing buildings only)**
   This situation is compounded where information about the actual building construction is not available. Assumptions are made in EPC calculation methodologies to overcome this, but these may not accurately reflect the individual building.
3. **Error in observing and recording details of the building (existing buildings only)**
   This can be compounded even further by any inaccuracies due to the assessor having to identify what is installed based only on what is visible or accessible.
4. **Incomplete technology lists and the use of default values**
   In some cases, an installed measure may not appear within the technology lists used in SAP/SBEM, either because it is relatively new and data isn't available, or because it is

[22] Innovate UK 'Building Performance Evaluation Programme: Findings from domestic projects' 2016 (viewed on 31 May 2018) and Innovate UK 'Building Performance Evaluation Programme: Findings from non-domestic projects' 2016 (viewed on 31 May 2018)

[23] Regulated energy uses are those inherent in the design of the building and include heating, cooling, hot water, fans, pumps and lighting

not considered to make a sufficient improvement to the performance. In this case the default values used will not accurately represent actual performance.

3.4. Combining these possible sources of error could result in an EPC rating not being reflective of the actual performance of the building, and also result in variability between repeat assessments of the same building.

3.5. Below we look at the evidence we have relating to the three specific aspects of quality we have identified as being important and for each aspect we look at ways that EPCs could be improved.

Reliability

How is the current system working?

3.6. There is some evidence to suggest that when EPCs are repeated for the same property, they do not produce the same results. A Green Deal Mystery Shopper Exercise carried out in 2014 on 29 existing (i.e. not newly built) domestic properties found that almost two thirds of the dwellings considered had a variation spanning at least two EPC bands across the five assessments done[24]. In particular there were indications that EPCs were less reliable for older properties.

3.7. The government and EPC accreditation bodies have undertaken various improvements to EPC software, the auditing process and assessor training in recent years. This includes a new set of Standard Operating Requirements that place more emphasis on consistent assessments, more protection/safeguards for consumers and smart audit systems which make use of the latest IT. Also, the conventions groups of each type of assessment have continued to refine assessment processes to ensure consistency and recognition of the latest building technology. We would expect this to have improved reliability. We are currently carrying out further work to improve the quality of data on the registers. For example, work is being undertaken with accreditation schemes to deal with multiple EPCs lodged in error for the same building address.

3.8. We are therefore interested in additional evidence on the reliability of EPCs, any common causes of reliability issues, whether there are any particular types of property or installed measures which show more variability in results, and whether reliability has improved in recent years.

Suggestions for improvement

3.9. Whilst we have set out above some evidence that there is variability in EPC results, the sources of this variation are not clear. Much variation is likely to be due to unintentional discrepancies, but deliberate manipulation of the results may also occur.

Reducing sources of error

3.10. Discrepancies could be occurring as a result of different levels of training and experience amongst EPC assessors, because of different auditing processes and software employed by different accreditation bodies, or because competition on price

[24] Department of Energy and Climate Change 'Green Deal Assessment Mystery Shopping Research' 2014 (viewed on 31 May 2018)

between different assessors pushes them to spend less time in a building which means they make more errors. We would be interested in any evidence that these or other factors are causing variation in EPC results, and any suggestions as to how to reduce this variation. We would be particularly interested in ways that the seller or existing landlord of a property could be encouraged to value an accurate EPC, because currently the benefits of accuracy accrue to the new owner, but it is the seller or letting/ estate agent who commissions the EPC.

3.11. Some assessors and accreditation bodies have begun to use apps that can identify errors and can populate some input fields at the time of the assessor visit using 'smart defaults'. There may also be technological solutions which could assist assessors when making measurements or assessing building features. We would be interested in understanding the potential these and other software solutions have for reducing errors or otherwise improving the quality of data gathered during the survey, and how they could be rolled out more widely.

Better data inputs

3.12. Improving the data available to assessors when carrying out the assessment could help to reduce errors. One potential data source is survey data collected during a previous EPC assessment, which is currently only available to the original assessor of the building. Now that EPCs have been in place for 10 years, many will need replacing, which will result in an increasing number of repeat EPCs. Data collected during the previous survey, for example floor measurements and documentary evidence of installed insulation, could be a useful source of data – particularly where the previous EPC was done using SAP as opposed to RdSAP. Allowing access to this data could also reduce the time taken for the EPC, and hence the cost. However, there could be a cost implication to making this data available, which would likely be passed onto the consumer, and there is a risk that changes to the building or previous errors may not get picked up. We would also need to ensure any change is compliant with data protection legislation (see Section 5). We would be interested in views as to whether giving assessors access to previous survey data would be useful in improving EPC reliability.

3.13. Another way of improving the data available to assessors could be to improve access to existing data held by the Land Registry, Building Control and Planning Authorities. For example, where the age of the building is not clear, this may be held by the Land Registry. Detailed plans of the building may be held by the Land Registry or Planning Authorities, and Building Control may hold data on notifiable works such as cavity wall insulation or boiler replacements. There may also be other sources of data such as guarantee registers for various installed measures such as cavity wall insulation and boilers. In future it might be possible for all data held about a building to be located together in one location, which will be considered below under building 'logbooks'.

3.14. Careful consideration would need to be given to ensuring compliance with data protection requirements and there may also be legal, technical and licensing challenges to making use of other data sources. We would therefore be interested in views on how useful such changes would be for improving EPC reliability before investigating this option further. We would also welcome evidence on what kind of data exists that could be used for EPCs and how access to this data could be made possible for easy integration into the EPC process.

Reducing potential for gaming

3.15. Some discrepancies between EPCs may not be a result of errors. We are aware that some policies, such as the Feed-in Tariff and minimum standards for rental properties, mean that there is now a financial value attached to a higher EPC rating, which could mean that building owners or third parties (e.g. letting agents) try to 'game' the system. This could be by deliberately misleading assessors (for example by making it appear that insulation exists which is not there or does not cover the whole building), or by putting assessors under pressure to generate better EPC scores by tweaking data inputs.

3.16. The strengthened quality assurance arrangements described above are still in their early stages, although the latest independent audits of accreditation schemes and assessors have shown an improvement in standards. However, the government would welcome evidence on how they are operating and any areas for consideration for further strengthening.

Call for Evidence questions

4. What evidence do you have relating to the reliability of EPC assessments? Do you have any information on how reliability varies across different properties, and/or the likely sources of variation in assessments? It would be helpful to indicate how recent this is.
5. Which of the suggestions provided above do you think would be effective in improving the reliability of EPC ratings? Do you have any other suggestions for improving EPC reliability? Please provide reasoning and any evidence you have to support your response.

Accuracy

How is the current system working?

3.17. It is difficult to understand how accurate a rating of energy performance EPCs are, because there is no absolute measure of 'actual' energy performance to compare to. As discussed above, using actual energy bills can only ever give part of the picture on building performance because of the influence of occupant behaviour.

3.18. The best measure we have of building energy performance is the co-heating test[25]. We are not currently aware of studies that have compared SAP, RdSAP, SBEM or DSM to the co-heating test or any other recognised measures of building energy performance. We would therefore be interested in any evidence on the accuracy of EPCs, other than that related to reliability.

Suggestions for improvement

3.19. As described in Section 1, there are existing consultation processes for iterative improvements to SAP and SBEM/DSM which we do not intend to duplicate here.

---

[25] The co-heating test is widely used throughout Europe to measure the total heat transfer from buildings by measuring the amount of energy required to maintain a constant, raised, indoor temperature, as well as the total heat-transfer rate. For more information see https://www.designingbuildings.co.uk/wiki/Co-heating_test (viewed on 13 June 2018)

However, there is the potential to make wider changes which are not covered by such processes.

Using smart meter data for EPCs for existing buildings

3.20. There have been some suggestions to include operational data such as actual billing data on EPCs to overcome the performance gap and ensure that the EPC reflects actual building use. However, as described above, the use of billing data directly on the EPC, for example showing the annual energy cost or annual consumption, would capture the effect of occupant behaviour as well as the performance of the building, and would therefore move away from EPCs comparing like with like. There would also be potential data protection issues with including billing data directly on the EPC as this is more personal to the building occupant.

3.21. A more viable option would be to harness the enhanced volume and granularity of energy consumption data available from smart meters and other connected homes devices such as smart thermostats to improve EPCs for existing buildings. With consumer consent, smart meter data could be used in conjunction with other data such as internal and external temperature to model the thermal performance of a building, for example by modelling how quickly a building heats and cools. This could be used as an alternative method to calculate one of the principal components in the EPC calculation, the building heat transfer coefficient.

3.22. This could offer the potential to reduce the performance gap by allowing ‘as built’ performance data to be used in an EPC rating, whilst at the same time factoring out the effects of occupant behaviour so that the EPC rating remains reflective of the building itself. It could also simplify the process of generating an EPC and improve the repeatability and accuracy of EPCs. Any use of smart meter data would require the householder's consent, in line with data access and privacy requirements.

3.23. The Clean Growth Strategy set out a commitment to explore measuring actual building performance using data from smart meters. As part of this commitment, BEIS has been exploring the technical possibilities for measuring thermal performance of domestic buildings and the technologies that currently exist. As part of this work BEIS has been developing an understanding of the market demand for these technologies and possible routes for their development and implementation. There might also be potential uses for these technologies in non-domestic buildings, although this is not currently a focus of this work.

3.24. BEIS has already identified several options for measuring building performance using new data sources, some of which are being actively explored by companies. These include using a combination of smart meter data, temperature sensors and data analytics to generate the building heat transfer coefficient. There could also be the potential to use connected homes devices like smart thermostats to estimate the thermal performance of a building.

3.25. BEIS currently does not have a clear understanding of how these products work and how robust and reliable they are, therefore if they are suitable for use for policy purposes such as EPCs. We would need to be satisfied that such products could effectively factor out the behaviour of occupants before they could be used in EPCs. Consideration would also need to be given to any data consent issues, and to the interface system between smart meter data and energy performance certificates. At this stage we would be keen to hear from companies working on technologies and methodologies for measuring building performance using actual data (from smart

meters or other sources). We would also be interested in views from the wider EPC community on how these approaches for measuring building performance could be incorporated into the current EPC framework.

Call for Evidence questions

6. What evidence do you have on the accuracy of the models used to produce EPCs (SAP, RdSAP, SBEM, DSM) in comparison to other methods such as the co-heating test?
7. Are you developing any kind of tool for measuring the energy performance of buildings (controlling for the effects of occupant behaviour) using smart meter data or other data, which could be relevant for EPCs?
8. What evidence do you have on how the accuracy of EPCs could be improved using the tools and data sources outlined above, or through any other means? Do you have any views as to how these approaches could best be incorporated into the current EPC framework?

Up-to-date

How is the current system working?

3.26. EPCs are valid for ten years and are not required to be updated when changes to the building are made, such as an extension or loft conversion, or the installation of a new boiler or better insulation, although EPCs can be commissioned on a voluntary basis. Therefore, a proportion of EPCs are likely to have out-of-date ratings and recommendations.

3.27. We would be interested in evidence relating to the proportion of EPCs that are likely to be out of date within the 10-year period and how often people are likely to make changes to their properties that would affect the EPC rating.

Suggestions for improvement

3.28. Currently the main ‘trigger points’ at which an EPC needs to be produced are those mandated by the EPBD, i.e. construction, sale and letting. In addition, an EPC is also required in order to apply for the Renewable Heat Incentive (RHI), and to apply for the higher rate for the Feed-in Tariff (FiT). However, of these only the RHI requires an updated EPC (the current requirement is for an EPC which has been completed in the last 2 years).

Shorter validity period

3.29. In the BMEE Call for Evidence a number of respondents suggested that the 10-year validity period should be reduced. Suggestions varied from reducing the period to 5 or 3 years, or even to requiring a new EPC every year. This could help make EPCs more up to date, but would result in additional costs to building owners and might be considered unnecessarily burdensome. We would be interested in views as to whether the validity period should be changed, what the most appropriate validity period would be, and whether the benefits to consumers would outweigh the costs of having to obtain an EPC more frequently and the costs of having to maintain the register with more regular updates, which would likely be passed on to the consumer.

Introducing new trigger points

3.30. Another way to keep EPCs up to date would be to require that a new EPC be produced at additional trigger points. Responses to the BMEE Call for Evidence indicated general support for this, assuming that concerns about EPC accuracy and the cost to building owners were taken into consideration.

3.31. One additional advantage of introducing additional trigger points for updating EPCs is that it might improve consumers' familiarity with EPCs and prompt them to consider the recommendations when building works are being carried out. Evidence from the BMEE Call for Evidence suggested that carrying out major renovations is one point at which people are likely to consider energy efficiency improvements. The role of trigger points to prompt action is considered in more detail below under Encouraging Action.

3.32. The two trigger points that were most frequently suggested in the BMEE Call for Evidence were major renovations to the building such as extensions (which often require planning permission), and less major changes that would affect the EPC, such as the installation of wall insulation, replacing windows, or a new boiler. Any relevant building work (e.g. new boilers, windows, extensions, loft conversions, etc) is subject to building control under the building regulations, and this process could trigger the requirement for an EPC. Building control is provided by the local authority or private approved inspectors, although some work can be self-certified by installers known as competent persons, e.g. Gas Safe CPs for boiler installations, or Elecsa for domestic electrical work. Further consideration would be needed as to how the requirement for an EPC could be incorporated into existing processes and we would therefore be interested in views as to whether this is worthy of further consideration.

3.33. We would also be interested in views on the potential for a trigger point specific to buildings used as a House in Multiple Occupation (HMO) [26]. Currently many HMOs do not have EPCs, because they are not required to have one when a single room is rented out, only when the entire property is rented or the property is sold. This is a particular concern in relation to PRS minimum standard regulations, which only cover properties which are legally required to have an EPC. Many HMO tenants may be in fuel poverty, but currently would not benefit from the energy efficiency improvements required by the regulations as their home will not be captured by the provisions. This issue was raised by respondents to the recent consultation on amending the domestic minimum standard provisions. We would therefore welcome views on whether a property which is being used as an HMO and which doesn't already have an EPC should be legally required to have an EPC produced when a room in that property is marketed for rent.

3.34. Another potential trigger point could be linked to the green mortgage market. Currently, a green mortgage is only available for new properties, but if green mortgages were extended to existing properties, banks could require that a recent EPC is produced in order to access a green mortgage. However, that would be down to individual finance providers to set their own requirements.

3.35. With all these trigger points, careful consideration would need to be given to the enforceability of any requirement, and to the consumer acceptability, including whether

[26] An HMO is a property let to at least three people who form two or more 'households' but share facilities like the bathroom and kitchen. See https://www.gov.uk/house-in-multiple-occupation-licence for details (viewed 31 May 2018)

the process for updating the EPC could be simplified to reduce the cost and burden for the householder. Some may also require legislative changes.

Call for Evidence questions

9. What evidence do you have on how frequently people are likely to make updates to their properties which would change the EPC score?
10. Which of the suggestions provided above do you think would be effective in ensuring that the information on EPCs is up to date? Do you have any other suggestions for ensuring EPCs remain up to date? Please provide reasoning and any evidence you have to support your response.
11. Would you support introducing new EPC trigger points at any of the stages listed above (or any other stages)? What evidence do you have relating to the advantages and disadvantages of any of these trigger points?

4 Encouraging action

We are looking for evidence of how effective EPCs are at influencing consumer behaviour and feedback on suggestions for improvement

Evidence that EPCs encourage action

4.1. Whilst there is value in ensuring that consumers are well-informed when purchasing or renting a building, EPCs should also encourage people to value better energy performance and to improve the energy performance of properties.

4.2. Various consumer attitude surveys have looked at consumers' perception and understanding of domestic EPCs and what influence they have on behaviour, although we have less information on non-domestic EPCs.

Improves energy performance – EPC recommendations

How is the current system working?

4.3. A review of 14 consumer attitude studies published since 2007 on domestic EPCs suggests that around 80% of people are aware of EPCs, and that 60% found EPCs easy to understand[27]. However, the recommendations were considered less easy to understand than the rating, and only 17% of homeowners in the English Housing Survey 2011 recalled that the EPC contained recommendations[28].

4.4. Evidence for whether EPCs result in increased uptake of energy efficiency measures is somewhat variable, with surveys suggesting between 8-17% of respondents reported acting on EPC recommendations[29]. We would welcome further evidence on whether consumers are aware of the recommendations on EPCs and whether the recommendations and/or other information on the EPC encourages building owners to make energy performance improvements, particularly in the non-domestic sector.

---

[27] Backhaus and others 'Key findings & policy recommendations to improve effectiveness of Energy Performance Certificates & the Energy Performance of Buildings Directive' 2011, page 14 and 16 (viewed 31 May 2018)

[28] Department for Communities and Local Government 'English Housing Survey: Homes 2011' 2013 (viewed 31 May 2018)

[29] Consumer Focus 'Room for improvement: The impact of EPCs on consumer decision making' 2011 (viewed 31 May 2018) page 9 and Department for Communities and Local Government 'English Housing Survey: Homes 2011' 2013 (viewed 31 May 2018) page 105

Suggestions for improvement

Improving engagement with EPC recommendations

4.5. The government has recently made available to the public a new digitally-led energy saving advice service for domestic properties, which will draw on EPC data combined with occupancy questions to provide homeowners with detailed recommendations on improvements they can make and more accurate bill savings estimates[30]. It is important to think about the role of recommendations on the EPC in the context of this new service, including whether the recommendations could be presented in a way that encourages homeowners to seek more tailored information from the digital tool[31].

4.6. One possibility for improving engagement with recommendations might be to include further information proven in other fields to influence behaviour, such as data on performance relative to a reference group, e.g. 'X% of buildings with your building type have cavity wall insulation', or 'X% of people who bought a house in the last two years installed insulation'. The recommendations could also be represented in a more visually appealing way, for example by overlaying the potential improvements on a visualisation of a house.

4.7. There could also be the option to allow different EPC formats, based on the same basic EPC data, to allow private companies to innovate in this space and develop formats that best encourage action, although a potential risk here is that having different formats could create confusion for consumers. Other possibilities to improve engagement with the recommendations could be to increase the role of EPC assessors so that they also provide advice, or to develop apps that allow easy access to EPC recommendations.

Using operational performance data on EPCs

4.8. Some organisations that we have consulted have made the case for including operational performance data on the EPC, in order to personalise the EPC and improve the user journey when deciding to make changes to the building, for example by including occupancy factors similar to a Green Deal Advice Report (GDAR)[32]. However, doing this would alter the fundamental character of EPCs, which are currently a measure of asset performance that allow buildings to be objectively compared. For domestic EPCs, many of the advantages of including operational performance and occupancy factors would be captured by the new digitally-led advice service.

4.9. For non-domestic properties, the Green Finance Taskforce recommended introducing mandatory operational energy ratings and an appropriate public reporting mechanism, building on the current requirement for Display Energy Certificates (DECs)[33]. DECs are

---

30 The full service is not yet live, but the public beta can be viewed at https://www.eachhomecountsadvice.org.uk/ (viewed 11 June 2018)

31 This digitally-led service does not cover Scotland or Northern Ireland and this would need to be taken into account when considering any changes in relation to the recommendations on EPCs

32 For more information on the Green Deal and GDARs see https://www.gov.uk/green-deal-energy-saving-measures/get-an-assessment (viewed 31 May 2018)

33 For more information on DECs see https://www.gov.uk/check-energy-performance-public-building and https://www.gov.uk/government/publications/display-energy-certificates-and-advisory-reports-for-public-buildings

designed to provide information on the operational energy use of a building and use an A to G energy rating based on the actual amount of metered energy used by the building over the previous 12 months. DECs are required for public buildings larger than 250m^2 that are frequently visited by the public. For buildings of 1000m^2 or more, DECs have to be renewed annually. DECs are also one of several options for compliance with the Energy Savings Obligation Scheme (ESOS), although this only covers large undertakings[34]. We would be interested in views on this Green Finance Taskforce recommendation.

Making EPC recommendations more relevant to the consumer and property

4.10. The recommendations that are shown on the EPC are generated automatically by the EPC software, based on the current features of the building and cost-effectiveness criteria. Assessors may exclude recommendations in some circumstances, but aside from that they have little flexibility to tailor recommendations. In the BMEE Call for Evidence and subsequent publications the recommendations were criticised on the grounds that they are often not suitable for traditional buildings built before 1900, or buildings in a state of disrepair, and in some cases carrying out the recommendations could lead to negative impacts on the property (moisture, poor ventilation etc.)[35]. This partly reflects the fact that the EPC is not designed to be a full energy audit.

4.11. We would welcome views on how the system for generating and presenting recommendations could be improved to ensure appropriate recommendations, and what additional role the assessors could play in this process, if suitably trained.

4.12. The EPC could also include additional benefits of measures that are more relevant to homeowners. For example, BEIS is currently running a study into the property value uplift of installing solid wall insulation. If a link is found, this information could be included on the EPC. Alternatively, existing research on the higher value associated with more efficient properties could be displayed (as outlined in paragraph 4.16 below).

Improving awareness of EPC recommendations

4.13. As set out above, the current evidence we have suggests that people do not have a high level of awareness of EPC recommendations. The introduction of additional trigger points, as discussed in Section 3, could be an opportunity to encourage building owners to engage with the recommendations. There may also be other times or processes when it would be appropriate to prompt building owners to consider EPC recommendations – this could be either instead of, or in addition to, requiring a new EPC to be produced. We would be interested in any further thoughts on appropriate 'nudge points' and how these might work.

Making changes to recommendations

4.14. Any changes that could be made to recommendations would need to be thoroughly user-tested and trialled to test how effective these are likely to be in improving the take-up of energy efficiency measures, as well as making sure the EPC remained intelligible and accessible to all user groups. We would be interested in views on how the format

[34] A large undertaking one which employs 250 or more people and/or has an annual turnover in excess of 50 million euro (£38,937,777), and an annual balance sheet total in excess of 43 million euro (£33,486,489). For more information on ESOS see https://www.gov.uk/guidance/energy-savings-opportunity-scheme-esos

[35] Sustainable Traditional Buildings Alliance, 'EPCs and the Whole House Approach' May 2018 http://files.site-fusion.co.uk/e8/8e/e88ebac9-50d6-4710-8fea-0d39e46bcadd.pdf

of the EPC could be improved, for example through simplification, visual representation or the use of behaviour change techniques such as 'nudges', and any evidence that is currently available in relation to such changes, where this exists.

Call for Evidence questions

12. What evidence do you have on how useful the EPC recommendations are to consumers when they are considering making changes to a property? How effective are they at encouraging consumers to take action?
13. Which of the suggestions provided above do you think would be effective in encouraging building owners to make appropriate energy performance improvements to their property? Do you have any other suggestions? Please provide reasoning and any evidence you have to support your response.
14. What are your views on introducing operational performance ratings for non-domestic buildings, either on the EPC or separately?

Influences property decisions – EPC rating

How is the current system working?

4.15. In consumer surveys for domestic properties, the EPC rating was considered the clearest part of the EPC, with 42% of all occupants with an EPC knowing the EPC of their home, according to the English Housing Survey 2011[36]. However, only around 70% of home buyers and 30% of renters recalled receiving an EPC when they bought/rented their home[37]. 18-20% of domestic consumers said the EPC influenced their choice of property to some extent and 6% used the information on the EPC when negotiating a purchase or rental price, which is evidence that EPCs are having some effect on the housing market[38].

4.16. Research conducted for the government in 2013 also revealed that more efficient houses (A/B) sell for on average 14% more than equivalent properties with a G rating, and that the introduction of EPCs led to a value uplift for more efficient properties[39]. Most surveys on what people value when deciding to buy or rent a house suggest that other factors are more important, such as location, price and condition of the building[40],

[36] Department for Communities and Local Government 'English Housing Survey: Homes 2011' 2013 (viewed 31 May 2018) page 105

[37] Department for Communities and Local Government 'English Housing Survey: Homes 2011' 2013 (viewed 31 May 2018) page 104 and Consumer Focus 'Room for improvement: The impact of EPCs on consumer decision making' 2011 page 9 and Department for Communities and Local Government 'English Housing Survey: Homes 2011' 2013 (viewed 31 May 2018) page 7

[38] Consumer Focus 'Room for improvement: The impact of EPCs on consumer decision making' 2011 page 9 and Department for Communities and Local Government 'English Housing Survey: Homes 2011' 2013 (viewed 31 May 2018) page 7 and Department for Communities and Local Government 'English Housing Survey: Homes 2011' 2013 (viewed 31 May 2018) page 104

[39] Department of Energy and Climate Change 'An investigation of the effect EPC ratings on house prices' 2013 (viewed 31 May 2018) page 18 and 25

[40] Backhaus and others 'Key findings & policy recommendations to improve effectiveness of Energy Performance Certificates & the Energy Performance of Buildings Directive' 2011 (viewed 31 May 2018) page 23 and Consumer Focus 'Room for improvement: The impact of EPCs on consumer decision making' 2011 (viewed 31 May 2018) page 6

although a recent GoCompare survey suggested that energy efficiency is becoming more important, with central heating, double glazing, a good energy efficiency rating and cavity wall insulation appearing in the top 20 desirable features of a new home[41]. We would welcome further evidence on consumer awareness of EPC ratings and the role of the EPC in the process of purchasing or renting a property, particularly in the non-domestic sector.

Suggestions for improvement

Improving awareness of the EPC during purchase and rental

4.17. In the BMEE Call for Evidence, we asked how EPCs could be displayed more prominently during the home buying process. There were few clear trends in responses, but mortgage lenders and property comparison sites were seen as key players in ensuring that home buyers were more aware of EPCs. There was also support for providing more of the information on the EPC to prospective buyers and tenants, so that people have a better idea of what could be done to improve the building before they make a decision. Suggestions included requiring the full EPC or the front page in particulars, a link to the EPC on the register, or including the recommendations along with the rating. A link to the new digitally-led energy saving advice service could also be useful. The Green Finance Taskforce also recommended that mortgage lenders include EPC ratings on their mortgage statements[42].

4.18. It is already required that EPC ratings are shown in all advertisements for sale or rental of properties. However, there is scope for working with property comparison sites to improve the provision of EPC data, since these sites are often people's first source of information. Improvements could include allowing people to filter by EPC rating or making the EPC rating more visible. Some property comparison sites provide information on indicative energy costs[43], and further work could be done to expand this and ensure it is based on the latest information on building performance. There could also be potential to direct consumers to the new digitally-led energy savings advice service to get a better understanding of likely future costs.

Improving effect of the EPC during purchase and rental

4.19. Whilst evidence suggests that the EPC rating is generally well understood, there were suggestions in the BMEE Call for Evidence that EPCs could include additional information related to energy use that would be valuable to potential buyers and renters. For example data on ventilation could be provided more clearly, or predicted energy costs could be presented as annual rather than spread over three years. The Competition and Market Authority's recent market study on heat networks also suggested EPCs should include better information on heat networks and communal heating, where the building is connected to a heat network[44]. We would be interested in

---

41 GoCompare 'The 20 features that will sell your home' 2017 (Viewed 13 June 2018)

42 Green Finance Taskforce, 'Accelerating green finance: Green Finance Taskforce report' 2018 (viewed on 31 May 2018) page 45

43 For example Zoopla have launched a tool that estimates running costs (viewed 31 May 2018)

44 Competition and Markets Authority 'Heat networks market study: Update paper' 2018 (viewed on 13 June 2018)

ways these various changes to the information presented could be incorporated into EPCs at minimal additional cost.

4.20. In the UK, the A-G rating on domestic EPCs is based on the annual cost of energy for running the building (for non-domestic EPCs the rating is based on carbon emissions). In some European countries more prominence is given to the carbon emissions rating whilst in others the rating is based on primary energy use, which means the total amount of energy required to power a home, including energy used in the production, processing and transport of any fuels used within the home[45]. We would be interested in evidence on domestic consumers' understanding of the energy efficiency rating on the EPC and whether this type of rating is the clearest and most intelligible for consumers.

4.21. There is also the option of adding information about policy goals and minimum standards to EPCs. For example, EPCs could show that the government has an aspiration for all homes to be EPC band C by 2035, and that a minimum standard of EPC band E exists for rented properties. This could help potential buyers to think about what changes they might be required to make in the long term to any property they buy.

Call for Evidence questions

15. What evidence do you have on how useful the EPC rating and cost information are to consumers when purchasing or renting a property? Are consumers using information on the EPC to negotiate property prices or rents?
16. Do you have any evidence on consumers' understanding of the energy efficiency rating used in EPCs? Do you think a different rating such as carbon emissions or primary energy would have a better impact for consumers?
17. Which of the suggestions provided above do you think would enable prospective buyers and tenants to make more effective decisions based on the information on the EPC? Do you have any other suggestions? Please provide reasoning and any evidence you have to support your response.

[45] For further information on primary energy use please see Building Research Establishment 'Consultation Paper: CONSP:07 CO_2 and primary energy factors for SAP 2016 Version 1.0' 2016 (viewed on 11 June 2018)

5 EPC availability

We are looking for evidence of how readily available EPCs and EPC data are and feedback on suggestions for improvement

Evidence on data availability

5.1. EPCs are an increasingly important source of data for many policies, and there are a number of factors that affect how many properties have EPCs and the ability to use EPC data for different purposes.

5.2. The availability of data from EPCs is one of the aspects that makes them a useful tool for many different policies. This section sets out our current understanding of EPC availability and ease of access to data and what further evidence would be valuable, before considering potential improvements.

Access to data

How is the current system working?

5.3. The Energy Performance of Buildings Registers and Open Data Communities websites are used by a wide range of individuals and organisations to access data from EPCs. There are over 3,500 current registered users on the Open Data website, over 40% of which are repeat users and on average the open data is accessed almost 2,500 times each month.

5.4. This data has been used by various organisations to gain an insight into the housing stock in England and Wales. Barclays have used EPC Open Data to support the launch of their Green Bond and Green Home mortgage products[46], the Home Builders Federation has used EPC data to identify the energy bill savings from more efficient new homes, and other organisations have used the data to support programmes to reduce domestic carbon emissions and tackle fuel poverty. This data has also been used for government analysis into the relationship between house prices and energy efficiency and for mapping building characteristics, for example identifying high rise flats in different geographical areas.

5.5. We would be interested in any views on how useful the current Open Data and Energy Performance of Buildings Register websites are for consumers, energy assessors and their accreditation schemes, enforcement authorities, researchers and commercial organisations in gaining access to suitable EPC data, including ease of navigation, ease of comparing with other relevant datasets, and any restrictions on access to or use of data. We would be interested in hearing from different parties on what Open Data is currently being used for and might be used for in the future.

---

[46] Barclays Green Bond see https://www.home.barclays/barclays-investor-relations/treasury-and-capital/green-bonds.html and Green Home Mortgage see https://www.barclays.co.uk/mortgages/green-home-mortgage/

Suggestions for improvement

5.6. Ensuring that EPC can be used appropriately and can also be linked with other relevant sources of information requires a well-designed and consistent data infrastructure. This should allow data to be shared effectively, whilst safeguarding consumer privacy, maintaining consumer confidence and ensuring consumers have full power of consent.

5.7. The government is already considering what changes may be necessary in order to ensure that processing of EPC data under the current arrangements is compliant with the General Data Protection Regulation (GDPR), which came into force on 25 May 2018 as well as the Data Protection Act 2018[47]. This needs to be taken into account when considering changes, as would any licensing and copyright requirements associated with the data held on the Energy Performance of Buildings Registers.

Better access to EPC data

5.8. As described above in Section 3, there could be a possibility to store data collected during EPC surveys on the Energy Performance of Buildings Registers, in addition to the outputs of the RdSAP process, to enable an EPC assessor to gain access to the survey data for a previous EPC at a property.

5.9. Additionally, this could make it possible for some additional EPC survey data to be made available to the building owner, and to give the building owner the option to share that information with designated third parties. For example, a building owner could grant a designated insulation provider access to their data for them to provide a more bespoke quote without having to visit the building, or an assessment company to provide a more detailed building assessment. Careful consideration would need to be given to ensuring compliance with GDPR requirements and there would also be technical and licensing challenges to implementing this proposal. We would therefore be interested in views on how important it would be to make this possible before progressing any further.

5.10. We would also be interested in whether there are improvements not already discussed that can be made to the data infrastructure which would enable additional uses of EPC data which are not currently possible, and what the value of such uses would be.

Combining EPCs with other building data

5.11. As well as enabling better access to EPC data, we are also considering how EPC data can be combined with other data sets, in line with recommendations from the Each Home Counts review[48] and the Green Finance Taskforce.

5.12. The Each Home Counts (EHC) review recommended the creation of a 'Data Warehouse', which proposed giving building owners access to existing EPC data, alongside a 'log book' of measures already installed in their home, advice on future measures to install, and smart-meter-level data on their home's performance. The EHC review recommended that greater data-sharing powers needs to be developed, with clear reference to data protection and privacy issues[49]. Following the EHC review, a

---

[47] For more information on the GDPR and Data Protection Act 2018 see https://ico.org.uk/for-organisations/guide-to-the-general-data-protection-regulation-gdpr/ . For more information on the Data Protection Act 2018 see http://www.legislation.gov.uk/ukpga/2018/12/contents/enacted

[48] For more details see http://www.eachhomecounts.com/about/

[49] Each Home Counts 'An Independent Review of Consumer Advice, Protection, Standards and Enforcement for Energy Efficiency and Renewable Energy' 2016 (visited on 31 May 2018) page 35

programme of work is now underway to deliver the key recommendations. Proposals are being developed on how to best deliver the Data Warehouse and we will need to consider any legislative and licensing issues, as well as copyright and development costs.

5.13. The Green Finance Taskforce recommended 'Green Building Passports' for both residential and commercial properties. A Green Building Passport would provide a customised retrofit roadmap showing detailed guidance on the actions required to improve the building, based on building fabric and operational data, as well as those already undertaken. The passport would be transferable across building owners and help maintain sight of a long-term decarbonisation goal for the building[50]. It could also include additional features like flood risk. A building passport would not replace EPCs but rather enhance them, creating an opportunity to combine EPC data with other information on building performance that could be added over time. Such a building passport concept is already being trialled in several other EU countries[51]. Similarly, data protection, licensing and copyright issues need to be considered here.

5.14. The government has worked with the implementation of Each Home Counts to develop the digitally-led energy saving advice service described in Section 4, which has recently been made available to the public. This fulfils some of the recommendations of these two proposals, including providing tailored recommendations and advice to homeowners. It might be possible to create the building log book through on-going notification of installations and improvements made to a property through the installers themselves. Each Home Counts installations would be expected to be notified and therefore feed data in to help build information on premises. We are still investigating how this might work.

5.15. Other aspects of the Green Building Passport could require a more comprehensive building assessment that would likely cost much more than the current EPC assessment (currently in Germany a passport for an individual flat could cost around €450)[52]. Requiring homeowners to have a more expensive assessment would go against our other priority of keeping EPCs affordable. We would therefore welcome views on how more comprehensive assessments could be encouraged without making them a requirement for homeowners.

5.16. We would be interested in views and evidence more generally as to how valuable a 'data warehouse', 'building log book', and/or 'green building passport' would be and what contribution they would make to increasing take-up of energy performance improvements or supporting other initiatives.

Call for Evidence questions

18. What evidence do you have on how easy it is to access EPC data or Open Data? What additional information would be valuable and why? If you are currently a user of the

---

[50] Green Finance Taskforce, 'Accelerating green finance: Green Finance Taskforce report' 2018 (viewed on 31 May 2018) page 43

[51] Buildings Performance Institute Europe 'Building Renovation Passports – Customised roadmaps towards deep renovation and better homes' 2016 2nd edition (visited on 31 May 2018)

[52] This figure is based on the subsidy available. The subsidy is granted to assessors starting at €200 for a 1-2 dwelling building. Subsidies can't constitute more than 50% of the assessment cost, which indicates a €400-€500 full cost for an individual dwelling. L-Bank 'Sanierungsfahrplan Baden-Württemberg' (visited on 3 July 2018)

Open Data Communities website, what do you use the information for and how valuable is this website as a source of data?

19. Which of the suggestions provided above do you think would improve the ability of building owners and other stakeholders to make effective use of EPC data? Do you have any other suggestions? Please provide reasoning and any evidence you have to support your response.

20. How useful do you think a 'data warehouse', 'building log book' and/or 'green building passport' would be in increasing take up of energy efficiency improvements or supporting existing initiatives? What kinds of data might usefully be included in addition to EPC data and how could these proposals best be implemented? How might more comprehensive assessments be encouraged without making them a requirement for homeowners?

Coverage

How is the current system working?

5.17. Since 2008, more than 18 million EPCs for domestic and non-domestic buildings in England and Wales have been lodged on the Registers with domestic properties accounting for 96% of the total[53]. Of these, more than 1.7 million EPCs (10% of the total) covered new domestic properties (including new builds and conversions).

5.18. As described in Section 4, only 70% of home buyers and 30% of renters recalled receiving an EPC when they bought/let their home[54]. It is unclear what proportion of the remaining respondents received an EPC and didn't recall it, and what proportion actually didn't receive it. This data does suggest that compliance with the requirement to provide an EPC may be better during the home buying process than the rental process.

5.19. We would be interested in any further evidence on levels of compliance, both with the requirement to produce an EPC (including for new build properties) and the requirement to include EPCs in property listings. We would also be interested in any evidence on how compliance varies across tenure, sector, new build vs existing build, geographical region, or other relevant subset of the building stock.

Suggestions for improvement

5.20. The wide coverage of EPCs is one of their major advantages and the reason they have been used for a number of additional policies. A good level of EPC coverage is important for some policies to be fully effective, for example PRS regulations. However, as discussed above, coverage may vary across the building stock.

5.21. The level of EPC coverage depends partly on when EPCs are required and how long they are valid for (see discussion of trigger points above), but also on the level of compliance with the requirement for an EPC. The evidence given above suggests that

---

[53] Ministry of Housing, Communities & Local Government, Energy Performance of Buildings Certificates in England and Wales: 2008 to March 2018, (viewed 31 May 2018)

[54] Ministry of Housing, Communities & Local Government 'English Housing Survey: Homes 2011' 2013 (viewed 31 May 2018) page 104 and Consumer Focus 'Room for improvement: The impact of EPCs on consumer decision making' 2011 page 9 and Department for Communities and Local Government 'English Housing Survey: Homes 2011' 2013 (viewed 31 May 2018) page 7

levels of compliance are significantly higher for buying than renting in the domestic market. Given the relatively low cost of EPCs, we would be interested in any evidence on the reasons for lack of compliance.

5.22. Some of the changes to EPCs suggested above may require thought as to how to ensure compliance, for example additional trigger points or 'nudge points'. Any changes to requirements on the information provided during the property purchase/rental process would also require changes to compliance.

Enforcement

5.23. The responsibility for enforcing the requirements of the Energy Performance of Buildings Regulations lies with the Trading Standards bodies of Local Weights and Measures Authorities (LWMA)[55]. Information collected by government on enforcement activity by LWMAs shows a mixed picture. It is for LWMAs to determine their approach to enforcement, based on local circumstances, local intelligence and priorities across the range of their enforcement responsibilities.

5.24. Enforcement is likely to be of greater importance with the introduction of Private Rental Sector (PRS) minimum standard in both the domestic and non-domestic sector, as the enforcement of PRS standards relies on the existence of an EPC. The cost of compliance with PRS minimum standards may give some landlords a greater incentive to avoid commissioning an EPC than at present.

5.25. One barrier to effective enforcement of the PRS minimum standard is the misalignment between the enforcement authorities for PRS and EPCs in some cases. In two-tier local authorities, housing or environmental protection teams in the lower tier authority are responsible for domestic PRS enforcement, but trading standards in the upper tier authority are responsible for EPC enforcement. PRS enforcement bodies cannot easily enforce the minimum standard regulations where no EPC has been commissioned for property, and, if they are a lower-tier authority, they will not have powers to enforce against a landlord who has not provided an EPC. We could therefore consider changing the enforcement requirements for EPCs to ensure they align across both sets of regulations, although this may require a change in legislation.

5.26. One possibility for improving compliance could be to put a greater obligation on estate agents and/or letting agents to ensure compliance with EPC requirements and to keep records on compliance. However, not all sold or let properties are advertised via an estate agent or let through a letting agent and these may already be less likely to comply with the requirement for an EPC.

5.27. All EPC accreditation schemes must have procedures in place to respond promptly and efficiently to customer complaints against their members. These include both internal and independent third party routes. However, schemes might also have a more formal role in identifying instances of non-compliance. We would be interested in views on this and, more broadly, on how enforcement could be improved and better aligned with incentives to increase compliance.

---

[55] Local Weights and Measures Authorities are local authorities that are responsible for enforcing national weights and measures legislation through their Trading Standards bodies. They are either unitary authorities (metropolitan boroughs, London boroughs and some shire councils) or the upper tier of two-tier local authorities (i.e. County rather than District Councils).

Compliance through other means

5.28. There may also be opportunities to improve compliance without making changes to enforcement by improving information or changing incentives.

5.29. We would be interested in suggestions as to how better advice can be provided to landlords to make them aware of their liabilities or to tenants to make them aware of both their rights and the benefits of a better EPC rating. We would also be interested in whether there might be a way of linking EPCs to other requirements on landlords, such as the Tenancy Deposit Scheme[56].

5.30. We would also be interested in suggestions as to how estate and letting agents might be encouraged to comply with the requirement to include EPC ratings in adverts, for example by providing them with better information or periodically requesting a statement that they are in compliance. Property comparison sites may also have a role in ensuring adverts have the necessary EPC data.

Call for Evidence questions

21. What evidence do you have on compliance with the requirement for providing an EPC when purchasing/letting a property, or the requirement to display the EPC rating in property listings. Does this differ by tenure type or by any other subset of the building stock? What evidence do you have on the reasons for lack of compliance with the requirement for an EPC?

22. What evidence do you have on what enforcement work is currently being done to ensure that EPCs are being produced?

23. Which of the suggestions provided above do you think would be effective in improving compliance with the requirement for an EPC, bearing in mind the other changes to EPCs being considered. Do you have any other suggestions? Please provide reasoning and any evidence you have to support your response.

Simple and low cost

How is the current system working?

5.31. The price of an EPC is set by the market and market demand. The cost varies according to a number of factors including the size, location and age of the building. Domestic EPCs cost roughly £50 to £60. For a non-domestic building the cost depends on the size of the building being assessed and the time taken to produce the EPC. In relation to the other costs of selling or letting a building these costs are relatively low, for example compared to estate agent or letting agent fees (the estate/letting agent may provide the EPC as a part of the service, but this is a minor component)[57]. We would be interested in any evidence on how reasonable consumers consider EPC

[56] For more details see https://www.gov.uk/tenancy-deposit-protection (viewed on 31 May 2018)

[57] A survey by Which? in 2011 found the national average in the domestic market was 1.8% of the value of the house + VAT. https://hoa.org.uk/advice/guides-for-homeowners/i-am-selling/how-much-should-i-pay-the-estate-agent/ (viewed on 8 June 2018). Moneysupermarket.com estimates that letting agents charge 10-15% of the rent. https://www.moneysupermarket.com/landlord-insurance/property-management-companies/ (viewed on 8 June 2018)

costs to be. We would also be interested in evidence on how easy it is to procure an EPC and whether there are any barriers other than cost.

Suggestions for improvement

5.32. There may be a concern that changes to EPCs will result in higher costs to the building owner of procuring an EPC, or more complexity in understanding what is required. For example, additional trigger points requiring a new EPC would mean additional costs to the building owner, or changes to improve EPC reliability and accuracy could increase costs. When considering any changes to the current process we would therefore need to take into account an appropriate balance between the benefits of the improvement and any increases to the complexity of the assessment, cost of lodging certificates or overall cost to the building owner. If a change is considered beneficial despite higher costs, this could be combined with other measures to streamline the current process and reduce costs.

5.33. It is possible that some of the suggestions already mentioned such as allowing an EPC assessor to use previous survey data, drawing in additional data sets, and EPC assessor apps with smart defaults could help streamline the EPC process and reduce costs, and we would be interested in views on this. We would also be interested in any other ideas for reducing the cost of EPCs or improving the current process whilst not increasing costs.

5.34. Finally, we would be interested in any further improvement suggestions not already covered in the Call for Evidence, and on views as to which of the suggestions so far discussed should be considered the most important to pursue.

Call for Evidence questions

24. What evidence do you have on costs of EPCs, how easy it is to procure an EPC or on consumer attitudes towards EPC costs?

25. Which of the suggestions provided above do you think would be effective in making the process of procuring EPCs easier or more affordable, bearing in mind the other changes to EPCs being considered. Do you have any other suggestions? Please provide reasoning and any evidence you have to support your response.

26. This Call for Evidence has outlined a number of options for making improvements to EPCs. Of the suggestions discussed in this document or which you have put forward, is there one or more you think is particularly important, or are there any other suggestions you have or comments you want to make about EPCs?

6 Next steps

6.1. Once the government has analysed responses to this Call for Evidence, we will publish a government response. Where potential changes would impact on Scotland and Northern Ireland we will share and discuss our findings with the devolved administrations in order to ensure that any changes proposed are not detrimental to the delivery of current obligations and reserved policy.

6.2. Some of the ideas set out in this Call for Evidence would require comprehensive changes and require considerable further development and consultation, while others would require less complex alterations and have the potential to be implemented sooner. The intention, therefore, is that this response will lay out a programme of work for the years to come, taking into consideration any broader developments.

Catalogue of Call for Evidence questions

	Call for Evidence question
1.	Have we captured all of the current uses of EPCs? Are there any existing or emerging uses we should be aware of?
2.	Do you agree that we have identified the key attributes for EPCs? Are there other important attributes we have not listed? Please indicate below how important you consider each attribute and provide details to explain your answer.
3.	Which attributes are important for which uses and why?
4.	What evidence do you have relating to the reliability of EPC assessments? Do you have any information on how reliability varies across different properties, and/or the likely sources of variation in assessments? It would be helpful to indicate how recent this is.
5.	Which of the suggestions provided above do you think would be effective in improving the reliability of EPC ratings? Do you have any other suggestions for improving EPC reliability? Please provide reasoning and any evidence you have to support your response.
6.	What evidence do you have on the accuracy of the models used to produce EPCs (SAP, RdSAP, SBEM, DSM) in comparison to other methods such as the co-heating test?
7.	Are you developing any kind of tool for measuring the energy performance of buildings (controlling for the effects of occupant behaviour) using smart meter data or other data, which could be relevant for EPCs?
8.	What evidence do you have on how the accuracy of EPCs could be improved using the tools and data sources outlined above, or through any other means? Do you have any views as to how these approaches could best be incorporated into the current EPC framework?

9.	What evidence do you have on how frequently people are likely to make updates to their properties which would change the EPC score?
10.	Which of the suggestions provided above do you think would be effective in ensuring that the information on EPCs is up to date? Do you have any other suggestions for ensuring EPCs remain up to date? Please provide reasoning and any evidence you have to support your response.
11.	Would you support introducing new EPC trigger points at any of the stages listed above (or any other stages)? What evidence do you have relating to the advantages and disadvantages of any of these trigger points?
12.	What evidence do you have on how useful the EPC recommendations are to consumers when they are considering making changes to a property? How effective are they at encouraging consumers to take action?
13.	Which of the suggestions provided above do you think would be effective in encouraging building owners to make appropriate energy performance improvements to their property? Do you have any other suggestions? Please provide reasoning and any evidence you have to support your response.
14.	What are your views on introducing operational performance ratings for non-domestic buildings, either on the EPC or separately?
15.	What evidence do you have on how useful the EPC rating and cost information are to consumers when purchasing or renting a property? Are consumers using information on the EPC to negotiate property prices or rents?
16.	Do you have any evidence on consumers' understanding of the energy efficiency rating used in EPCs? Do you think a different rating such as carbon emissions or primary energy would have a better impact for consumers?
17.	Which of the suggestions provided above do you think would enable prospective buyers and tenants to make more effective decisions based on the information on the EPC? Do you have any other suggestions? Please provide reasoning and any evidence you have to support your response.
18.	What evidence do you have on how easy it is to access EPC data or Open Data? If you are currently a user of the Open Data Communities website, what do you use the information for and how valuable is this website as a source of data?

19.	Which of the suggestions provided above do you think would improve the ability of building owners and other stakeholders to make effective use of EPC data? Do you have any other suggestions? Please provide reasoning and any evidence you have to support your response.
20.	How useful do you think a ‘data warehouse’, ‘building log book’ and/or ‘green building passport’ would be in increasing take up of energy efficiency improvements or supporting existing initiatives? What kinds of data might usefully be included in addition to EPC data and how could these proposals best be implemented? How might more comprehensive assessments be encouraged without making them a requirement for homeowners?
21.	What evidence do you have on compliance with the requirement for providing an EPC when purchasing/letting a property, or the requirement to display the EPC rating in property listings. Does this differ by tenure type or by any other subset of the building stock? What evidence do you have on the reasons for lack of compliance with the requirement for an EPC?
22.	What evidence do you have on what enforcement work is currently being done to ensure that EPCs are being produced?
23.	Which of the suggestions provided above do you think would be effective in improving compliance with the requirement for an EPC, bearing in mind the other changes to EPCs being considered. Do you have any other suggestions? Please provide reasoning and any evidence you have to support your response.
24.	What evidence do you have on costs of EPCs, how easy it is to procure an EPC or on consumer attitudes about EPC costs?
25.	Which of the suggestions provided above do you think would be effective making the process of procuring EPCs easier or more affordable, bearing in mind the other changes to EPCs being considered. Do you have any other suggestions? Please provide reasoning and any evidence you have to support your response.
26.	This Call for Evidence has outlined a number of options for making improvements to EPCs. Of the suggestions discussed in this document or which you have put forward, is there one or more you think is particularly important, or are there any other suggestions you have or comments you want to make about EPCs?

Annex 1: Example EPC

Energy Performance Certificate

HM Government

Dwelling type:	Mid-terrace house	**Reference number:**	
Date of assessment:	01 June 2018	**Type of assessment:**	RdSAP, existing dwelling
Date of certificate:	02 June 2018	**Total floor area:**	153 m²

Use this document to:

- Compare current ratings of properties to see which properties are more energy efficient
- Find out how you can save energy and money by installing improvement measures

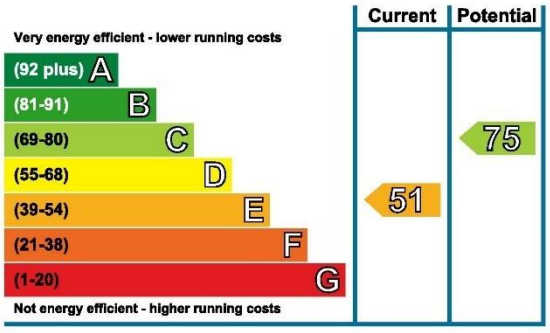
Estimated energy costs of dwelling for 3 years:	**£ 4,602**
Over 3 years you could save	**£ 1,632**

Estimated energy costs of this home

	Current costs	Potential costs	Potential future savings
Lighting	£ 255 over 3 years	£ 255 over 3 years	You could save £ 1,632 over 3 years
Heating	£ 4,065 over 3 years	£ 2,430 over 3 years	
Hot Water	£ 282 over 3 years	£ 285 over 3 years	
Totals	**£ 4,602**	**£ 2,970**	

These figures show how much the average household would spend in this property for heating, lighting and hot water and is not based on energy used by individual households. This excludes energy use for running appliances like TVs, computers and cookers, and electricity generated by microgeneration.

Energy Efficiency Rating



The graph shows the current energy efficiency of your home.

The higher the rating the lower your fuel bills are likely to be.

The potential rating shows the effect of undertaking the recommendations on page 3.

The average energy efficiency rating for a dwelling in England and Wales is band D (rating 60).

The EPC rating shown here is based on standard assumptions about occupancy and energy use and may not reflect how energy is consumed by individual occupants.

Top actions you can take to save money and make your home more efficient

Recommended measures	Indicative cost	Typical savings over 3 years
1 Room-in-roof insulation	£1,500 - £2,700	£ 744
2 Internal or external wall insulation	£4,000 - £14,000	£ 744
3 Floor insulation (suspended floor)	£800 - £1,200	£ 147

See page 3 for a full list of recommendations for this property.

To find out more about the recommended measures and other actions you could take today to save money, visit www.gov.uk/energy-grants-calculator or call **0300 123 1234** (standard national rate). The Green Deal may enable you to make your home warmer and cheaper to run.

Summary of this home's energy performance related features

Element	Description	Energy Efficiency
Walls	Solid brick, as built, no insulation (assumed)	★☆☆☆☆
Roof	Pitched, no insulation (assumed)	★☆☆☆☆
	Roof room(s), no insulation (assumed)	★☆☆☆☆
Floor	Suspended, no insulation (assumed)	—
Windows	Mostly secondary glazing	★★★☆☆
Main heating	Boiler and radiators, mains gas	★★★★☆
Main heating controls	Programmer, room thermostat and TRVs	★★★★☆
Secondary heating	Room heaters, mains gas	—
Hot water	From main system	★★★★☆
Lighting	Low energy lighting in all fixed outlets	★★★★★

Current primary energy use per square metre of floor area: 280 kWh/m² per year

The assessment does not take into consideration the physical condition of any element. 'Assumed' means that the insulation could not be inspected and an assumption has been made in the methodology based on age and type of construction.

Low and zero carbon energy sources

Low and zero carbon energy sources are sources of energy that release either very little or no carbon dioxide into the atmosphere when they are used. Installing these sources may help reduce energy bills as well as cutting carbon. There are none provided for this home.

Your home's heat demand

For most homes, the vast majority of energy costs derive from heating the home. Where applicable, this table shows the energy that could be saved in this property by insulating the loft and walls, based on typical energy use (shown within brackets as it is a reduction in energy use).

Heat demand	Existing dwelling	Impact of loft insulation	Impact of cavity wall insulation	Impact of solid wall insulation
Space heating (kWh per year)	20,672	(2,715)	N/A	(3,982)
Water heating (kWh per year)	2,098			

You could receive Renewable Heat Incentive (RHI) payments and help reduce carbon emissions by replacing your existing heating system with one that generates renewable heat, subject to meeting minimum energy efficiency requirements. The estimated energy required for space and water heating will form the basis of the payments. For more information, search for the domestic RHI on the www.gov.uk website.

Recommendations

The measures below will improve the energy performance of your dwelling. The performance ratings after improvements listed below are cumulative; that is, they assume the improvements have been installed in the order that they appear in the table. Further information about the recommended measures and other simple actions you could take today to save money is available at www.gov.uk/energy-grants-calculator. Before installing measures, you should make sure you have secured the appropriate permissions, where necessary. Such permissions might include permission from your landlord (if you are a tenant) or approval under Building Regulations for certain types of work.

Recommended measures	Indicative cost	Typical savings per year	Rating after improvement
Room-in-roof insulation	£1,500 - £2,700	£ 248	D59
Internal or external wall insulation	£4,000 - £14,000	£ 248	D66
Floor insulation (suspended floor)	£800 - £1,200	£ 49	D68
Solar photovoltaic panels, 2.5 kWp	£5,000 - £8,000	£ 289	C75

Opportunity to benefit from a Green Deal on this property

Green Deal Finance allows you to pay for some of the cost of your improvements in instalments under a Green Deal Plan (note that this is a credit agreement, but with instalments being added to the electricity bill for the property). The availability of a Green Deal Plan will depend upon your financial circumstances. There is a limit to how much Green Deal Finance can be used, which is determined by how much energy the improvements are estimated to **save** for a 'typical household'.

You may be able to obtain support towards repairs or replacements of heating systems and/or basic insulation measures, if you are in receipt of qualifying benefits or tax credits. To learn more about this scheme and the rules about eligibility, call the Energy Saving Advice Service on **0300 123 1234** for England and Wales.

About this document and the data in it

This document has been produced following an energy assessment undertaken by a qualified Energy Assessor, accredited by Elmhurst Energy Systems Ltd. You can obtain contact details of the Accreditation Scheme at www.elmhurstenergy.co.uk.

A copy of this certificate has been lodged on a national register as a requirement under the Energy Performance of Buildings Regulations 2012 as amended. It will be made available via the online search function at www.epcregister.com. The certificate (including the building address) and other data about the building collected during the energy assessment but not shown on the certificate, for instance heating system data, will be made publicly available at www.opendatacommunities.org.

This certificate and other data about the building may be shared with other bodies (including government departments and enforcement agencies) for research, statistical and enforcement purposes. Any personal data it contains will be processed in accordance with the General Data Protection Regulation and all applicable laws and regulations relating to the processing of personal data and privacy. For further information about this and how data about the property are used, please visit www.epcregister.com. To opt out of having information about your building made publicly available, please visit www.epcregister.com/optout.

Assessor's accreditation number:
Assessor's name:
Phone number:
E-mail address:
Related party disclosure:

There is more information in the guidance document *Energy Performance Certificates for the marketing, sale and let of dwellings* available on the Government website at: www.gov.uk/government/collections/energy-performance-certificates. It explains the content and use of this document, advises on how to identify the authenticity of a certificate and how to make a complaint.

About the impact of buildings on the environment

One of the biggest contributors to global warming is carbon dioxide. The energy we use for heating, lighting and power in homes produces over a quarter of the UK's carbon dioxide emissions.

The average household causes about 6 tonnes of carbon dioxide every year. Based on this assessment, your home currently produces approximately 7.6 tonnes of carbon dioxide every year. Adopting the recommendations in this report can reduce emissions and protect the environment. If you were to install these recommendations you could reduce this amount by 3.9 tonnes per year. You could reduce emissions even more by switching to renewable energy sources.

The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO_2) emissions based on standardised assumptions about occupancy and energy use. The higher the rating the less impact it has on the environment.

Annex 2: The current EPC system

EPCs are produced by an EPC assessor, who must have completed approved EPC training and be accredited by an EPC accreditation scheme. The accreditation scheme carries out periodic audits of its members to ensure compliance.

The EPC assessor carries out a survey of the building in question and enters the relevant data into approved EPC software in order to produce the EPC. They also log survey data such as the measurements, floor plans and photos they have used as evidence for quality assurance and audit purposes, which is held by the accreditation scheme.

The EPC software uses a building modelling method to produce a rating and recommendations from the data provided. EPC models make use of standardised data sets covering a pre-existing list of technologies with data on their energy performance. If technologies are not covered by the list, a generic default score is used for that building component.

Domestic EPCs for new buildings use the Standard Assessment Procedure (SAP) which is the methodology used by the government to assess and compare the energy and environmental performance of dwellings and underpins a number of energy and environmental policy initiatives, including building regulations. However, for existing domestic buildings not all data may be available to complete a SAP assessment, so a reduced data SAP (RdSAP) EPC is produced which makes certain assumptions based on the age and observable characteristics of the building. Non-domestic buildings use a separate model, either the Simplified Building Energy Model (SBEM) or for more complex buildings the Dynamic Simulation Model (DSM), which can take account of the features of non-domestic buildings.

The EPC software produces an EPC .xml file which is ‘lodged’ on the centralised EPC register, resulting in the final EPC certificate which can be downloaded as a PDF. Most of the information lodged on the register appears on the EPC certificate, but some is kept private, for example assessor personal details.

When a building is sold or let, the vendor or landlord is legally required to have commissioned an EPC, the EPC rating must be displayed in any advertising, and the new owner or tenant must be provided with the EPC. For newly constructed buildings, an EPC must be produced when construction of the building has been completed.

EPC information can be accessed in two ways. Individual EPCs can be found on the register website by entering the EPC reference number or postcode of the property. Bulk data on EPCs can also be downloaded as a .csv file from the Open Data website, under certain conditions of use.

Department for Business, Energy & Industrial Strategy
www.gov.uk/beis